

Information with High and Varied Solidities and measurements by using techniques for attribute selection and Density Entropy

Akhila Bezawada , Dr.D.V. Lalita Parameswari
PG Scholar, Dept. of CSE, GNITS, Hyderabad, India. Email: akhilabezawada@gmail.com,
Sr. Asst. Prof. Dept. of CSE, GNITS, Hyderabad, India. Email: dylalita@gnit.ac.in

Abstract: Conglomerating of information with high measurement and variable densities represents a momentous test to the customary density-based clustering algorithms. As of late, entropy, a numerical proportion of the vulnerability of data, can be utilized to quantify the outskirts level of tests in information space and furthermore select critical highlights in list of capabilities. It was utilized in our new structure dependent on the Sparsity Thickness Entropy (SDE) is used to group the information with high measurement and variable densities. To start with, SDE leads brilliant way for inspecting the multidimensional information and chooses the delegate highlights utilizing sparsity score entropy (SSE). Second, the bunching results and commotions are acquired embracing another thickness variable grouping technique called Density entropy (DE). DE naturally decides the outskirts set dependent on the worldwide least of fringe

degrees and after that adaptively performs group investigation for every neighborhood bunch dependent on the nearby least of outskirts degrees. The adequacy and productivity of the proposed SDE structure are approved on engineered and genuine informational indexes in examination with a few conglomerating calculations. The outcomes demonstrated that the proposed SDE can simultaneously distinguish noises and prepare the information with high measurement and different densities.

Key Words: Variable densities, high dimensions, sparsity score entropy, density entropy.

1. Introduction: Information grouping is a standard amongst the most generally strategies in information mining, which has wide applications as example acknowledgment, picture handling, and information pressure, among others [1]. Bunching calculations can be isolated into five classifications: density based

ANALYSIS OF HEART DISEASE PREDICTION USING MACHINE LEARNING TECHNIQUES

Samira Nazeer¹, Mrs. R. Pallavi Reddy²

¹PGScholar, Dept. of CSE, GNITS, Hyderabad, India. Email¹: Nazeer.samira@gmail.com

²Asst. Professor, Dept. of CSE, GNITS, Hyderabad, India. Email²: reddygaripallavi@gmail.com

ABSTRACT: Heart disease is one of the primary origins of death everywhere in the world and it's a vital to predict the disease at a premature phase. The computer support systems assist the doctor as a tool for predicting and detecting the heart disease. The desire is to predict the heart disease based upon the framework. The look for high risk factors developing the heart disease is resolved by using machine learning algorithms. The medication amount of heart disease is not affordable by most of the patients. The problem can be resolved by using Heart Disease Prediction System (HDPS). The premature detection of heart disease is beneficial.

KEYWORDS: HDPS (Heart Disease Prediction System), Health Records.

INTRODUCTION

A clinical function is used to determine set of unusual conditions that involve remarkably incremented risk of heart disease. Machine learning Algorithms work to generate large-scale outcome based on risk factors and symptoms defined. In order to predict and resolve the heart disease, a computer support system assists the doctor. The medicinal field is trading with massive information. The prediction system assists to decrease the risk factors of heart disease. Prediction is concluded based upon the present day information given to the system. For building Heart Disease Prediction System a Microsoft Visual Studio tool is utilized. The computer-based specification and the decision support system are predicted to decrement the amount in scientific investigation. The risk factors associated with the heart disease instruct the medicinal service and also assist to look ahead to investigate the patient's health condition. The Statistical inspection

determine the risk factors related to the heart disease such as weight level (current month and past month), cholesterol level, background of heart disease, blood pressure (systolic/diastolic), waist circumference and Urinary level. Heart disease can be enhanced by performing positive transformation in way of nutrition.

The following evolution can assist to enhance heart disease.

- ✓ Stop smoking
- ✓ Manage blood pressure
- ✓ Review diabetes under control
- ✓ Eat nutritious food
- ✓ Review cholesterol

Diagnosis attribute is proclaimed as predictable attribute with the equivalent (1), for the patients "acquiring the heart disease", and the equivalent (0) for the patients with "no heart disease". Patient's enquiry is employed as verification and the last attribute is the result and remaining are input attributes. Doctor allots the patient's medical data based upon the factors produced and the

BLOOD CELL IMAGE DIAGNOSING USING CNN AND M-SVM

E. RAMYA CHOWDARY, K. SINDHUHA

PG Scholar, Dept. of CSE, GNITS, Hyderabad, India. Email: ramyachowdary542@gmail.com
Asst. professor, Dept. of CSE, GNITS, Hyderabad, India. Email: sindhuhakhydel@gmail.com

ABSTRACT

The blood related diseases involve the identification and characterization of patient's blood sample. There are automated methods for detecting and classifying the types of blood cells having important medical applications. The system has convolutional neural network(CNN) and its traditional machine learning methods have shown good results in the classification of blood cells images, they are unable to fully exploit the long-range dependence relationship between certain key features of picture and their labels. To transfer the weight parameters the unsupervised learning method that were pre-trained on ImageNet dataset to the CNN network and adopted a custom loss function to allow the network to train and converge faster with more accurate weight parameters. Experimental results will show that which network model is more accurate and efficient in classifying blood cell images. The analysis of blood cells, in magnified pictures will give helpful information regarding the health of patients. There are three major types blood cell, erythrocytes (red), leukocytes (white), and platelets. Manual classification is time intensive and liable to error because of the various morphological options of the cells. This system presents an intelligent system that simulates a human visual inspection and classification of the three blood cell types. This system comprises two phases. The features of blood cells are extracted through global pattern averaging in the image pre-processing phase, and the training is done first and then classification is carried out in the neural network activation phase. Experimental results suggest that SVM method performs better in identifying blood cell, regardless of their size, irregular shapes and orientation, thus providing a fast, efficient and simple scale and rotational invariant blood cell identification system which can be utilized in automation laboratory coverage.

Keywords: Blood cell subtype, Image classification, supervised learning, Self label algorithms, etc.

1. INTRODUCTION

It is known that blood cells are of different types which include red blood cell, white blood

cells platelets. Leukocyte plays an important role in the human immune system and is also called as immune cell of the body. The granulated shape and information of the leukocyte is divide into blood cells into granular cells like eosinophil, neutrophil, basophile and non-granular cells: lymphocyte and monocyte is usually used by hematologist. The proportions of these cells in the blood is different for different people and different disease. Experts generally use these basic data to determine the type and disease. Hence the white blood cell classification has a significance and value for medical diagnosis the bleeding in the body in the form of blood clotting. It can detect any damage in the blood vessels. Red blood cells are (key which are also important in the body to carries fresh oxygen to the overall body over respiratory system in the body from infections. (BCD (Blood Cell Count and Detection) dataset (small scale dataset for blood cell detection) is used and processed the dataset, which then turn it into 2,444 blood cell-enhanced images (comprising 9,957 training data and 2,487 test data). In this dataset, the blood cells into 4 different types, namely, monocyte, lymphocyte, and eosinophil and neutrophil.

Counting and detection of WBC in blood samples were also presented through computer-aided and mobile-cloud-assisted blood analysis. Plate counting is usually done manually but a recent study showed that this process can be done through Circular Hough Transform in a microscopic blood cell images in the system CNN(Correlational Neural Network) and M-SVM(Support vector machine) are used for classifying the images. Once the classification of the images is done with both supervised learning techniques are completed then the comparison is done with the accuracy values and check which technique gives the better results. UI Model (User Interface Model) is generally used to represent how the user interact with hardware device or other devices and even check how the device responds to the user. Here in our system UI Model is used to select the images from the system and display both the techniques simultaneously and show the results on single screen instead of a separate small. Biomedical image Convolutional neural networks. Neurons are like local clustering of the receptive input space, and are well-organized to achieve the

An Energy Aware Strategy for Distributed Cache Discovery with Stale Page Reduction



Y.J.Sodha Rani, M.Seetha

Abstract With the immense growth in the field of mobile communication, a good number of complex applications are now available for the mobile devices. The complex applications are made available to comply with the client demand for the higher performing and higher capable applications which can be accessible from any locations and any devices. Thus, the application developers have attempted to make highly scaled applications to be deployed on mobile communication devices. The larger applications have higher demand for memory and processing capabilities. Thus, making the similar infrastructure available on the mobile computing environments was always a challenge. Nevertheless, with the availability of distributed computing architecture, the bottleneck for the computing capabilities for these complex applications can be handled. Nevertheless, the memory capabilities for the applications must be addressed more sophisticated manner using distribution of the memory and sharing of the data. Henceforth, distributed caching came under existence. A cached cache is an augmentation of the customary idea of cache utilized in a solitary district. A cached cache may address various queries with the goal that it can develop in size and in value-based limits. It is for the most part used to save application information living in database and web service information. One of the most popular technique for making the cache available is to perform cache discovery operations in the network. A number of parallel research attempts are made to identify the accurate place in the network to create or build the distributed cache network. However, the most of the parallel research attempts are criticized for considering single dimensions for cache discovery as few of the work focuses on distance, few of the work focuses on density and some of the work focuses on page replacement policies applicable on mobile computing environments as MANETs or WLN. Henceforth, the demand of the research is to consider multiple parameters for cache discovery and build a framework to automatically define the cache distribution. Hence, this work proposes a novel architecture or framework to detect the cache distribution based on distance, stale page reduction mechanism and finally the energy optimization. The outcome of the research is to automate the recommendation of cache discovery and increase the network life time by 30% compared to the existing methods for cache discovery. In order to handle the complex processing of the proposed algorithms, this work deploys machine learning methods to reduce the time complexity.

Index Terms Cache Management, Stale Page, MANET Caching, Distributed Cache, Cache Data Pattern Analysis, Cache Stale Data Replacement, Energy Aware Caching

I. INTRODUCTION

The enhancement in the repetitive allocation of the data for any MANET architecture has become the most vital scope for the research. Bound by the limitations of the mobile communication device, the primary objective is to increase the data storage capacity for the mobility devices. Also, the mobile devices suffer from frequent disconnection from the network due to the higher distribution of the networks. Henceforth, the researchers have aimed to increase the cache cooperation by deploying various methods for cache data management.

The notable outcome from the research method proposed by G. Kanzer et al. [1] have furnished the demand of mobility awareness in the cache management strategies. The location awareness of the mobility devices cannot be stable for all the regions or for all routing types or for all application demands, hence the cache management must be location specific. The work of K. Tramm et al. [2] have demonstrated the benefits from location dependent cache management schemes. The location dependencies must also be considered for the affinity of the applications deployed on the network. The work by S. Lee et al. [3] ensures this principle.

Henceforth, considering the recent research factors, it is the demand for the research to address the following problems.

- Firstly, Analyse the distributed caching demands for routing algorithms in MANETs.
- Secondly, Propose a novel distributed caching framework with stale page reduction mechanism and reduction of framework complexity.

Thus, this work builds the solution towards these identified problems.

The rest of the work is organized such that in the Section - II, the fundamental distributed cache discovery method is analysed, in the Section - III, the recent research outcomes are analysed, in the Section - IV the problem is mathematically formulated, the Section - V defines the novel proposed algorithms, in the Section - VI the results obtained from the proposed algorithms are discussed and finally the continuation of the research is presented in the Section - VII.

II. FUNDAMENTALS OF DISTRIBUTED CACHE DISCOVERY

In this section of the work, the fundamental strategies for cache discovery for MANET architecture is discussed. MANET may work as independent style, or they can be the piece of the bigger web.



Received Manuscript Accepted for November 16, 2019

* Corresponding Author

Y.J.Sodha Rani*, Research Scholar, PCCOER, Palamuru, Chittoor, India.

Dr. M.Seetha, 1976, Professor, O. Srinivasanna Institute of Technology, Sri Sathya Sai Institute of Higher Learning, India.

© The Authors. Published by Blue Cross Institution, Palamuru and Science Publication (BICSP). This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Automated Medical Diagnosis for Colon Cancer & Chronic Kidney Disease

Miss.P.Ooha¹, Mrs.Dr.Nara Kalyani²

¹M.Tech (CSE), G.Narayanaamma Institute of Technology and Science, Hyderabad

²Professor, Department of CSE, G.Narayanaamma Institute of Technology and science, Hyderabad

Abstract - Health problems are becoming more common than ever in world today. Early detection of health abnormalities helps to improve the lifestyle. The project aims to design a 'Automated Assistance for Medical Diagnosis' which is a tool developed by using Rule based matching algorithm to predict illness based on patient symptoms and test results. Various Machine learning algorithms are implemented to get accurate results in detection of level of disease. This project aims at identifying the chronic kidney disease & Colon Cancer based on Patients Symptoms and test results. After the diagnosis it will finally generates a report, containing the results of analysis.

Key Words: PythonQT, SQLite server, Pywin(UI).

1. INTRODUCTION

Healthcare is a formidable challenge and therefore a significant opportunity of the century. Access to human expertise in the field of healthcare is clearly unable to scale up to the need. There is a huge world population segment that does not have access to proper healthcare. World medical infrastructure is unfortunately not able to meet this primary humanitarian objective. One of the primary ones for its failure is the cost and availability of medical expertise. We therefore need an automated way of supplementing the healthcare system. Chronic kidney disease (CKD (also called chronic renal disease)) is a condition in which kidneys gradually lose their function. If the kidney does not function properly, this could cause waste and excess fluid accumulation in the body, affecting its functionality, and potentially leading to complications. The illness can advance to end-stage renal disease (complete kidney failure). This occurs when function of the kidney is worsened to a point where dialysis or renal transplantation is necessary for survival.

Chronic kidney disease (CKD) is the gradual and permanent loss of kidney function over time, usually over the course of months or years. The most common causes of chronic kidney disease also known as chronic renal disease — are diabetes and high blood pressure. Approximately 3.6 million individuals in US have chronic kidney disease and millions of others are at risk of developing the disease.

Colon cancer, also known as colorectal cancer, is the second-leading cause of cancer deaths in both men and women. Colon cancer is cancer of the big intestine (colon), which is the final part of your digestive tract. Most cases of colon cancer begin as small, noncancerous (benign) clumps of cells

called adenomatous polyps. Over time some of these polyps can become colon cancers.

According to the Centers for Disease Control (CDC), 51,785 Americans died from colon cancer during last year.

2. LITERATURE SURVEY OF VARIOUS PAPERS

As per Elizabeth Palermo, Chronic kidney disease (CKD) is the gradual and permanent loss of kidney function over time, usually over the course of months or years. Kidneys are responsible for filtering waste from the body. When these organs stop functioning properly, waste builds up to high levels in the blood, which can make a person feel sick[4]. Over time, other health complications can develop as a result of decreased kidney function, including high blood pressure, anemia (depressed red blood cells), weak bones, poor nutritional health and nerve damage, according to the National Kidney Foundation. The most common causes of chronic kidney disease — also known as chronic renal disease — are diabetes and high blood pressure, which are responsible for up to two-thirds of all cases of the disease, according to Dr. Joseph Vassalotti, chief medical officer for the National Kidney Foundation (NKF)[5]-[7]. These health conditions damage the kidneys' small blood vessels, diminishing that organ's ability to filter metabolic waste from the blood. "As kidney disease advances and kidney function declines, the likelihood of high blood pressure increases. So kidney disease can be caused by high blood pressure, but high blood pressure can also complicate kidney disease from other causes," as per Vassalotti.

However, early detection can help prevent the progression of kidney disease to kidney failure, according to the National Kidney Foundation. With good care, fewer than 10 percent of diabetics develop CKD, according to the National Institutes of Health (NIH). Signs & symptoms CKD is sometimes called a "silent disease." Patients rarely feel sick until their kidney disease is advanced. While diabetes and high blood pressure are the leading causes of CKD, natural aging also puts people at an increased risk of developing this chronic disease, according to Vassalotti. "As we age, we tend to lose kidney function — especially over age 50, and usually in men more so than in women. Also as we age, we're more likely to develop Type 2 diabetes and high blood pressure," Vassalotti said. Most kidney diseases do not have a specific drug treatment, according to Vassalotti, who said that the first goal in treating kidney disease is to address the underlying causes of the disease and stop the disease from progressing. This

A FRAMEWORK FOR SECURE AND COMPETENT CLOUD STORAGE SERVICE USING AN AUDITING TECHNIQUE

¹ K.L.Ravali , Ch.Radhika ²

¹ PG Scholar, Dept. of CSE, GNITS,Hyderabad,India.Email:|ravalikiranobhote@gmail.com

² Asst. Professor, Dept. of CSE,GNITS, Hyderabad, India.Email:|chuckkalapulliradhika@gmail.com

ABSTRACT: Cloud computing enables users to store and process their information in distant cloud places. Accompanying the fast implementation of cloud services is enhanced information volumes. Due to the advancement in networking methods, the important shift in information-based services has occurred. The work presented in this thesis is motivated by the issue of an enormous rise in information volume and cloud data integrity. Secure deduplication and integrity auditing methods are used to resolve these issues. The main contribution of the thesis is a combined model which supports two functions. They are secure deduplication of encrypted data and public integrity auditing of data. This scheme performs Proof of Ownership (POW) for secure deduplication and integrity auditing based on Homomorphic Linear Authenticator (HLA) designed by using BLS signature. The model satisfies security objectives and efficient than existing schemes.

Keywords: cloud storage, key-generation, encryption, secure deduplication, third party auditor

1.INTRODUCTION

Cloud Storage is a cloud computing system in which information is stored on remote servers accessed from the web or "cloud." The increasing popularity of cloud services is leading people to store their data

to the Internet. It is the largest innovation that utilizes sophisticated computing power. Evolution of networking techniques strikes the change in the cloud storage services in the form of increase in data on cloud

ANALYSIS OF QUESTION PAPER BASED ON BLOOMS TAXONOMY

I. Shreya¹, V. Divya Raj²

¹PG Scholar, Dept. of CSE, GNITS, Hyderabad, India Email:ishreya1096@gmail.com

²Asst. Professor, Dept. of CSE, GNITS, Hyderabad, India Email:divyaraj.vavilala@gnits.ac.in

ABSTRACT

Bloom's taxonomy intended to classify learning skills in six levels: knowledge, comprehension, application, analysis, synthesis and evaluation was proposed by Bloom in 1956. Revision of the same by Anderson and Krathwoh in 2001 made it more dynamic conceptual classification for teaching, learning and assessment. There have been several efforts to apply the Bloom's taxonomy for course design, comparing the cognitive difficulty levels and structuring assessment. Cognitive domain in Bloom's taxonomy is designed to verify the cognitive level of the learner/disciple. A manual classification/ selection of questions for assessment purpose based on Bloom's taxonomy is not only difficult but also prone to mistakes, number of attempts were made to develop systematic and automatic methods to select the questions by deploying the ever growing computer knowledge.

Most of these early attempts suffered from one or the other limitations such as non-standardization, representation of reality, synonyms etc. However, recent approaches to achieve automation of Bloom's taxonomy based question papers for any examination have largely overcome most of these limitations. One such attempt is an automated tool for Bloom's taxonomy developed by Reddy, which not only enable to design question at different cognitive levels, but also useful to update the questions to another cognitive level. The present paper is an attempt to assess the efficacy of Bloom's Taxonomy Tool (BTI), that essentially deployed the tools of Reddy to analyze a given set of questions as per Bloom's taxonomy levels. A sample set of 10 term exam question papers of undergraduate courses was selected to test the efficacy of BTI for analyzing each set into BT levels. The results have shown clear spread of questions into different BT levels. All question papers except two were more or less balanced in terms of their distribution in first 3 BT levels and last 3 BT levels. The need to expand the scope of the BTI to automatic selection of balanced questions based on predetermined weights is indicated.

Data Mining and Cluster Based Machine Learning in Mobile Online Social Networks using Spice

Miss. Sushma Sri Enapanuri¹, Mrs. Jayashree S Patil²

¹M.Tech(CSE), G. Narayanaamma Institute of Technology and Science, Hyderabad

²Associate Professor, Department of CSE, G. Narayanaamma Institute of Technology and Science, Hyderabad

Abstract. To distribute the content and information among the people mobile Online Social Networks (OSNs) are emerging as the most popular platform. With the universal distribution and demand of wireless communication, more and more users are using online social networking resources in wireless telephone devices. Hence, to reduce the access delay and improve quality of experience support to attain mobile user's fulfillment in the media content prefetching, a socially-driven learning based framework called Spice has been proposed.

The Spice framework is estimated to attain high-performance with high access delay reduction at the low cost of cellular data and energy consumption. A speed-up over the local data training execution on smartphones is also expected by enabling the users to offload their machine learning procedures to a cloud server.

Key Words: Mobile computing, online social network, multimedia applications, quality of experience.

1. INTRODUCTION

The Online Networking stage where every single unique individual can associate with others through their cell phones and various contraptions is known as portable online informal organizations (OSNs). The social correspondence plots, for example, Facebook and Twitter have made portable applications to give constant access to web from wherever. So OSNs for example, facebook and twitter are filling in as the stage for social collaboration. They are emerging as the exceptionally popular terrace so as to share the substance and data among the individuals. As the versatile web has step by step created from exclusive portable advances and systems to Internet versatile access, the distinction has changed to two kinds: 1. Web - based social networks: It extended the mobile access through mobile browsers and smartphone apps. 2. Native mobile social networks: It focuses on mobile usage such as mobile communication, location based services and augmented reality.

It was accounted for that these days 68% of the OSN administration utilizations happen on cell phones and on a normal, a client burns through 11 hours 23 minutes every day utilizing OSN administrations. Generally, 52% and 47% of the client's gets news from twitter and facebook and so forth, subsequently, OSNs are showing up as the standard channel for data and substance sharing.

With the expanding notoriety and use of OSNs, there are a portion of the key components for the breakdowns of versatile customer's satisfaction in devouring media content:

1. Access delay
2. High wireless connection establishment latency
3. Long roundtrip time of data transmission

Some other factors include,

- Time varying network quality and
- Sporadic network availability, which leads to fluctuating connection.

To beat this an emphatically engaging and promising methodology called Prefetching i.e. to download the media content sooner than client's utilization at whatever point there is a likelihood for the greatest bit of leeway. This can diminish the access delay, saving both energy and information traffic utilization.

For the imitation of improving the forecast exactness of media content prefetching in OSNs on cell phones, a structure of EarlyBird was proposed. The real want is to coordinate tweet preparing properties into a model called direct relapse for accomplishing expectation by tuning the client's OSN utilization design. The crucial responses of the earlybird model are that: it has not contributed sufficient examination for social effect among the clients, which assumes a basic job in media content utilization in OSNs.

II RELATED WORK

Prefetching-Based Mobile Dictionary

To explain the prefetching effect, we describe each working procedure is described in two different cases. In the first case, the prefetch technique is not used and in the second case the prefetching technique is used. During the first case assuming that a user wants to know the meaning of the word w_1 in the dictionary. If the user inputs w_1 into the mobile, then the server will return the result r_1 for w_1 to the mobile. Next, if the user requests the meaning of w_2 in the same way, the server will return the result r_2 for w_2 to the mobile. Likewise, if the prefetching is not used, the mobile device needs to access the dictionary server for every word, and it causes frequent roundtrips.

Intelligent Prediction of Lung Cancer Via MRI Images using Morphological Neural Network Analysis

T. Shravya¹, T. Rajesh²

¹PG Scholar, Dept. of CSE, G.Narayanamma Institute of Technology & Science, Hyderabad, India.

²Asst. Professor, Dept. of CSE, G.Narayanamma Institute of Technology & Science, Hyderabad, India.

Abstract: The main objective of this project is to assist clinicians to efficiently identify the Lung Cancer via fivecasting analysis by using Morphological Neural Network (MNN) Classification with Image Pruning Methodology. In image processing domain, the complex task to analyze and rectify is cancer estimation and prediction. When compared to tumor estimations, cancer estimations are more complex because these are purely cell-based paradigms and usually not clear to analyze, especially this system focus on lung cancer and its strategies. A new methodology is required to classify these kind of cancer cells and hence Morphological Neural Network Classifier with Image Pruning Scheme is introduced to efficiently classify the cancer cells and mark out the affected region more efficiently. Lung cancer is one of the prevalent diseases in human and can be diagnosed using several tests that include CT scans, MRI scans, biopsy and so on. Over the years, the use of machine learning and artificial intelligence techniques has transformed the process of diagnosing lung cancer. However, the accurate classification of cancer cells is still a medical challenge faced by researchers. Difficulties are routinely encountered in the search for sets of features that provide adequate distinctiveness required for classifying breast tissues into groups of normal and abnormal. Therefore, the aim of this approach is to prove that the MNN algorithm is more efficient for diagnosis, prognosis and prediction of lung abnormality, which is basically derived from two classical algorithms called Morphological Image Processing and Artificial Neural Network (ANN) with Image Pruning.

Keywords: lung cancer, image pruning, morphological neural network, image binarization and segmentation.

1. INTRODUCTION

Due to large prevalence of smoking and air pollution around the world, lung cancer has emerged as a common and deadly disease in recent decades. It often takes long time to develop and most people are diagnosed with the disease within the age bracket 55 to 65. Early identification and treatment is the best available option for the infected people. Reliable identification and classification of lung cancer requires pathological test, namely, needle biopsy specimen and analysis by experienced pathologists. However, because it involves human judgment of several factors and a blend of incidents, a decision support system is desirable in this case.

Recent developments in image processing, pattern recognition, dimensionality reduction and classification methods has paved the way for alternate identification and classification approaches for lung cancer. A number of machine learning (ML) algorithms including artificial neural network, support vector machine, discriminant analysis, decision trees and ensemble method tells about the classification of lung cancers through image processing and pathological identifiers.

In addition to these ML approaches, deep learning through restricted Boltzmanns storage device in the form of autoencoders has shown promising success in classification tasks in different domain including acoustics, sentiment classification, and image and text recognition. Inspired by the positive outcome of deep learning in relevant fields, a deep learning based classification method is investigated in this work. The endorsement to this work is of two folds. Firstly, the proposed methods can surpass the existing works on small dataset for lung cancer classification.

Secondly, architecture of deep auto-encoder network for lung cancer classification is proposed which outperforms other methods and also show that the performance improvement is statistically significant. The most common cancers that lead to death are lung, prostate, breast and colon cancer. They represent 46% of all deaths due to cancer and pulmonary tumor is in charge for more than a quarter (27%) of all cancers. In developed countries, lung cancer patients have a 10 up to 16% chance of having a five-year survival rate. Nevertheless, early detection of lung cancer, through computed tomography (CT) can help in improving the patient's survival rate, inasmuch that the five-year survival rate increases to 70%.

The medical specialist first identifies the pulmonary nodules from a CT or MRI scan, and then makes a possible prediction dependent on the nodule morphology assessment including the clinical context. However, he often has to analyze a huge number of nodules and make a prognosis quickly, and such tasks become burdensome under these circumstances. The author

Article

Regrettable Online Optimization for Workflow Scheduling in Cloud Computing

December 2022 | [regrettableonlineoptimizationforworkflow scheduling in cloud computing](#) | DOI: 10.52832/2474.14500040

DOI: 10.52832/2474.14500040

Authors:

C. Rajendrakumar (India) S. Hitesh Kumar

[Request a quote](#) [Download abstract](#) [Copy link](#)

To read the full-text of this research, you can request a copy directly from the authors.

Details (1) | Abstract (1)

Abstract:

Cloud computing is the emerging technology, that offers an exciting scenario to the customer with the flexible resources in the cloud environment. When the multiple users request service from the cloud server, there is a need of the proper scheduling of the resources to ensure good customer satisfaction. Therefore, the paper proposes the Regrettable Online Optimization (ROO) algorithm for efficient scheduling in the cloud computing environment. ROO is the metaheuristic algorithm, which schedules the task depending on a fitness function. Here, the fitness function is defined based on three parameters, such as resource utilization, energy, and the Cost of Service (COS). Therefore, the proposed task scheduling algorithm minimizes the cost for scheduling the tasks in the virtual machines. The performance of the proposed method is analyzed using the four experimental tasks, and the results of the analysis prove that the proposed multi-objective task scheduling method performs well than the existing methods. The evaluation metrics considered for analyzing the performance of the proposed multi-objective scheduling method are resource utilization, energy cost, and time. Resource utilization is the successful mapping of most of the resources available by performing tasks. Energy is the quantitative property of the resources to perform tasks. The proposed method gives the maximum resource utilization at a rate of 0.0224, minimal use of energy, scheduling cost, and time are 0.0224, 0.0121, and 0.0007, respectively.

Keywords: the world's research

- < 2019
- Present
- > 2019
- 2021
- 2022
- 2023

Opened with

Mysterious and Perceptible Group Information Partaking Of Data Privacy Using Cloud Computing

*Anil Tallur, *P.Neelima Reddy

*Asst.Professor, G.Narayanaamma Institute of Technology and Science (For Women), Shaikpet, Hyderabad, Telangana, INDIA, *sniltallur@gnits.ac.in, *neelima.rdy@gmail.com

Abstract - Gathering information partaking in cloud conditions have turned into an intriguing concern in late decades. With the popularity of distributed computing, how to accomplish secure as well as productive information partaking in cloud situations is a dire issue to be comprehended. Moreover, how to accomplish both secrecy and recognizability is additionally a test in the cloud pro information sharing. This document centers on empowering information allocation as well as capacity pro a similar gathering in the cloud through high security as well as effectiveness in an unknown way.

Keywords — *Symmetric Balanced Incomplete Block Design (SBIBD), Group Data Sharing, Privacy, Security, Cloud Computing, Reasonable Remote Recovery (RR), Three Layer Design.*

I. INTRODUCTION

Differentiated just as the standard information sharing and correspondence advancement, dispersed signs have concerned the advantage of predominantly researchers by virtue of its low essentialness use just as resource sharing qualities. Cloud signing preserve provide consumers apparently limitless registering assets as well as provide clients with apparently boundless capacity assets [1]-[3]. Cloud storages use as the mainly significant administrators in distributed compute, which empowers the interconnection of a wide range of electronic products. Also, different type of information statistics can freely stream concerning the distributed storage administrators, for instance, interpersonal organizations, video sharing as well as home networks. However, little considerations have been given to assess information sharing in the cloud, which alludes to the circumstance where multiple users need to accomplish statistics partaking in a gathering manner for helpful purposes [4], [5]. Gathering information sharing have many practical applications, pro instance, electronic wellbeing system [6], wireless body sensory system [7], as well as electronic voting in libraries. There be two dissimilar way in split information in distributed storages. The primary is a one-to-many example, which alludes to the scenario where one customer approves access to his/her information for many clients [8]. The next is a many-to-many instance, which refers to a circumstance in which numerous customers in the equivalent group authorize admittance to their information pro a few customers at the sometime.

Think about the accompanying genuine situation in an exploration group at a logical research organization, every part desires to share their outcomes as well as disclosures

through their colleagues. In this case, individuals in a similar group preserve get to all other group's outcomes (e.g. imaginative thoughts, inquires about outcomes, and experimental information). In my case, the upkeep as well as difficulty brought about via the neighborhood stockpiling increases the trouble as well as workload of data partaking in the gathering. Redistributing information or time-consuming computational remaining tasks at hand to the cloud eliminates the issue of support as well as difficulties brought about via local storage as well as lessens the repetition of in sequence statistics, which reduces the weight on educators, scholastic foundations or even people. Be so as to as it may, because of the inconsistency of the cloud, the re-appropriated information be inclined to be spilled as well as tampered with. Much of the time, consumers enclose immediately moderately low control in the cloud administration as well as can't ensure the security of the stored information. Also, at times, the consumer would prefer to miserably accomplish information partaking in the cloud. Our objective is to accomplish mysterious information sharing under a cloud computing situation in a gathering way through high security and effectiveness. To accomplish this point, the accompanying challenging tribulations ought to be nullified over:

We will probably accomplish mysterious information sharing under a cloud computing domain in a gathering way through elevated security and productivity. To accomplish this objective, the accompanying challenging tribulations ought to be taken into consideration. Firstly, a self-executive as well as variable number of gathering members should be bolstered. In down to earth application, the number of members in every gathering is subjective, through the dynamic joining and leaving of gathering individuals is vital. A desired scheme not just blocking the interest of any

Mysterious and Perceptible Group Information Partaking Of Data Privacy Using Cloud Computing

*Anil Tallur, *P.Neelima Reddy

*Asst.Professor, G.Narayanaamma Institute of Technology and Science (For Women), Shaikpet, Hyderabad, Telangana, INDIA, *aniltallur@gnits.ac.in, *neelima.rdy@gmail.com

Abstract - Gathering information partaking in cloud conditions have turned into an intriguing concern in late decades. With the popularity of distributed computing, how to accomplish secure as well as productive information partaking in cloud situations is a dire issue to be comprehended. Moreover, how to accomplish both secrecy and recognizability is additionally a test in the cloud pro information sharing. This document centers on empowering information allocation as well as capacity pro a similar gathering in the cloud through high security as well as effectiveness in an unknown way.

Keywords — *Symmetric Balanced Incomplete Block Design (SBIBD), Group Data Sharing, Privacy, Security, Cloud Computing, Reasonable Remote Recovery (RR), Three Layer Design.*

I. INTRODUCTION

Differentiated just as the standard information sharing and correspondence advancement, dispersed signs have concerned the advantage of predominantly researchers by virtue of its low essentialness use just as resource sharing qualities. Cloud signing preserve provide consumers apparently limitless registering assets as well as provide clients with apparently boundless capacity assets [1]-[3]. Cloud storages use as the mainly significant administrators in distributed compute, which empowers the interconnection of a wide range of electronic products. Also, different type of information statistics can freely stream concerning the distributed storage administrators, for instance, interpersonal organizations, video sharing as well as home networks. However, little considerations have been given to assess information sharing in the cloud, which alludes to the circumstance where multiple users need to accomplish statistics partaking in a gathering manner for helpful purposes [4], [5]. Gathering information sharing have many practical applications, pro instance, electronic wellbeing system [6], wireless body sensory system [7], as well as electronic voting in libraries. There be two dissimilar way in split information in distributed storages. The primary is a one-to-many example, which alludes to the scenario where one customer approves access to his/her information for many clients [8]. The next is a many-to-many instance, which refers to a circumstance in which numerous customers in the equivalent group authorize admittance to their information pro a few customers at the sometime.

Think about the accompanying genuine situation as an exploitation group of a logical research organization, every part desires to share their outcomes as well as disclosures

through their colleagues. In this case, individuals in a similar group preserve get to all other groups' outcomes (e.g. imaginative thoughts, inquiries about outcomes, and experimental information). In my case, the upkeep as well as difficulty brought about via the neighborhood stockpiling increases the trouble as well as workload of data partaking in the gathering. Redistributing information or time-consuming computational remaining tasks at hand to the cloud eliminates the issue of support as well as difficulties brought about via local storage as well as lessens the repetition of in sequence statistics, which reduces the weight on educators, scholastic foundations or even people. Be so as to as it may, because of the inconsistency of the cloud, the re-appropriated information be inclined to be spilled as well as tampered with. Much of the time, consumers enclose immediately moderately low control in the cloud administration as well as can't ensure the security of the stored information. Also, at times, the consumer would prefer to miserably accomplish information partaking in the cloud. Our objective is to accomplish mysterious information sharing under a cloud computing situation in a gathering way through high security and effectiveness. To accomplish this point, the accompanying challenging tribulations ought to be nullified over:

We will probably accomplish mysterious information sharing under a cloud computing domain in a gathering way through elevated security and productivity. To accomplish this objective, the accompanying challenging tribulations ought to be taken into consideration. Firstly, a self-executive as well as variable number of gathering members should be bolstered. In down to earth application, the number of members in every gathering is subjective, through the dynamic joining and leaving of gathering individuals is vital. A desired scheme not just blocking the interest of any

Review on Application of Data Mining Techniques for Student Performance Analysis

*C. Sathishan Reddy, Dr. K. Venugopala Reddy
Associate Professor, Professor

Dept of Information Technology, *Department of Computer Science
G. Narayanaiah Institute of Technology & Science, Hyderabad, India.

Abstract: For an educational organization the primary objective is continuous improvement in the quality of education. In the current scenario of Digitization for ed (education is stored about the progress offered), collaboration about various stakeholders of the system which includes employees of the organization, students enrolled for various programs along with their progress in the respective Areas/Activities. Improvement of quality of education can be done by identifying the factors contributing to student's performance, identifying strength and weakness of students, suggestions of suitable courses for the students, improvement in the Design of the course structure etc. Hence it is essential to have a systematic approach to analyze the huge voluminous data and to provide an appropriate data structure for better decision making by the corresponding Teams responsible for the same.

Index Terms – Classification, Data Mining.

I. Introduction

Most of the educational institutes store data about various stakeholders of the system. Primary stakeholders of the system are students. Data about students includes academic performance, participation in co-curricular activities, demographic information etc. Many tools are available for analyzing student's data which includes data mining, machine learning Techniques etc. In this paper we present an overview of various data mining functionalities used by different analysts for analyzing data. We have organized this paper as follows.

Section II: Introduction of the concept of data mining and various data mining functionalities. Section III: overview of various data mining situations used by analyst for student performance analysis applications in the context of educational data mining.

Section IV: Explanatory about the application of data mining Techniques for classification of student based on their grade.

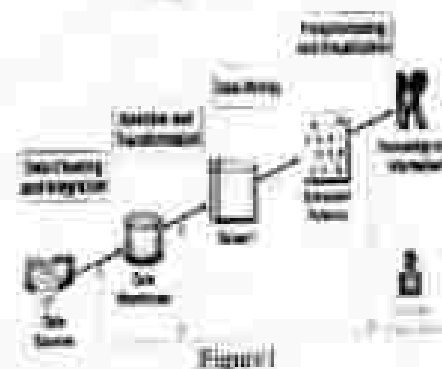
Section V: Conclusion and Future scope.

II. Data Mining

Data Mining is the process of discovering knowledge from the data. Data Mining is a step by step procedure used for discovering and extracting knowledge from the data available in data present in databases may exhibit the following characteristics

1. Noisy Data: Values stored are not valid or may not be filled
2. Continuous Values: Each Sample may be representing different values
3. Inconsistency: Different users would have stored data in different formats (eg. Representation of Date in different formats)
4. For the process of knowledge discovery a subset of the huge data is sufficient, so it is essential to identify the data necessary for the analysis.

Steps in Data Mining



Data Cleaning – This process fills missing values and invalid values are replaced with appropriate values

Data Integration – This process involves collection of data from multiple data sources

Data Selection – This process is responsible for identifying the data necessary for performing data mining task

Data Transformation – This process involves no version of the data to consume faster and if the range of values are very high they are converted to suitable range using normalization

A Framework through Iterative Classification for Sterilizing Enormous Datasets

¹ P.Keerthi Chandrika, Assistant Professor, Dept. of Computer Science & Engineering, G.Narasimamma Institute of Technology and Science, Hyderabad, INDIA.

² Geetha Kumari E, Assistant Professor, Dept. of Computer Science & Engineering, G.Narasimamma Institute of Technology and Science, Hyderabad, INDIA.

Abstract: Computing all over the place and cheap ubiquitous allows the collection of large amounts of personal data in a wide range of fields. Many organizations intend to share this data while hiding features that can reveal personally identifiable information. Lots of this the data shows a weak structure (for example, text), so that automated learning methods have been developed to discover and eliminate identifiers. So, While learning is never perfect, relying on such methods to clean data can lead to leakage of confidential information, but there is a simple risk. Our goal is often to balance the value of published data with the risk of the discoverer discovering leaked identifiers. We Sample sanitation of data as a game between 1) Editor chooses a set of workbooks for application to the data and only publishes instances are expected as non-sensitive and 2) an attacker combines automatic learning and manual inspection to detect leaks. Select the information. We offer a quick redundancy greedy algorithm for the editor which ensures low interest for a limited resource the enemy. In addition, using five sets of text data, we make it clear that our algorithm does not leave any recognizable definition. Instances of the advanced learning algorithm, which share more than 93% of the original data and are completed after a maximum of 5 times.

Keywords: Privacy preserving, weak structured data sanitization, iterative classification.

I. INTRODUCTION

At this time large amounts of personal data are collected a wide variety of domains, including personal health records, emails,

court documents and the Web [1]. Is anticipated that such data may allow significant improvement in the quality of

A Framework through Iterative Classification for Sterilizing Enormous Datasets

¹ P.Keerthi Chandrika, Assistant Professor, Dept. of Computer Science & Engineering, G.Narasimamma Institute of Technology and Science, Hyderabad, INDIA.

² Geetha Kumari E, Assistant Professor, Dept. of Computer Science & Engineering, G.Narasimamma Institute of Technology and Science, Hyderabad, INDIA.

Abstract: Computing all over the place and cheap ubiquitous allows the collection of large amounts of personal data in a wide range of fields. Many organizations intend to share this data while hiding features that can reveal personally identifiable information. Lots of this the data shows a weak structure (for example, text), so that automated learning methods have been developed to discover and eliminate identifiers. So, While learning is never perfect, relying on such methods to clean data can lead to leakage of confidential information, but there is a simple risk. Our goal is often to balance the value of published data with the risk of the discoverer discovering leaked identifiers. We Sample sanitation of data as a game between 1) Editor chooses a set of workbooks for application to the data and only publishes instances are expected as non-sensitive and 2) an attacker combines automatic learning and manual inspection to detect leaks. Select the information. We offer a quick redundancy greedy algorithm for the editor which ensures low interest for a limited resource the enemy. In addition, using five sets of text data, we make it clear that our algorithm does not leave any recognizable definition. Instances of the advanced learning algorithm, which share more than 93% of the original data and are completed after a maximum of 5 times.

Keywords: Privacy preserving, weak structured data sanitization, iterative classification.

I. INTRODUCTION

At this time large amounts of personal data are collected a wide variety of domains, including personal health records, emails,

court documents and the Web [1]. Is anticipated that such data may allow significant improvement in the quality of

Power Optimization and Power Consumption using Cost Estimation in Cloud Computing Services for DataCenters

Dr. Yamini Arjit Professor, cse dept (GNTE)

Dr. K.V.G RAO Professor, cse dept (GNTE)

Abstract :

Datacenters providing cloud computing services, consume more power energy in allocating resources to different cloud users. The significant impact on resource sharing and load balancing, which increases cost and more time consuming for each process. It also effects on business due to increase in demand and increasing in productivity and more number of companies come forward to provide the cloud computing services to different organization, companies and cloud users who are accessing the services in cloud. The arrival of new jobs from different cloud users increases the cost and maintenance has increased, due this there is a need of optimization in power management and increase in business and meet the demand of cloud users. Implementing the Migration techniques workload on servers been reduced which leads to the result of cost and productivity and meet the demand in the market and increasing more number of cloud users.

Data centers has to meet the demand in allocating the resources and decreasing the cost and maintenance at cloud data centers. Different Optimization techniques are implemented for optimization and power and allocating the resources from cloud data centers. To reduce the cost Virtualization is also necessary to be implemented according to the requirement for different cloud users. The new jobs in process are assigned to virtual machines uses the monitoring in allocating hardware and software resources are distributed for the requested cloud users.

Keywords: Power management, migration, virtualization, optimization, Resource allocation.

I. Introduction:

Because the use of cloud computing allows more number of inefficient computing by centralized storage distributed storage, processing more memory, and more storage and increases the Bandwidth. Multiple servers increases the network cost. The main power consumers in data centers are servers, cooling system, communication network.

The unfinished jobs and new arrival of jobs process also increases workload on the server, and increase the network traffic, which effects on performance of the entire system.

In Distributed systems energy consumption and cooling is required. The energy consumption can be reduced by identifying the unused servers, for this the servers are installed properly at an appropriate level and check in terms of utilization of server resources. There are millions of servers are available all over the world. This paper gives the information how the cloud enables services are improved by minimizing the cost along providing the scalable services to the consumers. The consumers can use the services at minimum cost which will be the advantage for both the service provider and consumer. The efficiency of the cloud applications is also improved at a faster rate of transfer for storage and retrieval of the data stored. The service provider plays a major role in providing the appropriate services to the consumers.

Feature Selection Based Supervised Learning Method for Network Intrusion Detection

Ch. Mallikarjuna Rao, G. Ramesh, D. V. Lalitha Parameswari
Karanam Madhavi, K. Sudheer Babu

Abstract: Supervised learning is one of the data mining phenomena where a knowledge model is built for artificial intelligence. Learning from training samples has its advantages in predictive solutions. Such solution is essential for network intrusion detection problems. Networks of all kinds do have problem of intrusions as they are exposed to public communications in one way or other. Intrusions over a network are in the form of network flows that need to be analyzed. Manual observation of the flows and detecting intrusions is very time taking. Therefore it is essential to have an automated system for quickly detection of intrusions to safeguard network systems. There are many intrusion detection systems found in the literature. However, there is need for faster algorithm that makes sense in helping network administrators with accurate knowledge provided. Towards this end we proposed a framework with a feature subset selection mechanism to speed up detection process and improve accuracy of the same. The feature subset selection algorithm and Support Vector Machine (SVM) work together in order to have a faster detection system. Benchmark datasets like KDD and NSL-KDD are used for experiment. The empirical results showed that the proposed SVM-FSS framework shows better performance over the state of the art framework.

Index Terms: Data mining, feature selection, intrusion detection, Support Vector Machine, machine learning.

I. INTRODUCTION

Data mining is widely used in real world applications. It is the discipline where historical data is analyzed to obtain hidden information. In other words, it is the process of extracting or discovering latent trends or patterns that are not known earlier. These trends or patterns uncovered from the datasets are used to take expert decisions. The process of mining is essential for any enterprise in different domains. Knowledge discovery helps domain experts to have interpretation of knowledge and take decisions. Models are

built in order to have solutions to different problems. The general steps involved in knowledge discovery from databases (KDD) are visualized in Figure 1.

There are many steps in KDD. First of all a problem is defined. Then data is gathered in order to solve the problem. Then data mining algorithms are used to build a model and evaluate it. This gives rise to knowledge needed. This knowledge is used to make expert decisions that result in business growth and profits. There are many algorithms related to data mining. They include association rule mining, decision trees, clustering and classification. These algorithms take time and resources to complete mining process. When high dimensional data is taken, these algorithms take long time to execute and consume more resources. To overcome this problem, it is important to reduce dimensions.

Many existing data mining based intrusion methods do not use feature selection method. For instance neural networks and SVM based approach [7], ANN and fuzzy clustering [10], SVM based approach [12], and fuzzy logic based approach [17] and Hidden Neave Bayes method [13]. There are some methods found with feature selection. They include Naive Bayes based method [15], Mutual information based intrusion detection [21] and [24] where many feature selection algorithms are reviewed. However, it is understood that feature selection is still an optimization problem which leads to further enhancement in accuracy and performance of data mining techniques for intrusion detection. Our contributions are as follows.

1. We proposed a framework named SVM-FSS for feature selection based intrusion detection that enhances the capability of SVM.
2. We proposed an algorithm named FSS for effective feature selection prior to employing classification technique on intrusion datasets like KDD and NSL-KDD.
3. We built an application to show the effectiveness of the framework and evaluated with the two datasets.

The remainder of the paper is structured as follows. Section 2 provides literature review on data mining techniques that are used for detecting network intrusions. Section 3 covers the proposed methodology for intrusion detection. Section 4 presents experimental results and evaluation while Section 5 provides conclusions and gives possible scope for future work.

Revised Manuscript Received on 17 May 2019

*Corresponding Author

Dr. Ch. Mallikarjuna Rao*, Professor, Department of CSE, GHRI, Hyderabad, Telangana, India.

Dr. G. Ramesh, Assistant Professor, Department of CSE, GHRI, Hyderabad, Telangana, India.

Dr. D. V. Lalitha Parameswari, N.A.S. Professor, Department of CSE, GHRI, Hyderabad, Telangana, India.

Dr. Karanam Madhavi, Professor, Department of CSE, GHRI, Hyderabad, Telangana, India.

Mr. K. Sudheer Babu, Assistant Professor, Department of CSE, GHRI, Hyderabad, Telangana, India.

© The authors. Published by The International Journal of Recent Technology and Science Publications (IJRTE). This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



Text Spotting in Video: Recent Progress and Future Trends

Manasa Devi Martha, Seetha Maddala, Vignanesha Raja Somashekarju

Abstract— The wide popularity of videos, images, documents available in the internet have led to the demand for automatic annotations, indexing, transcription of videos and many other applications. In order to implement these demands, text is a major source of information which requires detection, localization, tracking and recognition process. Nevertheless, text variation owing to font size, font style, direction, occlusion, poor resolution makes automatic text extraction more challenging. Thus, video pre-processing plays a vital role before detecting and recognizing the text. This paper emphasizes on survey for different detection and recognition methods, feature descriptors, datasets, and performance and evaluation process from diverse publications. Traditional methods like connected components, region based, texture based, Neural Networks, GCF have been reviewed. Among which Scale Invariant Feature Transform (SIFT), Maximally Stable Extremal Regions (MSER), Convolution Neural Networks (CNN) are effective and efficient feature descriptors in spotting the text. However, this paper shows comparative study of ubiquitous features descriptors along with their dependent parameters which declines the performance of recognizing the video text. Conversely, hybrid methods and CNN techniques have done magnificent work to achieve accuracy in some images on different datasets like ICDAR, ImageNet and CIFAR10 etc. However, ICDAR 2017-18 is specially prepared to challenge the detection of text in videos. Finally, related performance metrics and future trends for video text spotting are comprehensively analyzed.

Keywords— Recognition, text detection, caption text, tracking, natural scene text, Convolution NN, video pre-processing, feature descriptors

I. INTRODUCTION

With the increase in adoption of smart phones, computers, other smart machines which allow uploading billions of videos and hours and hours of streaming, made people to watch lots of videos of their interest. With this, finding the appropriate video of interest becomes a challenging research work. Traditionally, manual tagging was used to annotate the video for searching and indexing. This traditional approach could not able to find the video significantly and it is time taking process to tag. Many research was went on this, to find the state-of-the-art model to find the text from video for tagging purpose. Text in image or video comprises of crucial data and utilized in numerous content-based imagery and visual applications. Text varies in font, size, orientation,

lighting, background, texture, which makes more difficult to detect in video. Literature divides text into duplex, graphics text and scene text. Graphics text is also named as artificial text or caption text which included in the video. Generally, many news channels are having scrolling of text, which is added to the natural steps. Scene text is the natural text which comes with the scenes, like number plates, house numbers, boarding a text on the shirt, etc. Detecting caption text is not difficult as it will be in same font size, lighting, texture etc., but detecting scene text is a challenging with varying orientation, font color. Many studies have done on detecting caption text in natural scene images and video, but very rare work has done on both the texts. [1] Comprehensively contemplated a numerous techniques for detecting and extracting the text from videos or images. [2] Delimited the structure for detecting multi-oriented text from video by using spatio-temporal data, respectively. [3] Provided a robust method for detecting text. They have used MSER, pruning to extract character image patches which are collected into candidate text by single link clustering algorithm. Although many text detection methods are proposed and implemented for indexing and annotations, there are many other applications like supermarket automation, merchandise movement, licence plate recognition etc. These are useful for the society in terms of efficiency and speed in processing the things. Text Detection gives rise to many applications, but video-based text detection is a challenging task where it requires following stages: text tracking, detection, localization, and recognition. In the literature, many methodologies have been proposed in terms of text localization, which targets to determine the position of the text. The process of detection is utilized to decide whether any text is present or not. Text recognition is used to classify the text from non-text. Enhancement process, can be encompassed to improve the resolution prior to recognition. However, applying fusion techniques to improve the resolution prior to recognition will lead to high efficiency and accuracy. Previous work on text selection in video using fusion techniques had been proposed, but still need improvement which increases the recall and precision. [4] Proposed an innovative approach which combines Laplace operator by high frequency high band waves across multi-level fusion to recognize candidate text. They have also used MSER with SWT to preserve fine details of text candidates. Once images are fixed, they are fed to machine to classify the text in the appropriate group. Commercial OCR products are successful in detecting the text from document image but not well on video text. The principal goal of text

Received Various Manuscript Received on April 22, 2018.

Manasa Devi Martha, VSR Engineering Institute of Technology & Research, Department of Computer Science & Engineering, Thiruvananthapuram, Kerala, India. (E-Mail: manasa@vsrcet.ac.in)

Dr. Seetha Maddala, VSR Engineering Institute of Technology & Research, Department of Computer Science & Engineering, Madhavu, Kollam, Kerala, India. (E-Mail: seetha@vsrcet.ac.in)

Dr. Vignanesha Raja Somashekarju, Department of Computer Science & Engineering, Government College of Engineering, Technological Education - Chittoor, Andhra Pradesh, India. (E-Mail: vj@vrcet.ac.in)



A Novel Approach on Social Recommendation Based Neural Attentive Item Similarity Model

P Kavitha¹, Dr M Seetha²

PG Scholar, Dept. of CSE, GNITS, Hyderabad, India.

HOD and Professor, Dept. of CSE, GNITS Hyderabad, India.

Abstract - Thing-to-thing community oriented separating has been for some time utilized for building recommender frameworks in modern settings, inferable from its interpretability and effectiveness continuously personalization. It manufactures a client's profile as her generally associated things, prescribing new things that are like the client's profile. Accordingly, the way to a thing based Collaborative filtering strategy is in the estimation of thing similarities. Early methodologies utilize factual estimates, for example, cosine comparability, and Pearson coefficient to evaluate thing similarities, which are less exact since they need custom fitted adjustments for the suggestion undertaking. Lately, a few works endeavor to take in thing similarities from information, by communicating the closeness as a fundamental model and assessing model parameters by improving a suggestion mindful target work. While broad endeavors have been made to create shallow weight models for adapting thing likeness, there has been moderately less work investigating nonlinear neural system models for thing based Collaborative filtering. A neural system show named Neural Attentive Item Similarity demonstrates something based Collaborative filtering. Neural Attentive Item Similarity is a consideration change, which is fit for recognizing which authentic things in a client profile are increasingly critical for a forecast. Contrasted with the cutting-edge thing based Collaborative filtering strategy Factored Item Similarity Model, Neural Attentive Item Similarity has more grounded portrayal control with just a couple of extra parameters brought by the consideration organize. Broad trials on two open benchmarks show the viability of Neural Attentive Item Similarity. This work is the main endeavor that plans neural system models for thing based Collaborative filtering, opening up new research potential outcomes for future improvements of neural recommender frameworks.

Key Words - Collaborative Filtering, Item-based Collaborative filtering, Neural Recommender Models, Attention Networks

1 Introduction - Recommender framework is a center administration for some, client situated online administrations to expand their traffic and make benefits for example, E-business and web-based life locales. For instance, it was accounted for that in YouTube, suggestions represented about 65% video clicks for the landing page [1]. In Netflix, recommender frameworks contributed about 80% of films watched and set the business estimation of over \$1 billion every year, as demonstrated by their Chief Product Officer Neil Hunt. In present day recommender frameworks, cooperative sifting a method that produces clients' customized inclination from client-thing collaborations just assumes a Local job particularly in the period of sparser age. Promoted by the Netflix Prize, network factorization (MF) strategies have turned into the most prevalent proposal approach in the scholarly community and been broadly considered in written works. While MF techniques are appeared to give better precision over neighbor-based strategies as far as sifting expectation, they have been moderately slow from time to time answered to be utilized in modern applications. One conceivable reason is because of MF's personalization plot than so-thing Collaborative filtering that describes a client with an ID and partners it with an baselining vector. Thus, to investigate proposals for a client with her new communications, the client's inserting vector must be re-fetched. In any case, re-preparing a MF display for vast scale information is hard to accomplish continuously and may require complex programming stack to help web based getting the hang of, making the methodology less alluring for mechanical settings. Then again, thing-to-thing Collaborative filtering which portrays a client with her generally interfaced things and prescribes things like the client's profile has been vigorously utilized in modern applications. Not exclusively does thing based Collaborative filtering give increasingly interpretable forecast appropriate to numerous suggesting situations, yet it likewise makes content personalization a lot simpler to accomplish. In particular, the significant calculation that gauges

Performance Analysis of Classification algorithms on Parkinson's Dataset with Voice Attributes

T. Sravas

Department of Computer Science and Engineering
G. Narayanamma Institute of Technology & Science, Hyderabad, India

Y. Sravani Devi

Department of Computer Science and Engineering
G. Narayanamma Institute of Technology & Science, Hyderabad, India

Abstract

Parkinson's disease or Parkinsonism is degenerative disease of the brain that causes tremors, particularly in the elderly. In this disorder of nervous system, there is an increasing effect on body movements. It may begin as a hardly noticeable tremor initially in just one hand and rapidly progress to severe shaking of hands, making it difficult to hold a glass in the hand. Though the disease is characterized by tremors, it may also cause slow movements or stiffness.

Machine learning is a method or a field used to conceive complicated models and algorithms for predictive analysis. The different analysis models help researchers, data scientists, engineers, and analysts to produce proper results and decisions, has numerous applications such as building predictive models which can be extremely beneficial in the healthcare industry. In order to help in the diagnosis of Parkinson, classification techniques can be applied to classify real time Parkinson data based on an established training set. In this paper, a comparative study on different classification methods is carried out to this dataset and the Accuracy Analysis to come up with the best classification rule. Also the intention is to serve the fact such that the healthy and people with Parkinson will be correctly classified.

Keywords: Machine Learning, Parkinson, Speech Signal, Decision Trees, Linear support vector, Naïve Bayes, KNN, Accuracy, Recall, Support, Precision, f1-score

INTRODUCTION

Parkinson is a neurological disease and occurs due to lack of dopamine neurons. These dopamine neurons manage all body movements. Parkinson patients have difficulty in doing all daily routine activities, and also have disturbed vocal fold movements. Using voice analysis disease can be diagnosed remotely at an early stage with more reliability and in an economical way. Parkinson's disease is a progressive nervous system disorder that affects movement. Symptoms start gradually, sometimes starting with a barely noticeable tremor in just one hand. Tremors are common, but the disorder also commonly causes stiffness or slowing of movement. In the

early stages of Parkinson's disease, face may show little or no expression, arms may not swing while walking. Speech may become soft or slurred. Parkinson's disease symptoms worsen the person's condition progresses over time. Although Parkinson's disease can't be cured, medications might significantly improve symptoms. Occasionally, doctor may suggest surgery to regulate certain regions of brain to improve symptoms. Parkinson's disease signs and symptoms can be different for everyone. Early signs may be mild and go unnoticed. Symptoms often begin on one side of the body and usually remain worse on that side, even after symptoms begin to affect both sides.

Parkinson's signs and symptoms may include

- **Tremor:** A tremor, or shaking, usually begins in a limb, then hand or fingers.
- **Slowed movement (bradykinesia):** Over time, Parkinson's disease may slow body movement, making simple tasks difficult and time-consuming.
- **Rigid muscles:** Muscle stiffness may occur in any part of the body. The stiff muscles can be painful and limit range of motion.
- **Impaired posture and balance:** Posture may become crooked, or may have balance problems as a result of Parkinson's disease.
- **Loss of automatic movements:** Person may have a decreased ability to perform unconscious movements, including blinking, smiling or swinging arms while walking.
- **Speech changes:** may speak softly, quickly, slur or hesitate before talking. Speech may be more of a monotone rather than with the usual inflections.
- **Writing changes:** It may become hard to write, and your writing may appear small.

In Parkinson's disease, certain nerve cells (neurons) in the brain gradually break down or die. Many of the symptoms are due to a loss of neurons that produce a chemical messenger in your brain called dopamine. When dopamine levels decrease,

Performance Analysis of Classification algorithms on Parkinson's Dataset with Voice Attributes

T. Sravas

Department of Computer Science and Engineering
G. Narayanamma Institute of Technology & Science, Hyderabad, India

Y. Sravani Devi

Department of Computer Science and Engineering
G. Narayanamma Institute of Technology & Science, Hyderabad, India

Abstract

Parkinson's disease or Parkinsonism is degenerative disease of the brain that causes tremors, particularly in the elderly. In this disorder of nervous system, there is an increasing effect on body movements. It may begin as a hardly noticeable tremor initially in just one hand and rapidly progress to severe shaking of hands, making it difficult to hold a glass in the hand. Though the disease is characterized by tremors, it may also cause slow movements or stiffness.

Machine learning is a method or a field used to conceive complicated models and algorithms for predictive analysis. The different analysis models help researchers, data scientists, engineers, and analysts to produce proper results and decisions, has numerous applications such as building predictive models which can be extremely beneficial in the healthcare industry. In order to help in the diagnosis of Parkinson, classification techniques can be applied to classify real time Parkinson data based on an established training set. In this paper, a comparative study on different classification methods is carried out to this dataset and the Accuracy Analysis to come up with the best classification rule. Also the intention is to serve the fact such that the healthy and people with Parkinson will be correctly classified.

Keywords: Machine Learning, Parkinson, Speech Signal, Decision Trees, Linear support vector, Naïve Bayes, KNN, Accuracy, Recall, Support, Precision, f1-score

INTRODUCTION

Parkinson is a neurological disease and occurs due to lack of dopamine neurons. These dopamine neurons manage all body movements. Parkinson patients have difficulty in doing all daily routine activities, and also have disturbed vocal fold movements. Using voice analysis disease can be diagnosed remotely at an early stage with more reliability and in an economical way. Parkinson's disease is a progressive nervous system disorder that affects movement. Symptoms start gradually, sometimes starting with a barely noticeable tremor in just one hand. Tremors are common, but the disorder also commonly causes stiffness or slowing of movement. In the

early stages of Parkinson's disease, face may show little or no expression, arms may not swing while walking. Speech may become soft or slurred. Parkinson's disease symptoms worsen the person's condition progresses over time. Although Parkinson's disease can't be cured, medications might significantly improve symptoms. Occasionally, doctor may suggest surgery to regulate certain regions of brain to improve symptoms. Parkinson's disease signs and symptoms can be different for everyone. Early signs may be mild and go unnoticed. Symptoms often begin on one side of the body and usually remain worse on that side, even after symptoms begin to affect both sides.

Parkinson's signs and symptoms may include

- **Tremor:** A tremor, or shaking, usually begins in a limb, then hand or fingers.
- **Slowed movement (bradykinesia):** Over time, Parkinson's disease may slow body movement, making simple tasks difficult and time-consuming.
- **Rigid muscles:** Muscle stiffness may occur in any part of the body. The stiff muscles can be painful and limit range of motion.
- **Impaired posture and balance:** Posture may become crooked, or may have balance problems as a result of Parkinson's disease.
- **Loss of automatic movements:** Person may have a decreased ability to perform unconscious movements, including blinking, smiling or swinging arms while walking.
- **Speech changes:** may speak softly, quickly, slur or hesitate before talking. Speech may be more of a monotone rather than with the usual inflections.
- **Writing changes:** It may become hard to write, and your writing may appear small.

In Parkinson's disease, certain nerve cells (neurons) in the brain gradually break down or die. Many of the symptoms are due to a loss of neurons that produce a chemical messenger in your brain called dopamine. When dopamine levels decrease,

A Novel Cache Discovery Framework Based on Clusters and Highest Node Density

V.J.Sudha Rani, M.Seetha

Abstract— With the increasing popularity of MANETs, there is increase in mobility for communication, the application developers are building more and more complex applications for MANET. The recent advancements in mobility for communication has also inspired novel communication methods and network architectures such as Internet of Things, Nanobots, etc. in the higher deployment and component cost of IoT, MANET is still a preferable architecture for many fields of applications. Also, in IoT, the security issues are higher compared with the MANETs as the incorporation of the smart devices can introduce the higher attention of the intruders into the network. Henceforth, the preferable lower cost and higher utilization factors of MANETs are increasing the application developers focus on building complex applications, which demands higher specifications in the MANET devices. Cooperative Caching is a methodology that has been utilized broadly inside MANETs to address different operation and cost challenges. Considered appropriately, Selfish Caching can essentially lessen its general energy spend use. Nanobots, making the MANET devices with higher capabilities with more sophisticated hardware is always the bottleneck for building cost effective solutions. Hence, the MANET architect are focusing on building more capable architectures. The cooperative caching strategies can significantly increase the architectural capabilities. Several parallel research works have demonstrated cooperative caching mechanisms in the recent times. Regardless in nature, the parallel research outcomes are also highly criticized due to the fact higher complexity during cache discovery. The outcomes from these parallel researcher have failed to justify the effect of dynamic clusters and the effect of node density during the discovery process. The proposed framework for cache discovery and cooperative caching relies on identification of the cluster head with priority identification for determining the possible cooperations in the cache. Also, the proposed framework determines the best possible cooperative caching regions based on another novel method called density identification. Finally, the proposed method demonstrates 100% cache cooperation possibilities with 76% less time complexity.

Keywords— Cooperative Cache, MANET, Clustering, Density Estimation, ERP, SDV, DR, AQDV, TOR, SGR, ENGR.

1. INTRODUCTION

A versatile specially appointed system (MANET), otherwise called remote impromptu system or impromptu remote system, is a persistently self-designing, framework-less system of cell phones associated remotely. Every gadget in a MANET can move autonomously toward any path and

will thusly change its connects to different gadgets often. Each must forward traffic disconnected to its very own utilization, and along these lines be a switch. The essential test in building a MANET is preparing every gadget to constantly keep up the data required to legitimately course traffic. Such systems may work without anyone else's input or might be associated with the bigger Internet. They may contain one or numerous and diverse handsets between hubs. These outcomes in a unique, self-ruling topology. MANETs are a sort of remote specially appointed systems that normally has a routable systems administration condition over a Link Layer impromptu system. MANETs comprise of a shared, self-forming, self-healing system. The complexities intrigue of MANETs is that the system is decentralized, and hubs/gadgets are portable. In other words, there is no settled framework which gives the likelihood to various applications in various regions, for example, ecological observing, calamity help, and military correspondences. Since the mid-2000s enthusiasm for MANETs has significantly expanded which, partially, is because of the reality portability can enhance organize limit, appeared by Grossglauser et al. [1], alongside the presentation of new advances. The applicability of the MANET is extended into multiple other architecture as demonstrated by P. Ranjan et al. [2]. Due to the extensibility of the architecture, the applicability of MANETs are also increasing. The complex applications running on the MANETs demands more hardware capabilities. The major capability demand is to enable the complete network with more temporary storages in order to support the increasing demand of processing capabilities. The most prominent method of increase the temporary processing storage in MANETs is to include cooperative caching technique for the MANETs. During the course of study, this work identifies the following motivations to involve in the cooperative caching research:

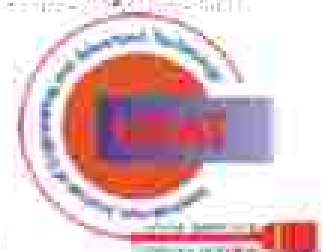
- Firstly, additional shared storage can be made available to the MANET devices and to the complete network. In order to perform computation on the large amount of the data available, the cache sizes are to be increased. However, the increasing the cache size is not a feasible solution due to the cost to performance bottleneck.
- Secondly, during the data processing on the MANET architecture, it is often observed that the application demands accessing shared data, which can easily be achieved by cooperative caching methods.
- Finally, due to the mobility nature of the applications, it is also possible that the devices move out of the reach of the main data source, still demands a strong accessibility to the data. In situation can also be managed by deploying the cache cooperations.

Manuscript published on 25 February 2019.

*Corresponding Author:
V.J.Sudha Rani*, Assistant Professor, IITR, Hyderabad, Telangana, India.

Dr. M. Seetha, IITR, Professor, C, Department, Institute of Technology and Research, Hyderabad, Telangana, India.

© The system. Published by the IJEAT (International Journal of Engineering and Advanced Technology), ISSN: 2249-8958, The IJEAT (Online) is an open access journal for EC BY NC ND (http://creativecommons.org/licenses/by-nc-nd/4.0/)



INTERNATIONAL JOURNAL OF COMPUTER ENGINEERING TECHNOLOGY (IJ CET)

VOLUME 9, ISSUE 1, JULY - AUG 2018, PP. 166 - 175, ARTICLE IJ CET, 9(1), 166

AVAILABLE ONLINE AT WWW.IAEME.COM/IJ CET/ISSUE-ASP/JTYPL/IJ CET&TYPE=ARTYPE=4

JOURNAL IMPACT FACTOR (2018) : 0.69 (CALCULATED BY GIST) WWW.IJ FACTOR.COM

ISSN PRINT : 0976 - 0067 AND ISSN ONLINE : 09760075

©IAEME PUBLICATION

V-BIBE: A New Identity Based Encryption Scheme

Ch. Ramesh

Asst Professor, Dept of IT

Gannarayana Institute of Technology and Science, Hyderabad, Telangana, India

K Venugopal Rao

Professor, Dept of CSE

Gannarayana Institute of Technology and Science, Hyderabad, Telangana, India

D. Vasunathi

Professor, Dept of CSE

JNTU(H.R) Hyderabad, Telangana, India

ABSTRACT

This paper proposes an Identity Based Encryption (IBE) scheme that has numerous advantages over previous such systems. Particularly in terms of computational performance and storage public parameters. The main advantage of the proposed scheme is that it is padding free. The construction is remarkably simple and the scheme is efficient in terms of both time and space.

KEYWORDS

Identity Based Encryption (IBE), QN Assumption and Identity Based Authentication Key agreement (IBAK) protocol.

Cite this Article: Shree K George and Jagathi Raj V P. New Summary Generation Framework Based On Ontology and Natural Language Processing Techniques, International Journal of Computer Engineering & Technology, 9(1), 2018, pp. 166, <http://www.iaeme.com/Issue.asp?IJCET=9&Issue=1>

1. Introduction

In 1984 Shamir [1] presented the idea of Identity Based Encryption (IBE). IBE is more efficient than all public key crypto systems. The first practical IBE scheme was pro-

Unit Selection to Improve Naturalness in Speech Synthesis

Dr. K.V.N.Saitha¹, P. Saitha Devi²

¹Principal, *BVBIT College of Engineering for women, Saripaluru, Hyderabad, Telangana, India*

²Assistant Professor, *Computer Science and Engineering Department,
G.Narasimma Institute of Technology & Science, Tadipatri, Hyderabad, Telangana, India*

Abstract

Speech synthesis is a process that can generate human-like speech for any text input to imitate human speakers. The objective of a text-to-speech system is to convert an arbitrary text into its corresponding speech. Generating speech that is close to natural human speech is always a challenging issue for synthesis systems. Naturalness depends on the kind of available database, and the algorithms that choose the appropriate speech units from the database. The issue lies on what should be the unit of speech to be stored in database. This paper perfects the work carried out in identifying most appropriate speech unit towards improving naturalness. As Telugu language is syllabic by nature, analysis is carried out on 5 million words size corpus to identify the required available units that can cover the major vocabulary in Telugu language.

Keywords: phone, syllable, coverage, speech synthesis

INTRODUCTION

The most natural mode of human communication is speech, and is the driving force underlying several significant advances in speech technology. A text-to-speech (TTS) system converts natural language text into speech; this can be achieved by concatenating recorded speech units stored in a database [1]. TTS systems differ in the size of the stored speech units; a system that stores phones or diphones gives the largest output range, but the output speech may not be natural. For natural sounding speech synthesis, it is essential that the text processing component produce an appropriate sequence of orthographic units corresponding to an arbitrary input text [2, 3]. The difficulty of conversion is highly language dependent and includes many problems. For English and most of the other languages the conversion is much more complicated. A very large set of different rules and their exceptions is needed to produce correct pronunciation and prosody for synthesized speech. Most of the Indian languages are phonetic in nature [4]; the conversion is quite simple because written text almost corresponds to its pronunciation. Conversion can be divided in three main phases, text preprocessing, creation of linguistic data for correct pronunciation, and the analysis of prosodic features for correct intonation, stress, and duration. Current state-of-art TTS system in English and other well-researched languages use such rich set of linguistic resources such as word-sense disambiguation, morphological analysis, Part-of-Speech

tagging, letter-to-sound rules, syllabification, stress-patterns in one form or the other to build a text processing component of a TTS system. However, for minority languages (which are not well researched or do not have enough linguistic resources), it involves several complexities starting from accumulation of text corpora in digital and processable format. Linguistic components are not available in such rich fashion for all languages of the world. In practical world, minority languages including some of the Indian languages do not have that luxury of translating some or any of the linguistic components.

FEATURES OF TELUGU LANGUAGE

Telugu is a South-Central Dravidian language predominantly spoken in the South Indian state of Andhra Pradesh and Telangana, where it is an official language. One of the four Classical languages of India, Telugu ranks third by the number of native speakers in India (~4 million), thirteenth in the Ethnologue list of most-spoken languages worldwide. There are 23 official languages of India, and all of them except English and Urdu share a common phonetic base, i.e., they share a common set of speech sounds. While all of these languages share a common phonetic base, some of the languages such as Hindi, Marathi and Nepali also share a common script known as Devanagari. The property that makes these languages separate can be attributed to the phonotactics in each of these languages rather than the scripts and speech sounds. Phonotactics is the permissible combinations of phones that can co-occur in a language. Telugu language is phonetic in nature, i.e. there is a one to one correspondence between what we write and what we speak. The letter to sound rules required to map Telugu letters to sound is straight forward.

GNITS Text Corpora

It is important that the chosen text data covers all the common words, phrases and syllables of a language. GNITS Text Corpora is a set of phonetically rich sentences which consists of DoE-CHL corpus and newspaper articles which is nearly 5 Million word corpus for Telugu language. The text corpus contains sentences of various articles related sociology, history, poetry, and many other areas. All these words are phonetized so that the distribution of basic speech units – phones, biphones, triphones, etc can be analyzed. 45 phonemes, 10 vowels, 2 diphthongs and 33 consonants and 3 variations

Analysis of user's Navigational Patterns using Linear Temporal Logic Model

¹K.Nafesa Begum ²R.Pallavi Reddy

¹PG Student (CSE), G.Narayanaamma Institute of Technology & Science (for women), Shaikpet, Hyderabad, Telangana

²Assistant Professor, G.Narayanaamma Institute of Technology & Science (for women), Shaikpet, Hyderabad, Telangana

Abstract-Online shopping is becoming more typical in our everyday lives. Understanding clients' interest in which they shop is important in order to adhere-exchange sites to customers' prerequisites. The records about clients' interest are not considered in the previous server logs. The investigation of such insights has focused on applying mining procedures where main personal is utilized to display clients' behaviorand the sequel of clickstream data isn't considered in earlier techniques. Consequently, mining a perspective of the process followed by clients among a session can be of extraordinary scheme to recognize more unpredictable standards behavior. This paper proposes a straight forward Linear Temporal Model checking approach for the attainment of web logs. By characterizing a typical way of mapping log data as per the e-exchange sites, web logs can be effortlessly changed into event logs where the performance of clients is caught. This information is used to identify the clients' behavior based on personal interest. The outcomes analyzed propose a few upgrades to the web business with the aim of developing its proficiency.

1. INTRODUCTION

In the present-associated world, the manner in which individuals shop has changed. Individuals are purchasing progressively more over the Internet instead of going customary buying. Web based

business presents clients with the chance of perusing vast item indexes, assessing costs, being constantly proficient, building up a list of things to get and getting offers on higher supplies depending on their interest. This developing trend focused on highlighting the likelihood of a benefactor to effectively go from one e-exchange to other when their prerequisites are not apperied. As a result, the web based business experts require to know and comprehend customers' conduct while those explore by means of the site, attempting to select the reasons that provoked them to purchase an object, or not. Getting this conduct comprehension will permit internet business sites to convey a more prominent customized service to customers, saving clients and expanding benefits. Pin-pointing buyer' conduct and the reasons that manual purchasing procedure requires is a totally difficult assignment.

Web based business sites deliver clients with an extensive variety of navigational options and routes, a client can search by means of item classifications, conform to two or three navigational ways to go to a particular item, or utilize best components to search for stock, for instance. More often, these individual



Journal of Emerging Technologies and Innovative Research

(An International Scholarly Open Access Journal, Peer-reviewed, Refereed Journal)
Impact factor 7.95 Calculated by Google Scholar and Semantic Scholar | AI-Powered Research Tool, Multidisciplinary, Monthly, Multilingual Journal

UGC Approved Journal No. 63875

ISSN: 2248-5162 | ESTD Year - 2014

Call for Paper

Volume 10 | Issue 9 | September

ETIR: Empowering Research, Advancing Knowledge

- Home
- Editorial Board
- Call for Paper
- Research Areas
- The Author
- Contact Us
- Articles
- ETIR
- Contact Us

Published in:

Volume 10 Issue 9
November 2024
ISSN: 2248-5162

UGC and ISSN approved
7.95 Impact factor UGC
Approved Journal No. 63875

7.95 Impact factor
calculated by Google
Scholar

Unique Identifier

Published Paper ID:
J241109002

Registered ID:
10000

Page Number

1241

Full Publication

Download
eContent
Correction Letter
Abstract Paper
J241109002
J241109002
J241109002
UGC Approved | UGC Approved
ISSN: 2248-5162 | UGC Approved
Journal No. 63875

Share This Article

Important Links:

Content Link
ETIR
Call for Paper
Submit Manuscript

Join Us

Title

Security: Eliminating Duplicate Copies of Encrypted Data in Cloud

Authors

G. Sathish,
Srinivasan - Vinod Kumar

Abstract

Article-based encryption (ABE) is a standard scheme amongst the most commonly utilized procedure in distributed computing wherein a record owner subcontracts the key generation measurements to a cloud center provider and might access the data with domain possessing definite operations on the encrypted. In any case, the fundamental ABE strategy does not give the secure elimination of replica copies of similar records (declassification) in an effort to keep the storage space and lessen redundancy. In this paper, we propose an attribute-based encryption scheme with efficient declassification in a distributed cloud setting. Here a non-trivial cloud is made to carry decryption and an open cloud takes up the storage. In contrast with the earlier record as ciphertext techniques, our scheme has the improvement, where, it might be utilized to precisely declassify records with diverse file names of arbitrary sharing rights. It adheres to sharing declassification. Besides, it accomplishes a significant thought of semantic safety for homomorphic confidentiality. The current document just secures it for means of strengthening a leader insurance condition. Furthermore, we extend a procedure to customize cover key of one going emergency into cover keys of the other parallel user different access, applying critical, leading the user personal.

Keywords

ABE, Attribute, DE, Encryption

Cite This Article

"Security: Eliminating Duplicate Copies of Encrypted Data in Cloud", International Journal of Emerging Technologies and Innovative Research (Multidisciplinary), ISSN: 2248-5162, Vol. 10, Issue 9, page no. 1241, November 2024. Available at: <https://www.ijetir.com/issue/J241109002>

ISSN

ISSN (E) | Impact Factor: 7.95 Calculated by Google Scholar

An International Scholarly Open Access Journal, Peer-Reviewed, Refereed Journal Indexed by UGC and ISSN Approved | UGC Approved | UGC Approved | ISSN: 2248-5162 | UGC Approved | Journal No. 63875 | Multidisciplinary, Monthly, Multilingual Journal, Leading in AI, Data Science & Emerging Technologies

Cite This Article

"Security: Eliminating Duplicate Copies of Encrypted Data in Cloud", International Journal of Emerging Technologies and Innovative Research (Multidisciplinary), ISSN: 2248-5162, Vol. 10, Issue 9, page no. 1241, November 2024. Available at: <https://www.ijetir.com/issue/J241109002>

Publication Details

Published Paper ID: J241109002

Download PDF

Downloads

10000

Print This Page

Impact Factor:

7.95 WhatsApp Contact
Printed Paper Click Here
Registration Link Here

Current Call For Paper

Volume 10 | Issue 9
September

Call for Paper
Click Here For More
Info

Contact Us
Click Here

Important Links

Content Link
ETIR
Call for Paper
Submit Manuscript

Join Us



Journal of Emerging Technologies and Innovative Research

(An International Scholarly Open Access Journal, Peer-Reviewed, Refereed Journal)
Impact factor 7.95 Calculated by Google Scholar and Semantic Scholar | ISI-Indexed Research Tool, Multidisciplinary, Monthly, Multilingual Journal

UGC Approved Journal no. 63875

ISSN: 2448-5162 | ESTD Year - 2014

Call for Paper

Volume 10 | Issue 9 | September

ETIR: Empowering Global Knowledge through Research

Home Editorial Board Call for Paper Research Areas The Author's Corner About Us Contact Us

Published in:
Volume 10 Issue 9
November 2024
ISSN: 2448-5162

UGC and ISI approved
7.95 Impact factor UGC
Approved Journal no. 63875

7.95 Impact factor
calculated by Google
Scholar

Unique Identifier
Published Paper ID:
J24100909

Registered ID:
10492

Page Number
27-44

Full Publication
Download
eContentX
Collection Link:
abstracts.elsevier.com
J24100909
Journal Site Page
UGC Approved | ISI Approved | ISI Approved
Volume 10 | Issue 9 | September 2024

Share This Article

Important Links:

Current Issue
Home
Call for Paper
Submit Manuscript Online

Journal RSS

Title
Detector for Sentiment Analysis with Co-Occurrence Data

Authors
Dr. G. Lakshmi
T. R. Jayaram

Abstract
Lack of an easy-to-use tool for electronic content exchange is one of the major factors that has limited the use of progressive services. This need gives a direct impetus to proper tools, yet one can easily resort to online to acquire a responsive application or system for administration. A content preparing system that can handle audio would allow these files to be stored, it subject to be performed by such a system is inside the general usage capabilities (used in its such instances) for which the user creates the storage, he intended to use among technologies. The principal objective included in an independent study that applied various goals using an co-occurrence information acquired from a group to detect these perspective capabilities. While the methodology with using such social strategies, the proposed independent software system is a key development because this research.

Key Words
Agent, Content, Creation, Creation, Review, Co-Occurrence Data, Sentiment Analysis, Spreading Research

Cite This Article
"Detector for Sentiment Analysis with Co-Occurrence Data", International Journal of Emerging Technologies and Innovative Research (ISSN: 2448-5162), Vol. 10, Issue 9, Page 27-44, November 2024. Available at: <https://www.elsevier.com/abstract/J24100909>

ISSN
2448-5162 | Impact Factor: 7.95 Calculated by Google Scholar

An International Scholarly Open Access Journal, Peer-Reviewed, Refereed Journal Impact Factor: 7.95 Calculated by Google Scholar and Semantic Scholar | ISI-Indexed Research Tool, Multidisciplinary, Monthly, Multilingual Journal Issuing 9-11 Year-October & February | Online Content

Cite This Article
"Detector for Sentiment Analysis with Co-Occurrence Data", International Journal of Emerging Technologies and Innovative Research (ISSN: 2448-5162), Vol. 10, Issue 9, Page 27-44, November 2024. Available at: <https://www.elsevier.com/abstract/J24100909>

Publication Details
Published Paper ID: J24100909
Registered ID: 10492
Published in: Volume 10 | Issue 9 | September 2024

- Current Issue
- Peer Review
- Submit Manuscript
- Complete Process
- Research Community
- Published Thesis

Post This Page

Impact Factor:
7.95 WhatsApp Contact
Contact Us
Click Here
Registration Link Here

Current Call For Paper
Volume 10 | Issue 9
September

Call for Paper
Click Here For More Info
Contact Us
Click Here

Download Article
Click Here
Submit Manuscript Online

Journal RSS

Application of Machine Learning Classification Algorithms on Hepatitis Dataset

K. Santosh Bhargav

Department of Computer Science and Engineering
GITAM Institute of Technology, GITAM
Visakhapatnam, India

T. Divya Kumari

Department of Computer Science and Engineering
G. Narayanaswami Institute of Technology & Science
Hyderabad, India

Dola Sar Siva Bhaskar Thota

Department of Computer Science and Engineering
GITAM Institute of Technology, GITAM
Visakhapatnam, India

Vikas B.

Department of Computer Science and Engineering
GITAM Institute of Technology, GITAM
Visakhapatnam, India

Abstract

Machine learning is a method in a field used to conceive complicated models and algorithms for predictive analysis. The different analysis models help researchers, data scientists, engineers, and analysts to produce proper results and decisions. It has numerous applications such as building predictive models which can be extremely beneficial in the healthcare industry. Hepatitis C is a liver disease caused by the hepatitis C virus and some cancers such as liver cancer and lymphomas in humans. In order to help in the diagnosis of hepatitis C, classification techniques such as Logistic Regression, Decision Tree, Linear Support Vector and Naive Bayes can be applied to classify real time hepatitis C data based on an established training set. In this paper, an attempt has been made to classify whether the person will live or die using the accuracies and other performance measures of the different machine learning algorithms.

Keywords: Machine Learning, Hepatitis C, Logistic Regression, Decision Trees, Linear Support Vector, Naive Bayes, Accuracy, Recall, Support, Precision

INTRODUCTION

Hepatitis C is an infection that is caused due to the Hepatitis C virus attacking the liver leading to its inflammation. The virus can lead to both acute and chronic hepatitis. Hepatitis C can last either for a few weeks or for a lifetime [1]. The incubation period of hepatitis C is 2 weeks to 6 months. According to statistics from the World Health Organization, "Following the initial infection, approximately 50% of people do not exhibit any symptoms." Few symptoms of Hepatitis C are jaundice, stomach pain, dark urine, grey-coloured faeces, joint pain, Loss of appetite, Nausea, Fatigue. The hepatitis C virus is a bloodborne virus, which means that it mainly spreads through direct contact of small quantities of blood [2]. Such contact could be due to various reasons such as unsafe injection practices, unsafe health care, and the transfusion of unscreened blood and blood products and sometimes from birth.

According to World Health Organisation globally there are 71 million people estimated suffering from this infection and nearly 399,000 people die each year from hepatitis C. At present

there is no vaccine for hepatitis C, however continuous research is going on to find the cure. The prevention of HCV infection can be done by maintaining proper hygiene, safe and appropriate of health care injections, safe disposal sharps and wastes, testing the donated blood, educating about the virus and seasonal healthcare check-up.

Machine learning [3] is a field that automatically learns and makes accurate prediction based on past observations. The goal of machine learning is to give highly accurate predictions on given data. The advantages of using machine learning is that it is often much more accurate than human rules. It doesn't require a human expert or a programmer. It is also cheap and flexible. It can be applied to any learning task. However, it sometimes requires a lot of labelled data and it is hard to get perfect accuracy. Machine learning [4] plays a very important role in health care reform. For earlier prevention one can estimate the possibility of HCV of one-self by using various machine learning techniques such as logical regression, Naive Bayes, linear SVM, decision tree etc. This will help the patient to take treatment in the earlier phase of virus and stopped from being amplified. In this paper, a comparative study on the performance measures of different classification techniques in machine learning applied of Hepatitis C data has been presented.

DATA COLLECTION

The hepatitis C data set has been referenced from UCI Repository [5]. The database consists of 153 samples. It has 20 attributes including the Class label attribute. The attribute values have been derived after carrying out numerous medical tests. Machine Learning Algorithms have been applied on this dataset to classify the records into two categories: Live or Die which are the values of the Class Label. There are 14 binary attributes and 6 numerical attributes in the data set, as shown below.

Number of Instances: 153

Number of Attributes: 20 (including the class attribute)

Attribute information is depicted in Table 1

Predicting the Structures and Mutations of DNA and RNA using Deep Learning

Dr A. Sharada,¹ M. Sreeridya,² D. Vaintharvi,³
¹Professor, CSE, ²II year B.Tech, ³II year B.Tech
 G.Narasimamma Institute of Technology and Science, Shaikpet, Hyderabad

ABSTRACT—Technological advances in genomics have led to an explosion of molecular and cellular profiling data from large numbers of samples. This rapid increase in biological data dimension and acquisition rate is challenging traditional analysis strategies. Modern machine learning methods, such as deep learning, promise to leverage very large data sets for finding hidden structure within them, their analysis and for making accurate predictions.

In this review, we discuss applications of this new breed of analysis approaches in regulatory genomics and cellular signaling. We provide background of what deep learning is, and the settings in which it can be successfully applied to derive biological aspects. In addition to presenting specific applications, we also highlighted possible pitfalls and limitations to guide computational biologists when and how to make the most of its use of this new technology.

KEYWORDS—genomic, proteomics, metabolomics, supervised learning, deep learning, deep neural network, in vitro, in vivo, convolution neural network.

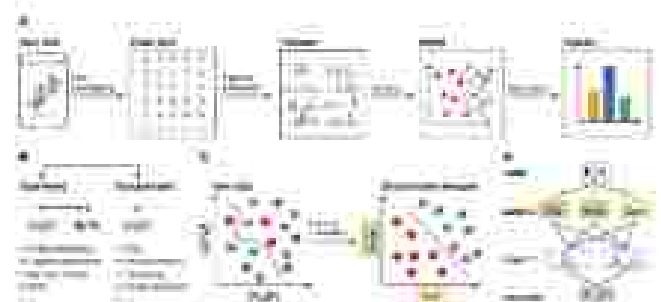
INTRODUCTION

In computational biology, the appeal is the ability to derive predictive models without a need for strong assumptions about underlying mechanisms, which are frequently unknown or insufficiently defined. As a case in point, the most accurate prediction of gene expression levels is currently made from a broad set of epigenetic features using sparse linear models or random forests; how the selected features determine the transcript levels remains an active research topic. Predictions in genomics, proteomics, metabolomics or sensitivity to compounds all rely on machine learning approaches as a key ingredient. Most of these applications can be described within the canonical machine learning workflow, which involves four steps: data cleaning and pre-processing, feature extraction, model fitting and evaluation. It is customary to denote one data sample, including all co-variables and features as input x (usually a vector of numbers), and label it with its response variable or output value y (usually a single number) when available. A supervised machine learning model aims to learn a function $f(x) = y$ from a list of training pairs $(x_1, y_1), (x_2, y_2), \dots$ for which data are recorded. One typical application in biology is to predict the viability of a cancer cell line when exposed to a chosen drug.

Knowing the sequence specificities of DNA- and RNA-binding proteins is essential for developing models of the regulatory processes in biological systems and for identifying crucial disease variants. Here, we show that sequence specificities can be ascertained from experimental data with 'deep learning' techniques, which offer a scalable, flexible and unified computational approach for pattern discovery. Using a diverse array of experimental data and evaluation metrics, we find that deep learning outperforms other state-of-the-art methods, even when training on *in vitro* data and testing on *in vivo* data. We call this approach Deep Bind and have built a stand-alone software tool that is fully automatic and handles millions of sequences per experiment. Specificities determined by Deep Bind are readily visualized as a weighted ensemble of position weight matrices or as a 'mutation map' that indicate how variations affect binding within a specific sequence.

DNA- and RNA-binding proteins play a central role in gene regulation, including transcription and alternative splicing. The sequence specificities of a protein are most commonly characterized using position weight matrices (PWMs), which are easy to interpret and can be scanned over a genomic sequence to detect potential binding sites.

Deep Bind addresses the above challenges: (i) it can learn from millions of sequences through parallel implementation on a graphics processing unit (GPU), (ii) it can be applied to both microarray and sequencing data, (iii) it can tolerate a moderate degree of noise and mislabeled training data, (iv) it generalizes well across technologies, even without correcting for technology-specific biases, and (v) it can train predictive models fully automatically, alleviating the need for careful and time-consuming hand-tuning. Importantly, a trained model can be applied and visualized in ways that are familiar to users of PWMs.





ALCOHOL DETECTION AND VEHICLE IGNITION LOCKING SYSTEM

VasundharaRamireddy, G. Varsha, A. Sharath Kumar

Assistant Professor, Department of CSE,

G. Narayanamma Institute of Technology and Science (for women), India

ABSTRACT

In the present day's alcohol-attributable accidents are increasing rapidly where the concern as alcohol is a factor in many categories of injury. Every year it is reported about 2.3 million premature deaths due to harmful consumption of alcohol [1]. In this paper we proposed an improved alcohol detection for use in an automobile ignition locking system using Arduino. A temperature sensor is used to measure the temperature of the breath sample to ensure that it is the same temperature as human breath. A sensor is used for a specific volume of the breath sample, which is used to determine the alcohol content. A Micro Controller is used to convert the output into a reading which represents the breath alcohol content of the breath sample. This analysis is used as part of an overall automobile ignition locking system which prohibits starting the car when the operator is intoxicated. The system also requires rolling resistors to ensure that the driver is still sober.

Key words: Arduino, Temperature sensor, Micro controller, Ignition locking.

Cite this Article: VasundharaRamireddy, G. Varsha, A. Sharath Kumar, Alcohol Detection and Vehicle Ignition Locking System, *International Journal of Mechanical Engineering and Technology* 9(9), 2018, pp. 1078–1084.
<http://iaeme.com/Home/issue/IJMET?Volume=9&Issue=9>

1. INTRODUCTION

The growth of automotive vehicles has been increasing gradually day to day, which in turn lead to the increased growth of road accidents. The numbers of these fatalities that take place in India are ranked to be in the top most position in the world. The number of road deaths is high mainly in cosmopolitan and metropolitan cities. According to the survey Delhi ranks first in the position, Bangalore in fourth place and Hyderabad in ninth place in these road accidents [2]. Improved alcohol detection is analyzed for use in an automobile ignition locking system.

Internet of Things (abbreviated as IoT) has been coined by industry researchers but has emerged into mainstream public view in recent years only. IoT is a network of devices like smartphones, vehicles, home appliances, and more, that connect to and exchange data with computers and web connectivity-that empowers these objects to collect and exchange data.



ALCOHOL DETECTION AND VEHICLE IGNITION LOCKING SYSTEM

VasundharaRamireddy, G. Varsha, A. Sharath Kumar

Assistant Professor, Department of CSE,

G. Narayanamma Institute of Technology and Science (for women), India

ABSTRACT

In the present day's alcohol-attributable accidents are increasing rapidly where the concern is alcohol is a factor in many categories of injury. Every year it is reported about 2.3 million premature deaths due to harmful consumption of alcohol [1]. In this paper we proposed an improved alcohol detection for use in an automobile ignition locking system using Arduino. A temperature sensor is used to measure the temperature of the breath sample to ensure that it is the same temperature as human breath. A sensor is used for a specific volume of the breath sample, which is used to determine the alcohol content. A Micro Controller is used to convert the output into a reading which represents the breath alcohol content of the breath sample. This analysis is used as part of an overall automobile ignition locking system which prohibits starting the car when the operator is intoxicated. The system also requires rolling resistors to ensure that the driver is still sober.

Key words: Arduino, Temperature sensor, Micro controller, Ignition locking.

Cite this Article: VasundharaRamireddy, G. Varsha, A. Sharath Kumar, Alcohol Detection and Vehicle Ignition Locking System, *International Journal of Mechanical Engineering and Technology* 9(9), 2018, pp. 1073–1084.
<http://iaeme.com/Home/issue/IJMET?Volume=9&Issue=9>

1. INTRODUCTION

The growth of automotive vehicles has been increasing gradually day to day, which in turn lead to the increased growth of road accidents. The numbers of these fatalities that take place in India are ranked to be in the top most position in the world. The number of road deaths is high mainly in cosmopolitan and metropolitan cities. According to the survey Delhi ranks first in the position, Bangalore in fourth place and Hyderabad in ninth place in these road accidents [2]. Improved alcohol detection is analyzed for use in an automobile ignition locking system.

Internet of Things (abbreviated as IoT) has been coined by industry researchers but has emerged into mainstream public view in recent years only. IoT is a network of devices like smartphones, vehicles, home appliances, and more, that connect to and exchange data with computers and web connectivity-that empowers these objects to collect and exchange data.



ALCOHOL DETECTION AND VEHICLE IGNITION LOCKING SYSTEM

VasundharaRamireddy, G. Varsha, A. Sharath Kumar

Assistant Professor, Department of CSE,

G. Narayanamma Institute of Technology and Science (for women), India

ABSTRACT

In the present day's alcohol-attributable accidents are increasing rapidly where the concern as alcohol is a factor in many categories of injury. Every year it is reported about 2.3 million premature deaths due to harmful consumption of alcohol [1]. In this paper we proposed an improved alcohol detection for use in an automobile ignition locking system using Arduino. A temperature sensor is used to measure the temperature of the breath sample to ensure that it is the same temperature as human breath. A sensor is used for a specific volume of the breath sample, which is used to determine the alcohol content. A Micro Controller is used to convert the output into a reading which represents the breath alcohol content of the breath sample. This analysis is used as part of an overall automobile ignition locking system which prohibits starting the car when the operator is intoxicated. The system also requires rolling resistors to ensure that the driver is still sober.

Key words: Arduino, Temperature sensor, Micro controller, Ignition locking.

Cite this Article: VasundharaRamireddy, G. Varsha, A. Sharath Kumar, Alcohol Detection and Vehicle Ignition Locking System, *International Journal of Mechanical Engineering and Technology* 9(9), 2018, pp. 1078–1084.
<http://iaeme.com/Home/issue/IJMET?Volume=9&Issue=9>

1. INTRODUCTION

The growth of automotive vehicles has been increasing gradually day to day, which in turn lead to the increased growth of road accidents. The numbers of these fatalities that take place in India are ranked to be in the top most position in the world. The number of road deaths is high mainly in cosmopolitan and metropolitan cities. According to the survey Delhi ranks first in the position, Bangalore in fourth place and Hyderabad in ninth place in these road accidents [2]. Improved alcohol detection is analyzed for use in an automobile ignition locking system.

Internet of Things (abbreviated as IoT) has been coined by industry researchers but has emerged into mainstream public view in recent years only. IoT is a network of devices like smartphones, vehicles, home appliances, and more, that connect to and exchange data with computers and web connectivity-that empowers these objects to collect and exchange data.



Journal of Advanced Research in Dynamical and Control Systems

Journal of Advanced Research in Dynamical and Control Systems, Volume 10, Issue 1, 2022

Journal of Advanced Research in Dynamical and Control Systems, Volume 10, Issue 1, 2022

Journal of Advanced Research in Dynamical and Control Systems, Volume 10, Issue 1, 2022

Table of contents listing articles and page numbers, including 'Journal of Advanced Research in Dynamical and Control Systems' and 'Volume 10, Issue 1, 2022'.

Comparison on Implementation Models of Smart Applications Using IoT Technology

Mrs. P. Keerthi Chandrika¹, Ms. Asima Suman Qureshi²

¹Assistant Professor, Dept. of CSE, G. Narayanaamma Institute of Technology and Science, Hyderabad, Telangana, India

Abstract- The perception of IoT signifies the advancement of the Internet and its appliance is persistently developing. Conferring to assessments, by means of this concept 50 billion devices will be associated by 2020 which places heavy demands and challenges in preserving the mandatory safety level of such an environment. This paper is focused mainly on the different technologies used by IoT in latest trend by projecting them from various aspects and perspectives. The comparison shows the clear view on different aspects like Technical environment, Application mode, Management system, Realtime Notification for the chosen smart applications of IoT. This way we can easily understand the technology used for various applications.

Key Words- IoT, Realtime Notification, Isolated System, Sensor Ability, Interoperability

I. INTRODUCTION

IoT (Internet of Things) is the network of physical objects—devices, vehicles, buildings and other items set in with electronics, software, sensors, and network connectivity that facilitate these objects to sense, collect, exchange data and control remotely across existing network infrastructure that is based on a layered architecture. Each of the layers includes the application of a range of diverse technologies for the data transmission, processing and storage[1]. The vulnerabilities and threats in IoT environment and protection methods can be implemented within environment due to the hardware limitations of the existing equipment and technology used for data transfer. The rapid development of information technology has brought advancing a hyper connected society in which objects are connected to mobile devices and the Internet and communicates with one another. In the 21st century, we want to be associated with anything anytime and anywhere, which is already up-to-the-minute in various places everywhere in the world. The core component of this hyper connected society is IoT, which is also referred to as Machine to Machine (M2M) communication or Internet of Everything (IoE).



Fig-1: Anything Anytime and Anywhere-IoT

Over 12.5 billion devices were already connected in 2010 and about 50 billion devices will be connected by 2020. However, little is known about the impacts of IoT service to consumer behavior. From the consumer point of view, IoT is both opportunity and possible danger[3]. Given the importance of understanding consumer for successful IoT services spread in the market, it is critical to research major factors and dynamics affecting IoT consumer attitude. Internet of Things (IoT), triggered by technological advances in embedded systems hardware, software, and connectivity. The increasing availability of tiny, cheap, power-efficient micro-controllers and peripherals has spun a new category of computers: low-end IoT devices. Even though such devices cannot run traditional operating systems (e.g. Linux and equivalents) due to very constrained memory, CPU, power resources, most low-end IoT devices have enough resources to run newer operating systems and cross-platform application code. Furthermore, recent network technology and protocol standardization efforts have enabled new interconnection capabilities for such devices, such as low-power end-to-end IPv6 based networking. The growing role of the Internet of Things (IoT) concept is proved by its application in the number of areas such as the development of smart cities, the management of energy resources and networks, mobility, transport, logistics, etc. The high level of complexity of the IoT concept and the use of Automatic Identification and Data Capture (AIDC) technologies increases the risk of compromising the basic principles of safety, which is why this problem domain remains continuously investigated in the last few years.

Comparison on Implementation Models of Smart Applications Using IoT Technology

Mrs. P. Keerthi Chandrika¹, Ms. Asima Suman Qureshi²

¹Assistant Professor, Dept. of CSE, G. Narayanaamma Institute of Technology and Science, Hyderabad, Telangana, India

Abstract- The perception of IoT signifies the advancement of the Internet and its appliance is persistently developing. Conferring to assessments, by means of this concept 50 billion devices will be associated by 2020 which places heavy demands and challenges in preserving the mandatory safety level of such an environment. This paper is focused mainly on the different technologies used by IoT in latest trend by projecting them from various aspects and perspectives. The comparison shows the clear view on different aspects like Technical environment, Application mode, Management system, Realtime Notification for the chosen smart applications of IoT. This way we can easily understand the technology used for various applications.

Key Words- IoT, Realtime Notification, Isolated System, Sensor Ability, Interoperability

I. INTRODUCTION

IoT (Internet of Things) is the network of physical objects—devices, vehicles, buildings and other items set in with electronics, software, sensors, and network connectivity that facilitate these objects to sense, collect, exchange data and control remotely across existing network infrastructure that is based on a layered architecture. Each of the layers includes the application of a range of diverse technologies for the data transmission, processing and storage[1]. The vulnerabilities and threats in IoT environment and protection methods can be implemented within environment due to the hardware limitations of the existing equipment and technology used for data transfer. The rapid development of information technology has brought advancing a hyper connected society in which objects are connected to mobile devices and the Internet and communicates with one another. In the 21st century, we want to be associated with anything anytime and anywhere, which is already up-to-the-minute in various places everywhere in the world. The core component of this hyper connected society is IoT, which is also referred to as Machine to Machine (M2M) communication or Internet of Everything (IoE).



Fig-1: Anything Anytime and Anywhere-IoT

Over 12.5 billion devices were already connected in 2010 and about 50 billion devices will be connected by 2020. However, little is known about the impacts of IoT service to consumer behavior. From the consumer point of view, IoT is both opportunity and possible danger[3]. Given the importance of understanding consumer for successful IoT services spread in the market, it is critical to research major factors and dynamics affecting IoT consumer attitude. Internet of Things (IoT), triggered by technological advances in embedded systems hardware, software, and connectivity. The increasing availability of tiny, cheap, power-efficient micro-controllers and peripherals has spun a new category of computers: low-end IoT devices. Even though such devices cannot run traditional operating systems (e.g. Linux and equivalents) due to very constrained memory, CPU, power resources, most low-end IoT devices have enough resources to run newer operating systems and cross-platform application code. Furthermore, recent network technology and protocol standardization efforts have enabled new interconnection capabilities for such devices, such as low-power end-to-end IPv6 based networking. The growing role of the Internet of Things (IoT) concept is proved by its application in the number of areas such as the development of smart cities, the management of energy resources and networks, mobility, transport, logistics, etc. The high level of complexity of the IoT concept and the use of Automatic Identification and Data Capture (AIDC) technologies increases the risk of compromising the basic principles of safety, which is why this problem domain remains continuously investigated in the last few years.

Application Based Quality Of Service In Mobile Networks With Cloud Architecture

Mr.Mada Vamsi Krishna , Dr. K V G Rao

Research Scholar Hyderabad

Professor & HOD of CSEG/ITS, Hyderabad

Corresponding Author: M.Mada Vamsi

ABSTRACT

Cloud computing is a grid based application which facilitates "On demand network access to a shared pool of computing resources". This environment strives to be secure, scalable and customized with guaranteed quality of service (QoS). However, QoS is guaranteed through fulfillment of non-functional requirements like Security, Scalability, Mobility and Virtualization in cloud computing System.

In this paper we proposed "the OCCA algorithm" is an approach to fulfillment of our goal. To meet the computing demands of everyday operations like Nonfunctional requirements, here we have introduced OCCA to achieve them. First security, the misuse case and Attack Tree analysis posed threat and attack surface of any cloud. Second scalability, we should overcome network traffic congestion and DoS because of rapid growth of customers. Third, storage and Service providing consequences arise and mitigated to achieve Mobility and Virtualization. The above unpredictable constraints can be modeled through DPEAD analysis. So that above consequences partially annihilated and use of cloud can be extended by adding more capacity on demand.

KEY WORDS: Cloud-computing, Security, Scalability, Mobility, Virtualization, Attack analysis.

Date of Submission: 17-07-2018

Date of acceptance: 11-08-2018

1. INTRODUCTION

The philosophy of software engineering emerged from different techniques have been proposed to establish software development as a part of mainstream engineering that includes formal techniques of functional and non functional requirements elicitation and maintenance of software.

All these techniques that dealt with software engineering are focused on functional requirements. Functional requirement is defined as "behavior of the software system for desired input", whereas the nonfunctional requirement relates to "how the system is expected to behave with undesired input or in an unexpected environment". Nonfunctional requirements generally were defined as constraints in the system. In software engineering these constraints were generally handled outside of development life cycle. Security, Scalability, Mobility and Virtualization are defined as non-functional requirement and looked as constraints in software.

For long time, data networks were closed – security within these networks were ensured through isolation. The trusted private LAN (Local Area Network) was isolated from the untrusted public networks like internet through firewalls to ensure that adversaries and hackers cannot intrude into the private network and steal valuable assets. To secure assets, other security mechanisms like Proxies, IDS (Intrusion Detection System), IPS (Intrusion Prevention System), Anti-Virus, Malware catchers etc were also installed. The belief was that an applications and assets used by the organization can be secured through in-vitro perimeter security, therefore, software engineering techniques never looked into security as an important component in Software Develop Life Cycle (SDLC), therefore, defined security as nonfunctional requirement [1]. In a conventional deployment model be it mainframe, client-server, or Web – servers are isolated and run on separate hosts within a defined boundary – allowing some kind of physical security. In Cloud Computing paradigm however, platform and infrastructure are virtual making this boundary non-existent and insecure. The main motivation towards going for Cloud is scalability.

In Cloud there is no capital investment – it is mainly revenue expenses, users pay as they use. In Cloud, users use Platform as a Service (PaaS), Infrastructure as a Service (IaaS) and Software as a Service (SaaS) – supply of resources in the Cloud increase or decreases on demand. In mainframe or client-server or even in Web deployment paradigm security was in-vitro, focus was mainly on network security. However, in recent times many applications have moved out of the private network and being deployed as Web Services. These are accessible to genuine users and hackers alike, therefore, security must be part of the application to protect itself from security threats. Application security will however be over and above the perimeter network security. To



Accuracy assessment of rough set based SVM technique for spatial image classification

[Author & abstract](#)[Download](#)[Related works & more](#)[Corrections](#)

Author

[Listed:](#)

- D.N. Vasundhara
- M. Seetha

[Registered:](#)

Abstract

There exist many traditional spatial image classification techniques which are developed over past years and exists in literature. Today, expert systems along with machine learning methods are getting universality in this area due to effective classification. This paper presents Rough set based support vector machine (SVM) classification (RS-SVM) method. In this technique, Rough set (RS) is used as a feature selection mathematical tool which eliminates the redundant features. Further, this reduced dimensionality dataset is given to SVM classifier. This process improves the classification accuracy and performance. We have performed experiments using standard geospatial images for above proposed method for classification.

Suggested Citation

 D.N. Vasundhara & M. Seetha, 2018, "Accuracy assessment of rough set based SVM technique for spatial image classification," *International Journal of Knowledge and Learning*, Inderscience Enterprises Ltd, vol. 12(3), pages 269-285.

Handle: [RePEc:ids:ijklea:v12y2018i3p269-285](https://ideas.repec.org/a/ids/ijklea/v12y2018i3p269-285)

[Export reference](#) 

IDEAS is a [RePEc](#) service hosted by the [Research Division](#) of the [Federal Reserve Bank of St. Louis](#). RePEc uses bibliographic data supplied by the respective publishers.

[Home](#) > [Regression Psychology](#)

Article

An Approach to Regression Testing based on Grounded Theory Specifications

June 2018 (International Journal of Computer Sciences and Engineering)

Vol. 3(6)

Pages: 284-292 (9 Pages)

Abstract

-  **Printer**
Kantipur
-  **Aranda**
Rac
-  **Rikugokoro**
Rac

Account Login
Download Article
Copy All
▼

 To read the full-text of this research, you can request a copy directly from the author.

[References \(1\)](#)

Discover the source research

- 1. 2018-06-28
- 2. 2018-06-28
- 3. 2018-06-28

[View All](#)

Download Article

No related articles



Download Article PDF

Download Article PDF

Efficiency of Wireless Sensor Network with MIMO Techniques



P. Sudhakar Rao, A. Narmada

Abstract— A performance analysis of the energy efficiency of Wireless Sensor Network with different types of MIMO techniques is carried out in this paper. MIMO concept is compared with WSN and performance of each network is analyzed and experimented in this paper with respect to different energy consumption viz., transmit energy consumption and total energy consumption. It is concluded that WSN with EPSE-MIMO outperforms WSN with MISO. The results published in this paper show that the integration WSN with EPSE-MIMO can achieve better performance metrics.

Keywords— WSN, MIMO, SDR, EPSE, Distributed Processing

I. INTRODUCTION

There is lot of research attention towards WSN even though they have lot of energy constraints. WSN consists of sensor that are battery operated, with parallel and distributed processing abilities. The sensor nodes form vital part in collecting remote data and communicating it to the central processing unit in multiple hops. The essential aim of WSN is to collect remote data from difficult and harsh radio environments so as to facilitate the end user with reliable information. Hence the methodologies to reduce energy consumption are vital to the successful operation of WSN as WSN are battery operated [1-5].

The major power consumption of traditional WSNs is due to asymmetrical transmitting patterns and internal circuits. Traditional energy optimization techniques may not be effective to reduce the internal power consumptions of WSNs. Multiple Input and Multiple Output (MIMO) techniques can be use such methodology to help reduce energy consumption of WSNs which include layered space-time architectures, smart antenna schemes and various virtual collision algorithms. However the MIMO technique has a drawback of requiring complex circuitry to implement collision algorithms which prevented the integration of WSN [1-5].

II. RELATED WORK

The recent research analysis on MIMO show that the cooperative MIMO techniques enhance the data rates of WSN thereby enhancing the efficiency based on overall energy consumption [6].

Virtual collision with cooperative MIMO methodologies leads to many benefits like better energy efficiency, better data rates etc. There may be significant overheads due to MIMO based implementation as discussed in [7].

This paper deals with better methodologies to save energy, enhance throughput and hence improving many other vital performance metrics of WSN.

The model of the proposed system is explained in section III, the analytical methods of the proposed system are explained in section IV and section V represents the conclusion.

III. MODEL AND DESCRIPTION OF THE SYSTEM

The proposed model is based on contacting two wireless sensor nodes with a communication link that is characterized by flat fading and narrow band filtering. The proposed model assumes WSN can either be MIMO or Single Input Single Output (SISO). The base band signal processing blocks of the unit consume negligible energy and hence this energy is assumed to be zero in the proposed model in order to simplify the mathematical analysis. N_t and N_r represent the number of transmitting and receiving antennas respectively.

The total energy consumption is due to two parts viz., power consumption due to all the power amplifiers P_{amp} and the power consumption due to circuit blocks P_c . The amount of transmitted power P_{amp} depends of power amplifier power efficiency and its energy consumption and hence the overall power consumption due to the power amplifiers is interpreted in equation (1).

$$P_{amp} = (1-\epsilon)P_{out} \quad (1)$$

Where $\epsilon = \eta - 1$, η RF power amplifier Energy efficiency and ϵ the peak-to-average ratio which depends on two factors viz., modulation scheme and coding/line size. M-QAM is assumed in this model [9]. Therefore

$$\epsilon = 3 \frac{M - 2\sqrt{M} + 1}{M - 1} \quad (2)$$

Link budget calculation can be used to calculate the transmit power P_{out} .

$$P_{out} = \frac{(4\pi)^2 d^4 N_t N_r}{G_t G_r \lambda^4} E_b R_b \quad (3)$$

d the distance of transmission.

λ attenuation of the signal.

G_t Gain of transmitting antenna.

G_r Gain of the receiving antenna.

λ wave length of the carrier.

M the link margin.

N_r Noise figure of the receiver.

E_b Energy consumed per bit.

R_b bit rate of the system.

Receiver noise figure N_r is given by

Received Manuscript Received on December 04, 2018.

* Corresponding Author.

Dr. P. Sudhakar Rao*, Professor, Department of IIT, Government Institute of Technology and Science, Sri Sathya Sai Institute, Mysore, Karnataka, India. psr@sssi.ac.in

Dr. A. Narmada, Professor, Department of ECE, Sri Sathya Sai Institute, Mysore, Karnataka, India. anarmada@sssi.ac.in

© The Authors. Published by the Sri Sathya Sai Institute, Mysore, Karnataka, India. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



DESIGN AND IMPLEMENTATION OF SUM OF ABSOLUTE DIFFERENCE FOR VARIABLE BLOCK SIZE MOTION ESTIMATION IN VIDEO CODING

¹Anandesh Sree Tulasi, ²V. Shankar

¹MTech Scholar, Dept. of ECE, G. Narayanamma Institute of Technology and Sciences, Hyderabad – 500104, India

²Asst. Prof. ME(PhD), Dept. of ECE, G. Narayanamma Institute of Technology and Sciences, Hyderabad – 500104, India

Abstract– The paper implements the Sum Of Absolute Difference architecture for integer motion estimation as it employs numerous calculations and resources in the present day video coding. Unlike different hardware designs of SAD architecture, the paper introduces complement adders to enumerate the difference amongst the two pixel values of the current and the reference frames. An accumulation array unit is designed by using a 32-bit Brent Kung adder to produce the final output SADs for variable block sizes. The architecture is typically intended for block based video compression standards widely HEVC. The design exploits 4% of slice registers and 20% of slice LUTs in Xilinx Spartan 6 device. Also, the Performance analysis confirms that compared to alternative SAD architectures using carry select and carry skip adder, the proposed architecture reduces the area at no cost latency. In addition, the video compression is performed in MATLAB software where the performance metrics essentially the compression ratio, peak signal to noise ratio, and the mean square error are stated.

Keywords Brent Kung Adder, HEVC, Sum Of Absolute Difference, Motion Estimation

1. INTRODUCTION

Video compression methods are utilized in majority of the commercial products, originally in the consumer electronic accessories which includes television sets, digital camcorders, cellular phones to internet broadcasting networks for applications like video chatting, video teleconferencing, multi-view videos, etc. In the view that these applications make video compression hardware device complex and inevitable for any commercial products. So as to upgrade video compression in real time design of

video encoders. The International Standards for video coding are established these standards come up with add on video compression efficiency and several merits relevant to the previous video compression standards. The video compression methods are made convenient in distinct video encoders as they decline the storage space and transference bandwidth required for a video sequence.

HEVC is the presently effective Block-Based video coding standard realized by the joint collaborative video team of ITU-T and ISO-MPEG. It is also termed as H.265 video coding standard. This standard permits a pixel resolution of about 8192x4320 inclusive of 8K UHD resolutions. HEVC also imparts double compression efficiency, abates the bitrate by 30% with a consistent video quality as that of H.264. Exclusive of these details, HEVC is noted for its quadtree structure feature which comprises of a coding unit. The coding unit to a greater extent is parted into prediction units and transform units. The coding blocks in HEVC have substituted the conception of macroblocks used in H.264. Also, the highest coding block in HEVC is mainly 64x64 unit where transforms are applied.

Motion estimation procedure is the most immensely complicated segment in video encoders. The process deploys 90% of the complete encoding time. It also lists the motion vectors for each and every single block in the current frame to the best matched block in the reference frame. The Block Matching algorithm is the precise means of motion estimation considering that it lessens the temporal redundancy within two successive frames with great ease. It also acquires the displacement vectors

Throughput of Customised ZigBee Stack- A Mathematical Modelling

A.Narmada, P.Sudhakara Rao



Abstract— Research work is being done in the field of wireless communication protocols in order to find the desired applicability suitable to the end user. ZigBee protocol is chosen due to its reliable, long range and robust communication. In this direction there is need of designing a custom communication protocol to realize a virtual control network by customizing the existing ZigBee protocol stack. It is also required to embed internet support protocols in different layers of the proposed stack so as to enable the entire network with internet connectivity.

The proposed application aims at interconnecting different devices under user personal area network, this fact has led to propose a new protocol stack with which every device of the network can be easily operated or controlled with enhanced network capabilities like resource sharing, additional middle layer for realizing the proposed application using WPAN abbreviated as ZigBee IP (ZI) stack.

ZI stack is designed and the corresponding mathematical modelling is done in order to find better stack than ZigBee. This paper presents the design and modelling of throughput which is one of the important design parameters. Both the stacks viz., ZI and ZigBee are also compared w.r.t throughput.

Keywords— Non real Time, Real Time, ZigBee, ZigBee- IP stack, mathematical modelling.

I. INTRODUCTION

Keeping in view about the need of the proposed work that needs a reliable communication protocol stack, both the stacks viz., TCP/IP and WPAN are to be studied in depth so as to modify the stacks in order to accommodate the proposed application. Very slow response, lower sized data packets, over head etc are the disadvantages of the original ZigBee stack. TCP/IP protocol stack is bearing higher memory foot print thus making it not suitable to small sized networks. Hence a new stack is proposed so as to minimize the latency, enhance the data rates and to improve the response time. The throughput analysis and mathematical modelling of newly designed stack christened ZI stack is published in this paper along with the experimentation results. The throughputs of ZI and ZigBee stacks are compared and tabulated here.

IEEE 802.15.4 standard ZigBee stack is shown in figure 1 with four layers namely physical, Medium Access control, Network, and Application layers. The major functionalities of physical layer include bit timing, voltage levels, mode of transmission, coding techniques used etc. Physical layer uses DSSS technique to avoid unwanted noise [1-10].

A controlled access to medium is provided by MAC layer with the help of carrier MAC protocol. This layer is a hop-to-hop layer which provides framing, error control at each hop till destination. An Ad-hoc On-Demand Distance Vector Routing Protocol is employed the next higher layer i.e. network layer. The network layer provides end to end route based on AODV protocol but this layer suffers with higher transmission delay due to coordinator involvement in every small data transfer in order to provide reliable data transfer. Further research is to be carried out in order to find an efficient communication protocol with better throughput as an alternative to the original ZigBee stack. Very easy user interface is provided by the application layer with the ZigBee Device Object corresponding to every node of the network.

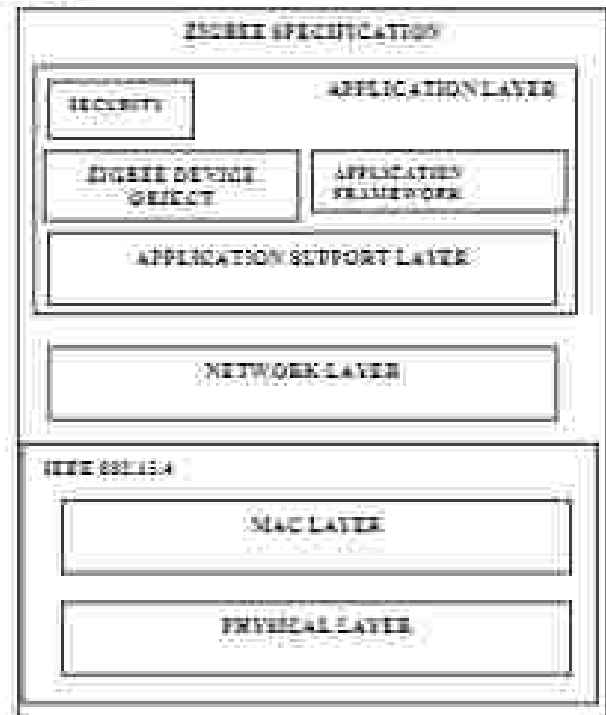


Figure1. ZigBee stack

II. MOTIVATION

The integration of WPAN and IP attracts plenty user applications that leading to many advantages. The following points are to be addresses during this integration.

Manuscript received on November 05, 2019
A.Narmada*, Professor, ECE, JSSR Women's Engineering College, Mysuru, Karnataka, India. (Email: anarmada@jssr.ac.in)
P.Sudhakara Rao, Professor, ECE, G.Mangayarkarasi Institute of Technology, Salem, Tamil Nadu, India. (Email: p_sudhakara_rao@yahoo.com)

© The Authors. Published by Blue Eyes Intelligence Engineering and Sciences Publication (BIJES). This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



Health Care Monitoring System For Analysing Patient's Data Based On Message Queuing Telemetry Transport Protocol

V. Han chandans¹, Mrs.N.Harini²

¹PG Scholar, Dept. of ECE, G. Narayana Murthy Institute of Technology and Science, Hyderabad

²Assistant Professor, Dept. of ECE, G. Narayana Murthy Institute of Technology and Science, Hyderabad

Abstract - As the technology is becoming advance so do we in this we controlling and checking the status through Internet of things (IoT) is playing a very crucial role. In many technologies environment status of an area is being monitored and controlled using IoT using Wi-Fi IEEE 802.11 which can vary according to the speed of the network connection. In this project a very light weight protocol i.e. Message-Queuing Telemetry transport (MQTT) protocol is used. While there are currently a number of competing IoT technologies and protocols in play, the extremely lightweight overhead (2-byte header), publish/subscribe model, and bidirectional capabilities of MQTT are uniquely suited to meet the demands of health monitoring control systems.

In this paper Health care monitoring application is used to analyse patient health condition. Here a single board computer i.e. Raspberry pi 3 is used which has a processing speed of 1.2 GHz with ARMv8 BCM2837 SoC processor including in built Wi-Fi and BLE (Bluetooth Low Energy) with 1GB of RAM. All the patient health monitoring values will be updated on the raspberry pi server from where the data through MQTT protocol will be published to the cloudmqtt.com which will act as the broker and the client i.e. MQTTLENS App will receive live condition of the patient and according to any abnormality and taking care of the crucial condition of the patient, message will be sent to the Doctor, Nurse or care taker accordingly their crucial condition using the Twilio API. Also a local authenticated server (MySQL Database) is made where all the patient health values will be updated and stored, which can only be authenticated by the Doctor.

Keywords- MQTT, IoT, Healthcare, WSN, Wi-Fi.

1 INTRODUCTION

Mobile health refers to the practice of medicine and public health supported by mobile devices. The m-health field has emerged as a sub-segment of e-Health, the use of information and communication technology (ICT), such as computers, mobile phones, communications satellite, patient monitors, etc., for health services and information. In this paper, we

focus on mobile health remote monitoring system, kind of mobile health applications, include the use of mobile devices in collecting community and clinical health data, delivery of health care information to practitioners, researchers, and patients, real-time monitoring of patient vital signs. As the technology is becoming advance so do we in this we controlling and checking the status through Internet of things (IoT) is playing a very crucial role. In many technologies environment status of an area is being monitored and controlled using IoT using Wi-Fi IEEE 802.11 which can vary according to the speed of the network connection. In this project a very light weight protocol i.e. Message-Queuing Telemetry transport (MQTT) protocol is used. While there are currently a number of competing IoT technologies and protocols in play, the extremely light weight overhead (2-byte header), publish/subscribe model, and bidirectional capabilities of MQTT are uniquely suited to meet the demands of health monitoring control systems. In this paper Health care monitoring application is used to analyse patient health condition. Here a single board computer i.e. Raspberry pi 3 is used which has a processing speed of 1.2 GHz with ARMv8 BCM2837 SoC processor including in built Wi-Fi and BLE (Bluetooth Low Energy) with 1GB of RAM. All the patient health monitoring values will be updated on the raspberry pi server from where the data through MQTT protocol will be published to the wireless network which will act as the broker and the client i.e. MQTTLENS App will receive live condition of the patient and according to any abnormality and taking care of the crucial condition of the patient, message will be sent to the Doctor, Nurse or care taker accordingly their crucial condition will be send using the Twilio API. Also a local authenticated server (MySQL Database) is made where all the patient health values will be updated and stored, which can only be authenticated by the Doctor.

International Journal of Advanced Science and Technology

[Home](#) | [Editorial Board](#) | [Journal Topics](#) | [Archives](#) | [About the Journal](#) | [Submissions](#)

[Privacy Statement](#) | [Contact](#)

[Home](#) / [Articles](#) / [Vol. 29 No. 7s \(2020\)](#) / [Vol. 29 No. 7s \(Special Issue\)](#) / [Articles](#)

Improving Network Lifetime in Secured Wireless Sensor Networks

Dr.B.Venkateshulu, Ch. Sudha Sravanthi

Abstract

Coor protocol helps in achieving lifetime and security in wireless sensor networks. In this paper, Coor protocol maintains equal energy levels in neighboring nodes by selecting next neighboring node based on highest energy level rather than selecting same node repeatedly as existing systems. Security is maintained by following bio modes like random, non-random mode which helps in protecting source information from attackers. Simulation is performed in NS2. Results show random mode consuming less energy than non-random mode. As extension non-random mode is improved for maintaining both modes better in terms of energy.

Keywords: Energy Balance Control, Network Lifetime, Network Security, Wireless Sensor Network.



How to Cite

Dr.B.Venkateshulu, Ch. Sudha Sravanthi, (2020), Improving Network Lifetime in Secured Wireless Sensor Networks, International Journal of Advanced Science and Technology, 29(7s), 425-463. Retrieved from <http://www.ijast.org/journal/index.php/IJAST/article/view/22972>

Document details - Automatic speed-limit sign detection and recognition for advanced driver assistance systems

1 of 3

[Export](#) [Download](#) [More...](#)

Transactions (Journal of Innovative Technology and Emerging Engineering)

Volume 8, Issue 9 (Special Issue 2), July 2019, Pages 2-5

Automatic speed-limit sign detection and recognition for advanced driver assistance systems(Article)([Open Access](#))

Akash A., Renuka Devi, S.M.

G. Narayanaswami, Institute of Technology and Science, Shalimar, Mysurbal, Karnataka, India

Abstract

In recent years, traffic accidents have become the major cause to human deaths and property damages. One of the main reasons for such accidents is due to high speed of vehicles. In order to maintain proper speed limit and thus provide significant contribution to improve safety, we propose Speed Limit sign detection and recognition method which is one of the features of Advanced Driver Assistance System (ADAS). In this paper we propose two approaches, i.e., histogram oriented gradient feature with SVM classifier namely HOG-SVM and CNN based approach. In these approaches we first pre-process the image using red colour enhancement method and then we detect the Region of Interest using Maxima Stable Extreme Region (MSER). Later, we classify the image by using different classifiers. In the HOG-SVM method, we are using HOG for feature extraction and Support Vector Machine (SVM) classifier for classification. In the CNN approach, we are using Convolutional Neural Networks (CNN) both for feature extraction and classification. Performance analysis of SVM classifier and CNN classifier are first evaluated on simple German Traffic Sign Recognition Benchmark (GTSRB) dataset using 5 fold classification, we get accuracy 100% for SVM classifier and 98.58% for CNN classifier. Also further evaluated on German Traffic Sign Detection and Recognition Benchmark datasets and the experimental results show detection accuracy upto 93.6% for SVM classifier and 85.8% for CNN classifier. © BE ISE.

Author keywords

[Classification](#) [color](#) [redcolor](#) [Histogram of oriented gradients](#) [MSER](#) [Speed limit sign](#) [SVM](#)

ISSN 237830-5

Source Type: Journal

Original language: English

DOI: 10.35940/ijtee.I001.071905219

Document Type: Article

Publisher: Blue Eyes Intelligence Engineering and Sciences Publication

Cited by 2 documents

Belahou, B., Yezou, M., Yezou, D.

Recognition of various speed limit traffic signs for use in advanced ADAS algorithm

(IJSE) (IJSE) *Journal of Innovation in Computer Technologies and Engineering*, 2021

Thak, H., Kumbhar, M., Kumbhar, M.

Traffic sign recognition system based on belief functions theory

(IJSE) (IJSE) *Proceedings of the 10th International Conference on Agents and Artificial Intelligence*

[View details of all 2 citations](#)

Inform me when this document is cited in Scopus

[Get citation alert](#) [Get citation alert](#)

Related documents

Find more related documents in Scopus Indexed

Authors | Keywords

Scopus Topic Prominence

Topic

Prominence percentage

Document details - Statistical Variation Aware Leakage and Total Power Estimation of 16 nm VLSI Digital Circuits Based on Regression Models

1 of 3

[Export](#) [Download Menu](#)

Communications in Computer and Information Sciences

Volume 1006, 2019, Pages 561-578

13th International Symposium on VLSI Design and Test, VDAT 2019, (Indore, India) 4 July 2019 through 6 July 2019, Code 120139

Statistical Variation Aware Leakage and Total Power Estimation of 16 nm VLSI Digital Circuits Based on Regression Models (Conference Paper)

Amuru, D., Zahra, A., Abbas, Z.

International Institute of Information Technology, Hyderabad, India
 IIT-ET, Sapienza University of Rome, Rome, Italy

Abstract

With the technology scaling down to sub-50 nm regime, the necessity of process variation aware estimation of leakage power is emphasized for robust digital circuit design. Variations in Leakage power results in a large increase in the variation of total power dissipation. This paper presents a Regression based estimation of leakage power and total power dissipation in hardware standard cell based designs that show an impressive speed up advantage with respect to analog SPICE level simulation. We propose a statistical variation aware estimation made through a Multivariate Linear Regression (MLR) and Multivariate Polynomial Regression (MPR) techniques. Exhaustive tests report shows MPR technique outperforms MLR technique in estimating the leakage and total power for the targeted 16 nm CMOS technology with negligible error (~2%). The proposed methodology works as well for 16 nm, 22 nm and 45 nm technology nodes. © 2019, Springer Nature Singapore Pte. Ltd.

Author keywords

CMOS Leakage power Machine learning (ML) VLSI

Indexed keywords

Engineering controlled terms

CMOS integrated circuits Digital circuits integrated circuit manufacture Microtechnology Regression analysis SPICE Timing circuits VLSI circuits

Engineering uncontrolled terms

Digital circuit design Leakage power Multivariate linear regression Multivariate polynomial regression Statistical variation Technology scaling Total power dissipation VLSI

Engineering mesh heading

Electrical and Electronic Engineering

Cited by 4 documents

Amuru, D., Zahra, A., Madamuri, H.V.

A/ML algorithms and applications in VLSI design and technology

[1022] *Integration*

Agarwal, A., Jain, A., Anand, D.

Fast and efficient ReLU and Genie optimization for PVT aware performance enhancement in digital circuits

[1022] *2022 International Symposium on VLSI Design, Automation and Test, VLSI-DAT 2022. Proceedings*

Amuru, D., Ahmed, M.S., Abbas, Z.

An efficient gradient based approach for PVT aware estimation of leakage power and propagation delay in CMOS FinFET digital cells

[1020] *Proceedings - 2022 International Symposium on Computer Systems*

View details of all 4 citations

Inform me when this document is cited in Scopus

[Set citation alert](#) [Set citation alert](#)

Related documents

Find more related documents in Scopus based on:

Authors [Keywords](#)

SciVal: Topic Prominence

Topic

Relevance percentage

Implementation of Secure Cryptographic Key Techniques for DES Algorithm using Verilog HDL

Vangasa Sreerathwan, B Sreeranth Reddy

M.Tech, Asst. Prof, M.S, ECE dept
Electronics and Communication Department

G. Narayanamma Institute of Technology and Sciences, Hyderabad, India

Abstract : Now a day, Cryptography plays a major role to achieve the goal of secure communication and avoid an unauthorized access of data. Secured key assumes a vital part in cryptography. In this proposed concept Data encryption standard (DES) Algorithm is used as it is well-suited for the VLSI implementation of low-cost lightweight cryptography applications. Any cryptographic algorithm security mostly relies on the privacy of the key. To increase the level of security, "Dynamic Key Theory" is presented and analyzed in this paper. Dynamic key method enhances the DES algorithm securities using multiple key-generation techniques to achieve the goal of secure communication. For implementation, this project is done in two parts, one is DES algorithm part other is key generation part using multiple keys. To control the rounds of DES encryption/decryption mode, control unit starts to operate. The proposed architecture is modeled using Verilog HDL in Xilinx ISE. Simulation results can be verified using either Mentor Graphics Tools or Xilinx ISE. Figures of merit are implemented to understand the performance of different keys.

Keywords: Cryptography, DES, GRAY-X, Dynamic Key, Security

I. Introduction

In modern security models, cryptography has major importance in preserving data and security in any communication. It is the way of protecting the data from any illegal access through unauthorized persons or hacking of information [1]. Cryptography includes two parts encryption and decryption, encryption is the process of converting direct input plain text to scrambled output cipher text and similarly decryption is the process of converting back cipher text to the plaintext [2]. For conversion, cryptography consists of two main techniques based on the usage of key in the encrypted algorithm, they are Symmetric and Asymmetric cryptography. In symmetric cryptography, same key is used to encrypt and decrypt the data but in asymmetric cryptography different keys are used to encrypt and decrypt the data [10]. Both has pros and cons. Due to its characteristics, asymmetric cryptography is more secure compared to symmetric in key functions but the key size in asymmetric cryptography must be ten times or more of a symmetric cryptography key in order to have a similar level of security. Security of the data or system depends on both cryptographic algorithm and key used for encryption/decryption. Many applications, including telecommunication electronic passports, ATM cards, health monitoring and biometric data based recognizing system, need short-term data security.



Fig 1: Basic Cryptography Model

To design short-term security based applications, there is an essential need of high-performance, low cost and area-efficient VLSI implementation of lightweight ciphers [1]. Data encryption standard (DES) is best for the implementation of low-cost lightweight cryptography applications. Hence we are using DES Algorithm in the proposed concept. The DES algorithm is a block cipher which operates on the 64-bit plaintext and same 64-bit key for both encryption and decryption. 64-bit plaintext and 64-bit key continuously produces the 64-bit encrypted cipher text for decryption same process is done in reverse i.e., with cipher text and key produces plaintext. To maintain the confidentiality of any cryptographic algorithm which is based on the privacy of the key, dynamic key theory is described and mathematically analyzed in this paper to achieve the goal of secure communication. This proposed work is divided in two parts, first one implementation of DES algorithm and second is dynamic key generation using different key techniques such as direct key by user, LFSR & 2's Complement of direct key.

II. LITERATURE SURVEY

This section involves the work done by the researchers for exploring the cryptographic algorithm in the area of data security of any communication.

T. Rajan Devi explains the importance of cryptography and provides a broad review of network security. A general overview of data security and cryptography and various cryptographic algorithms are discussed in "Importance of Cryptography in Network Security" 2013 [6].

M. E. Said and D. K. Erumad, elaborates the changes in Data encryption standard, past and future and analyzes the change of algorithm computation, which is the scrutiny of data encryption, an improvement that oblige a safe, secure and private information sent. [7].

Document details - Low power and high speed full adder using new XOR and XNOR gates

1 of 3

[Export](#) [Download](#) [View...](#)

International Journal of Innovative Technology and Emerging Engineering
Volume 8, Issue 6, June 2019, Page 1509-1510

Low power and high speed full adder using new XOR and XNOR gates(Article)

Journal P., Page 6

T.S. Narayanaswami Institute of Technology and Science (Institution), Hyderabad, Telangana, India
T.S. Narayanaswami Institute of Technology and Science (Institution), Hyderabad, Telangana, India

Abstract

The hybrid full adder circuit using new XNOR, XOR gates are proposed in this paper. These circuits are designed to high speed and low power consumption compared to existing circuits. This is possible due to new output equations. Each one of the proposed full adder circuit has its own advantages of speed, power consumption and timing delay. Simulations are done in TeraSim tool in 45 nm technology. From results, proposed results are found to be better than existing results. Also, the performance of proposed full adder circuit is analyzed by varying the supply voltage and output load. © 2019 IJTEEE

Author keywords

[Full adder](#) [High speed adder](#) [Output equations](#) [Timing delay](#) [Power consumption](#)

ISSN: 2278-0197
Section Type: Journal
Original language: English

Document Type: Article
Publisher: Blue Eyes Intelligence Engineering and Technology Publications

© Copyright 2019 Elsevier B.V. All rights reserved

Cited by 4 documents

Page Lopez, S., Morillo, B., Morillo, P.

Design of 32-bit carry multiplexer using high performance and low power full adder

IEEE International Conference on

Information Technology, Nagasaki, C. Japan, 3-73

Yamada, T., Yamada, T., Yamada, T., Yamada, T., Yamada, T., Yamada, T., Yamada, T., Yamada, T., Yamada, T., Yamada, T.

IEEE International Conference on Emerging Computing and Technology, 2019, 1-6

Yamada, T., Yamada, T., Yamada, T.

Low power adder using multi gate 45 nm technology

IEEE International Conference on Emerging Computing and Technology, 2019, 1-6

Wang, J., et al.

International Journal of Innovative Technology and Emerging Engineering

Volume 8, Issue 6, June 2019, Page 1509-1510

Related document

Full text related documents in Scopus database

Authors [Keywords](#)

Scopus Topics: [Performance](#)

Topic

Research project is



Document details - Cepstrum-Based road surface recognition using long-range automotive radar

1 of 3

[Export](#) [Download](#) [More...](#)

Location: [Turkey on Data Engineering and Communications Technologies](#)
 Volume 28, 2019, Pages 100-115

Cepstrum-Based road surface recognition using long-range automotive radar(Book Chapter)

Danusa, S., Benaka-Devi, S.M., Katar, E.

IG Suryanamma Institute of Technology and Science, Shaikpet, Hyderabad, India
 Ineda Systems Pvt. Ltd., Kothaguda, India

Abstract

During driving, a sudden change in the road surface results in imbalance of vehicle due to uneven grip which leads to accidents. Thus, a need arises for an automotive system to recognize the type of road surface ahead and alert the driver to accordingly change the speed of the vehicle. This paper proposes a technique for road surface recognition using 77 GHz frequency modulating continuous wave (FMCW) long range automotive radar. The radar coefficients extracted from the backscattered signal are analyzed using classifiers like decision tree and SVM. This technique recognizes five different road surfaces, i.e., dry concrete, dry asphalt, wet, sand, and bushes. To increase the accuracy and classification rate, field testing is conducted at Xondapur (Telangana) and the system has achieved prediction accuracy of about 90%. © Springer Nature Singapore Pte. Ltd 2019

Author keywords

Automotive systems, Cognitive electronics, Machine learning, Radar backscattering, Road surface detection, Signal processing

Indexed keywords

Engineering controlled terms: [Asphalt](#), [Classification](#), [Road surface](#), [Roads and streets](#), [Support vector machines](#)

Engineering uncontrolled terms: [Automotive Systems](#), [Backscattered signal](#), [Cognitive electronics](#), [Classification rate](#), [Continuous Wave](#), [Field testing](#), [GHz frequencies](#), [Road surfaces](#)

Engineering mesh heading: [Automotive radar](#)

Funding details

Funding text

Sincerely thank INEDA SYSTEMS Pvt. Ltd (www.inedasystems.com/india) express my gratitude to the officials for their guidance and encouragement in carrying out this project.

Cited by 2 documents

Ma, S., Wang, M., Peng, Q.
 Current Non-Contact Road Surface Condition Detection Schemes and Technical Challenges

(2022) *Sensors*

Aravika, D.S.M., Sudeeptri, D.
 Road Surface detection Using FMCW 77GHz Automotive RADAR using MFCM

(2021) *Proceedings of the 4th International Conference on Innovative Computation Technologies, ICICT 2021*

View details of a 2 citations

Inform me when this document is cited in Scopus

[Add citation alert](#) [Export citation](#)

Related documents

Find more related documents in Scopus based on:

Authors [Keywords](#)

Save Topic Prominence

Topic

Prominence percentage

DEEP LEARNING TECHNIQUES FOR CHANNEL ESTIMATION AND SIGNAL DETECTION IN OFDM SYSTEMS

Parupalli SriPadma¹, Dr B L Mailawari²

¹Assistant professor, G Narayanaamma Institute of Technology & Science, Hyderabad

²Professor & Principal, Sri Devi Women's Engineering College, Hyderabad

(E-mail: p.sripadma@gnits.ac.in, bmailawari@gmail.com)

Abstract— This paper lays emphasis on the application of Deep Learning Techniques in Channel Estimation and Signal Detection in Orthogonal Frequency Division Multiplexing (OFDM) systems. The performance of the Deep Learning Techniques is compared with the conventional methods: Least Square Error (LSE) and Minimum Mean Square Error (MMSE) estimation methods. Unlike the conventional OFDM receivers that first estimate the Channel System Information (CSI) and then detect the transmitted signal using the estimated CSI, a Deep learning based approach allows the estimate of CSI implicitly and recovers the transmitted signal directly. To understand and estimate the channel distortion, Deep Neural Network is first trained offline and then used for recovering the transmitted data. The performance of a Deep learning based approach is comparable to the MMSE method. Hence Deep learning based Approach can be thought of a potential tool for channel estimation and signal detection in Wireless Communication.

Keywords— Deep learning, Channel Estimation, OFDM

I. INTRODUCTION

Orthogonal frequency-division multiplexing (OFDM) modulation is a promising modulation technique for achieving the high bit rates required for a wireless multimedia service due to its flexibility and robustness against multipath fading [1], [2]. OFDM is a special case of multi-carrier transmission where a single data stream transmits over a number of lower rate subcarriers [3]. OFDM based systems combat frequency selective fading in wireless channels and reduces the Inter-Symbol Interference (ISI). Channel State Information (CSI) plays a vital role in the detection of OFDM systems. CSI is estimated by means of pilots prior to detection of the transmitted data and with the help of the estimated CSI, the transmitted signal is decoded at the receiver.

The investigation of the traditional methods: LSE and MMSE are done along with the Deep Learning based techniques in this paper. The LSE estimation method requires no prior information of the system characteristics but does not

perform well whereas the MMSE estimation which makes full use of the correlation of the channel frequency response at different times and frequencies performs much better compared to the LSE method.

Ever since the advent of Deep Neural Networks they have found their applicability in different fields. They have made their presence felt in the field of wireless communication too. To name a few Localization based on CSI [4], channel Decoding [5] and Channel Equalization [6] in communication systems. With improving computational resources and large availability of data the Deep Learning is expected to find more applications.

In this paper, training a Deep Neural Network (DNN) model that predicts the data in different channel conditions is done in Deep learning based technique which is then deployed for the recovery of transmitted signals.

The paper is organized as follows. Section II introduces the OFDM system. Section III deals with the Deep learning. Section IV shows the Training of the DNN Model. In Section V Simulation Results are shown and discussed followed by the conclusion.

II. OFDM SYSTEM

The OFDM system used for channel Detection and Signal Estimation using Deep Learning Techniques is illustrated in Figure 1. The OFDM system is the same as the traditional OFDM system. On the transmitter side, the symbols to be transmitted are first generated, then they are inserted with pilot bits. They are next converted from Serial to Parallel data stream. After this, an Inverse Discrete Fourier Transform (IDFT) is performed that converts frequency domain signal into the Time domain signal. To mitigate Inter-Symbol Interference (ISI) a Cyclic prefix (CP) is inserted after this stage. Then the signal is converted back into a Serial data stream and is sent through a Channel whose impulse response is represented by $h(n)$ and an Additive White Gaussian Noise (AWGN) is added.

The received signal at the receiver $y(n)$ is then expressed as

$$y(n) = x(n) * h(n) + n(n) \quad (1)$$

Design of Multiple U Slotted Microstrip Antenna for Wimax and Wideband Applications

N. Krishna Jyothi, V. Anitha

Abstract—A novel reconfigurable configuration of a efficient U-slotted micro-strip patch wire is designed in view of focus resonance about 4.7 GHz with dielectric steady (ε_r) for 4.4 also substrate thicknesses from claiming 2.4mm. The suggested radio wire might meet the interest from claiming Wimax and wide-band requirements. The key parameters like return loss, VSWR, gain, directivity would simulated, broke down and optimized utilizing high level structure set system. The recommended radio wire is created and tried utilizing the Rhode the Schwarz vector analyzer analyzer ZNA2012-1) and in association aspect would get. These outcomes indicate that the inclination offers inclination of the recommended radio wire could make incredibly progressed continued with customary micro-strip patch antenna.

Index Terms— Microstrip antenna, WIMAX, Return Loss, VSWR.

I. INTRODUCTION

The advantages of micro-strip patch antenna are low profile, ease of fabrication, lighter in weight, low volume, low cost, smaller dimension, conformable and compatibility with integrated circuits. Micro-strip patch antenna provides dual frequency operations, frequency agility, Omni directional patterning and broad band width. These antennas are used in different hand held communication devices. There would distinctive routes to nourishing the micro-strip patch antenna radio wire like line nourishing method, coaxial nourishing technique and so on. This paper employs coaxial bolstering technique. In coaxial nourishing method the inward conductor of the coaxial connector extends through a dielectric and is soldered of the transmitting patch, same time the external conductor may be associated with the ground plane. Like-wise indicated in fig. 1.

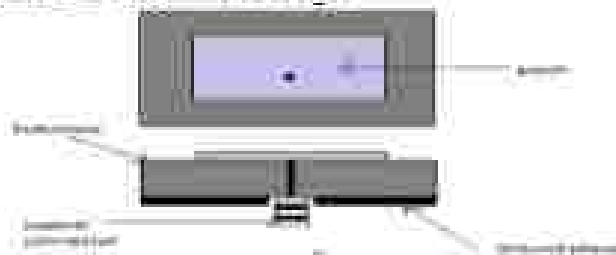


Fig.1 Coaxial Feed or Probe Feed

Manuscript published on 23 February 2019

N. Krishna Jyothi, Assistant Professor, IIT Department of Information Technology, Chennai, India
V. Anitha, Assistant Professor, IIT Department of Information Technology, Chennai, India

IJTETEE is published by The Tamil Nadu Institute of Engineering and Advanced Technology (TNIAT). This is an open access journal under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

The fundamental playing point about this sort for bolster plan need those encourage could be set toward my wanted area inside those stratum. On mind with its information impedance and may be simple should manufacture need low spurious radiation.

1. Antenna Configuration And Design

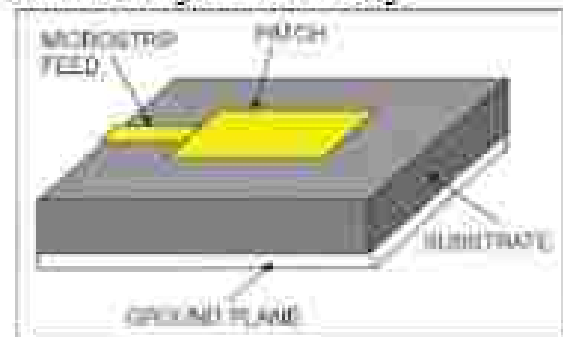


Fig.2 Microstrip patch Antenna

To planning of a micro-strip patch antenna radio wire as demonstrated On fig. 2, those crucial parameters required are full frequency, dielectric medium and substrate thickness for which radio wire should make planned.

These parameters on make ascertained are Similarly as under:

Width (W) of the transmitting patch may be provided

$$W = \frac{c}{f_0 \sqrt{(\epsilon_r + 1)}} \quad \text{--- (1)}$$

throughout equation.

Where, f₀ is the full-frequency, ε_r is those dielectric steady or relative permittivity and c will be the speed from claiming light is allowed space. Visible permittivity alternately powerful dielectric constant of the dielectric substrate. The point when W/h > 1, will be provided for. Toward those equation.

$$L_{eff} = \frac{\epsilon_r + 1}{2} L + \frac{\epsilon_r - 1}{2} L \left[1 + 12 \frac{h}{W} \right]^{-1} \quad \text{--- (2)}$$

L is those length of the patch antenna, which will be that's only the tip of the iceberg measurable for superior radio wire execution by and large lies the middle of 10⁻³ and 10⁻². However, it may be provided for by the equation.

$$L = L_{eff} - 2\Delta L \quad \text{--- (3)}$$



Controlling & Monitoring Smart Rural Management System Utilizing Internet of Things (IoT)

P Lavanya¹, G Jhansi Rani²

^{1,2} Assistant Professor, Department of Electronics and Communication engineering, G Narayana Institute of Technology & Science, Hyderabad, Telangana.
E-mail- pjavanya@gmail.com

Abstract: Observing & regulating basic country administration framework utilizing IoT may be formed for meeting & supporting diverse considerations for individual's strategies to towns that need aid generated by particular requisition area. Country economy economy will be intended for supporting advanced mobile town systems for exploring the greater part propelled correspondence framework. Mechanisms and checking of worldwide waste, vitality and water as an powerful approach will be extremely critical over using it on cloud built framework because a key part is expanding and distributing for assets checked alongside provincial surroundings. Observing the framework in view of IoT sides purchasers will stress and alter their use-conduct. The recommended framework actually works & incorporates to see next vitality hours through interfacing sensors as traces the substance for waste accumulation system, green irrigated framework management also lighting states for a rancher. This paper examines regarding those specialized tool uses results for example, effective vitality resource economy system, advanced mobile network system strategies and waste organic economy that we might see to rural regions to creating provincial surroundings under country improvement mission.

Keywords: Waste management, system based on cloud, Global waste, system based on IoT, Smart-rural management-system.

I. INTRODUCTION

There might be gigantic enormous tests to distinguish of a provincial change that observes and integrates those more amazing and only those provincial framework and profit should energy those aggregator acumen movement [1]. That change of a IoT built keen country framework incorporates & gives a virtual base ought to technique a joined investigated devices, observing equipment, stockpiling [2] and visualization stage inside those skeleton. IoT blending which recommended will propelled portable charging also majority of the data analytics completed vitality organization. Waste aggregation skeleton progressed for cloud assembled IoT administrations which enable changing arranging likewise Steering around a waste aggregation schema seems will make a proficient framework.

The right on reasonable vnanry administrations goes about as an essential impetus for keen town advancement extending those procurement for productive administration of energy, water, waste & different other qualities. Major parts from dishing rustic regions need aid not remain solitary framework it remains as and only a cluster, which would identify with one another. These groups clarify the possibility for improvement and it have investment criteria, infer Area & aggressive preferences. Urban may be named following the improvement from dishing these groups which expect to reinforce those rustic regions by provisioning of physical infrastructure investment and social offices. The envisaged components in each cluster are listed below.

- Mobile medical services
- Education system
- Sanitation
- Water management system
- Waste management
- Road system Inter village connectivity
- Lighting control

IoT built advanced mobile town could assistance to decrease expense through progressed methodology

Document details - Design of a New Subthreshold-Level Shifter Using Self-controlled Current Limiter

1 of 1

[Export](#) [Download](#) [More...](#)

Cited by 0 documents

Lecture Notes in Networks and Systems

Volume 33, 2019, Pages 211-218

Inform me when this document is cited in Scopus:

Subscription Set email
 Alert Yes

Design of a New Subthreshold-Level Shifter Using Self-controlled Current Limiter(Book Chapter)

Suchana, S., Rajni, R.

G. Narayanamma Institute of Technology & Science (for women), JNTUH, Hyderabad, India

Related documents

Find more related documents in Scopus based on:

Abstract

This brief presents new design of subthreshold-level shifter capable of converting an input signal from subthreshold voltage of 0.1 V to above threshold voltage of 1.2 V. Level shifter (LS) circuit makes use of a self-controlled current limiter (feedback loop) for shifting the signal by adjusting the output current. In addition, the proposed design has single process voltage, temperature (PVT) variation tolerance. Simulation results of subthreshold LS design in 65 nm CMOS technology, shows that the circuit can shift the signal with limited delay, static power and energy consumption. Modified Wilson current mirror (MWCM) LS design (extension) is also implemented in 45 nm technology, which shows much improvement in terms of delay, power and energy consumption compared to subthreshold LS design.

© 2019, Springer Nature Singapore Pte Ltd.

Authors Keywords

Author keywords

Current mirror Level shifter Low voltage static power Subthreshold voltage Wilson current mirror

ISSN: 23673370

Source Type: Book Series

Original language: English

DOI: 10.1007/978-981-10-8104-7_22

Document Type: Book Chapter

Publisher: Springer

[S. Suchana, S. G. Narayanamma Institute of Technology & Science \(for women\), JNTUH, Hyderabad, India](#)

© Copyright 2029 Elsevier B.V., All rights reserved.

SoVid Topic Prominence 

Topic

Prominence percentage 

An ICTF-TPWC Approach To Reduce PAPR of The OFDM System

Shaik Shafiya¹, Dr.B. Venkateshulu²

¹(MTECH, ECE Department, G. Nageswaraiah Institute of Technology and Science, INTUH, INDIA)

²(Professor, ECE Department, G. Nageswaraiah Institute of Technology and Science, INTUH, INDIA)

Corresponding Author: Shaik Shafiya

ABSTRACT: One of the important factor to be considered in a communication system is its peak to average power ratio. In this paper an effective technique named Iterative Companding Transform and Filtering – Two piecewise Companding (ICTF-TPWC) is preferred which decreases the Peak to Average Power Ratio (PAPR) as well as Bit Error Rate (BER) in an Orthogonal Frequency Division Multiplexing (OFDM) signal. Here it can be seen that without conducting de-companding at the ICTF receiver it can offer improved BER. In simultaneous comparison of traditional ICF technique with proposed ICTF-TPWC technique it done in which ICTF-TPWC reduces the complexity by reducing the number of iterations when compared to ICF to reach the required PAPR with lesser complications. ICTF-TPWC scheme offers a good BER performance when compared to the traditional techniques.

KEY WORDS: OFDM, ICF, ICTF-TPWC, PAPR.

Date of Submission: 05-11-2018.

Date of acceptance: 19-11-2018.

I. Introduction

One of the technology considered for 4G wireless communication is OFDM (Orthogonal Frequency Division Multiplexing) & Multicarrier Modulation (MCM) Technique due to its simple implementation. There are many effective features in an OFDM system such as robustness against multipath fading, highly efficient in case of bandwidth, avoids inter symbol interference, etc. but one serious drawback with OFDM is its high Peak to Average Power Ratio (PAPR) [1], which leads to an In Band Distortion (IBD) and Out of Band Distortion (OBD) as in order to overcome these drawbacks multiple techniques such as Selective Mapping (SLM), Clipping and Filtering (CF), Partial Transmit Sequence (PTS) have been proposed. Clipping and Filtering (CF) is the simplest technique among the above mentioned techniques [1], but clipping will lead to Out of Band Distortion (OBD) which causes spectral spreading and can be eliminated by performing filtering process after clipping the signal while the In Band Distortion (IBD) will reduce the performance of an OFDM system by degrading the Bit Error Rate (BER). So in order to rectify these drawbacks a better solution is Companding Transform (CT) technique which will compress the signal softly instead of clipping the signal peaks hardily. There are many linear and Non-linear CT methods such as μ -law companding, Exponential Companding (EC) But in these methods PAPR is reduced at the cost of limited BER degradation and serious Out of Band spectral spreading, so in this paper from above discussion it can be observed that the proposed ICTF-TPWC (Iterative Companding Transform and filtering- Two-Piecewise companding) with reduced number of iterations is better than the existing ICF method which requires more number of iterations with increased complexity to get the desired reduction in PAPR [1].

II. Signal Distortion Techniques

In this the reduction in PAPR is achieved by distorting the transmitted OFDM signal before it passes through the power Amplifier.

2.1 Iterative Clipping and Filtering



Fig.1 Block Diagram of ICF

Design and Implementation of 4x4 bit Multiplier using Dadda Algorithm

Dr.K.Ragun Professor, B.Neerajakshi N.Tech Student

G.Narasamma Institute of Technology and Science, Shaikpet, Hyderabad, India

G.Narasamma Institute of Technology and Science, Shaikpet, Hyderabad, India

ABSTRACT

Multiplier is one of the most important arithmetic modules in the first computing applications. Multiplier and their associated circuits like half adder, full adder and accumulator consume a significant portion of most high speed applications. In order to reduce the hardware which ultimately reduces an area, power and propagation delay, efficient full adders are used in the multiplier. They also reduce the power and propagation delay of the multiplier. In this paper 4x4 multiplier is designed using Dadda algorithm and 10T full adder. Use of Dadda algorithm reduces 10.47% of the power dissipation, 27.67% of the propagation delay and 35.34% power delay product compared to Array multiplier. The simulations are performed using Cadence EDA of 45nm technology.

Keywords:

Multiplier, Full adder, Half Adder, Array, Wallace, Vedic, Dadda, Power dissipation, Propagation Delay, Power delay product

INTRODUCTION

Multiplier plays an important role in digital signal processors and various other applications. More than 70% of instructions in microprocessors are performing addition and multiplication operations, so these operations are dominating the execution time of processor. There is a need of high speed multiplier to decrease the execution time of the processor and also in the VLSI design power dissipation, propagation delay and area are the important parameters which should be taken into consideration. In the design of multiplier (less number of full adder blocks) is used. Decrease of power consumption and propagation delay in the full adder can decrease the total power consumption and propagation delay of the multiplier. So here low power and high speed multiplier is implemented using Dadda algorithm and 10T full adder. Section-2 describes the Existing multipliers like Array, Wallace and Vedic multiplier, Section-3 describes the proposed multiplier which is Dadda multiplier. Section-4 contains the results and discussions. Section-5 concludes the paper.

2. Existing Multipliers:

2.1 Array Multiplier:

It is the conventional multiplier. It uses the same steps as used in the normal multiplication. It is based on shift and add algorithm. 4x4 multiplier uses 16 AND gates, 4 half adders, 8 full adders and 12 total adders are used [2]. In Fig-1 a0, a1, a2 and a3 are bits in the multiplicand and b0, b1, b2 and b3 are the bits in multiplier. P0, p1, p2, p3, p4, p5, p6 and p7 are the output bits. Where HA is the half adder and FA is the full adder.

Smart Prepaid Energy Meter using GSM and Arduino

D.Harshitha Reddy, P.Shilpa

G.Narasimman Institute of Technology and Science

ABSTRACT

The aim of paper is to propose a different method for measuring and billing of the energy consumed rather the conventional method. Here a new procedure is followed based on ATmega 328P microcontroller for controlling and detecting energy consumed. It is possible to recharge the electricity balance through this system just by sending an SMS. It also continuously reads the energy meter readings and automatically sends some updates like low-balance alert, zero-balance alert, recharge alert when necessary to the registered number through GSM modem. Illegal usage of power is detected and alert message is sent to the authorities immediately.

KEYWORDS :- smart meters, Arduino, energy meter, GSM

INTRODUCTION

In a world where everything is automated, the automation of the energy payments is much needed. The world is being digitized and it is important that we should be able to move along with trends and changes. Energy is the most common and most important resource and the need for it use it in a controlled manner is crucial where the resources for it are scarce. So, using Prepaid Energy meters helps us to avoid the wastage of power consumed in our daily lives. Moreover, it is also important to protect the revenue of the government from the loss occurs due to the illegal usage of power. Hence, there is a definite need for us to use an advanced energy meters, which can both monitor the consumption and theft.

EXISTING SYSTEM

The energy meters used now-a-days are modified version of the older system, the digital meters doesn't have a prepaid system, where the power to be consumed is estimated prior to its usage and recharged, similar to that of a prepaid talk time for a mobile. Moreover to it, there is no proper equipment which can detect the illegal power usage, using power without actually paying for it. However, in some energy meters an LED is provide which blinks whenever someone tries to open the energy meter box, but this can be stopped using a button which is provided at it backside, which doesn't guarantee security.

PROPOSED SYSTEM

Smart Prepaid Energy meter using Arduino and GSM can provide the solution to problems discussed. This project helps in not only automating but also for controlled managing of the energy consumed, which results in efficient usage of power. GSM modem is helpful for the message alerts and notifications needed for these purposes. The different components used are controlled by ATmega 328P microcontroller in Fig 1.



INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X

Impact factor: 4.295

(Volume 4, Issue 5)

Available online at: www.ijarit.com

Design of 2-4 decoders and 4-16 decoders using GDI technique

Gundaboina Srivani

srivani.gundaboina441@gmail.com

G. Narayanaswami Institute of Technology and Science,
Hyderabad, Telangana

P. Shankar

pshankar12.phd@gmail.com

G. Narayanaswami Institute of Technology and Science,
Hyderabad, Telangana

ABSTRACT

This paper introduces a mixed-logic design method for line decoders, combining transmission gate logic, pass transistor dual-value logic and static CMOS. Two new topologies for the 2-4 decoder are 14-transistor topology and 15-transistor topology. 14-transistor topology based on the small size of the transistor, transistor count and power dissipation, 15-transistor topology based on high power-delay performance. Both non-inverting and inverting decoder are designed in every case thereby yielding a total of four new designs. Moreover, four new 4-16 decoders are designed, by using mixed-logic by cascading of 2-4 pre-decoders with static CMOS pass-decoder. All proposed decoders which reduce transistor count and has the full swinging capability compared to conventional CMOS. GDI gate diffusion input analysis to design low power combinational circuits where we can overcome the disadvantages of CMOS, low power techniques. GDI technique helps to reduce power, propagation delay, transistor count, realising the low complexity of designs. All proposed decoders are designed in Gate Diffusion Input (GDI)—a new technique of low-power digital combinational circuit design thereby results in reducing power consumption, propagation delay, and area of digital circuits while maintaining the low complexity of the logic design.

Keywords— CMOS, Delay, Digital, Low-power design, Performance, FLU

1. INTRODUCTION

CMOS consists of complementary N-type metal oxide semiconductor nMOS (pull down) and P-type metal oxide semiconductor pMOS (pull up) networks. CMOS logic is designed against voltage scaling and reduction in transistor count. It operates at low voltages and small transistor sizes. In CMOS logic the inputs are connected to transistor gate only in order to reduce the complexity of circuit design. CMOS devices are high noise immunity and low static power consumption.

Pass-transistor logic has been developed since 1990 [3-4], in order to provide a viable alternative to CMOS logic and improve speed, power, and area. Pass transistor logic is used alternative to CMOS logic. PTL reduces the transistor count and used to design different logic gates by eliminating transistors. One of disadvantage is output levels are always lower than input levels. In CMOS the inputs are applied at gate terminal whereas in PTL inputs are applied to source or drain of the transistor.

This work develops a mixed-logic design methodology for line decoders, combining gates of different logic to the same circuit, in an effort to obtain improved performance compared to single-logic design. Line decoders are fundamental circuits, widely used in the peripheral circuitry of memory arrays (e.g. SRAM), multiplexing Structures, implementation of Boolean logic functions and other applications. Despite their importance, a relatively small amount of literature is dedicated to their optimization, with some recent work.

2 OVERVIEW OF LINE DECODER CIRCUITS

In digital systems, discrete quantities of information are represented by binary codes. An n-bit binary code can represent up to 2^n distinct elements of coded data. A decoder is a combinational circuit that converts binary information from a input lines to a maximum of 2^n unique output lines or fewer if the n-bit coded information has unused combinations. The circuits examined in this work are called n-to-m line decoders, and their purpose is to generate the m to 2^n minterms of n input variables.

2.1. 2-4 Line Decoder

2-4 NAND decoder generates the 4 minterms D0-3 of 2 variable variables A and B. Its argumentation operation is abbreviated in Table I. Depending on the minterm combination, one of the 4 outputs is called and set to 1 while the others are set to 0. An inverting 2-4 decoder generates the complementary minterms D0-3, appropriately the called achievement is set to 0 and the blow are set to 1, as apparent in table 2.

Automated Railway Track System by Utilizing GNSS and Hybrid Map Matching Algorithm

G Bhavani¹, N. Harini², N. Sagar³

¹Department of Electronics and Communication Engineering, Institute of Aeronautical Engineering, Hyderabad, India

²Department of Electronics and Communication Engineering, G. Natayamma Institute of Technology and Science, Hyderabad, India

E-Mail: bhavani.bhava402@gmail.com, n.sagar@gmail.com, nsws@iitrrm@gmail.com

ABSTRACT

The train collisions would happen day to day and this will be due to improper maintenance about train tracks which leads to crack in train tracks. So consequently there is a need to improve the maintenance by detecting and avoiding such critical particular communication, to say least this is a challenging task to figure out normally hence the goal, we came upon a solution for that problem. For realizing these requirements, the crack identification framework were defined utilizing different systems. This paper talks on the identification of cracks over train tracks by utilizing the ultrasonic and GNSS sensors. This framework primarily comprises about GNSS and ultrasonic sensor receiver and transmitter, GPS module, Furthermore GSM module and RF sensor. The RF sensor nodes will identify the cracks and GNSS sensor identifies the distance and exact location by utilizing GPS module. The communication will be carried out through GSM module. After identifying these cracks the message is sent to chosen server for location of crack. This framework will be straightforward by simple operation and also adaptable for both day and night crack identification. There are several different systems which will recognize the cracks but this method gives exact crack identification with greater accuracy.

Keywords: Global positioning system (GPS), GNSS (Global navigation satellite system), Ultrasonic sensor, RF sensor, GSM module

I. INTRODUCTION

Transportation plays a prominent role in our world (by i.e. with exchange of travel goods and services) of facilities from one place to another. Concerning this concept the railway track plays crucial role and we need to maintain it properly [1]. Most of the Indian train travel through narrow gauge they unfortunately that the tracks which damages with track and passengers in train. Consequently we recommend powerful algorithm to solve this issue. We utilize GPS, GSM [2] Ultrasonic and GNSS sensor for identifying the cracks along with location tracking system. Ultrasonic sensor (US) will detect the crack direction, GPS (Global positioning system) identifies the latitude and longitude for identifying the location and GSM (Global system for Mobile communication) gives the information through SMS to receiver and sender station.

II. EXISTING SYSTEM

Different methodologies and algorithms were recommended in order to extract the location and

IMPLEMENTATION OF LOW POWER MULTIPLIER USING APPROXIMATE 15-4 COMPRESSOR

¹P. Agraja, ²B. Sreshanth Reddy

¹M.Tech student, ²Asst. Professor

^{1,2}Department of Electronics and Communication Engineering

^{1,2}G. Narayanaamma Institute of Technology and Science (for women), Hyderabad, Telangana

Abstract: This paper deals with the multiplier using approximate 15-4 compressor. The proposed multiplier has overcome the problems of power and delay. We propose a multiplier using accurate and approximate (four designs) a majority of 15-4 compressors and its performance is compared with a multiplier which uses accurate and approximate 3-2, 4-2 as well as 15-4 compressors. Some of the basic compressors like 3-2, 4-2 are used in the reduction stage of multiplier to reduce the power and increase the performance. Basically, small size compressors are used in small size multipliers but for large size multipliers it takes more time and consumes more power. To overcome this problem, we go for large size compressors like 15-4 for 16 bits or 33 bits. Approximate 15-4 compressor is proposed using four different designs. The basic building block for the 15-4 compressor is a 3-2 compressor.

Index Terms – 3-2 compressor, 4-2 compressor, accurate and approximate 3-2 compressor, accurate and approximate 15-4 compressor, multiplier, low power multiplier.

I. INTRODUCTION

Nowadays, Digital Signal Processing plays a vital role to handle the complexity of a digital signal. Mainly this type of processor takes care of convolution, correlation and filtering of digital signals and used to perform the complex operations like DFT (Discrete Fourier Transform) and FFT (Fast Fourier Transform). Adders, shifters and multipliers are used to accomplish these tasks. Among the three modules, the multiplier is complex to design. Multiplication is the complex operation which takes more time and consumes higher power than the other two operations (shifters, adders). So, designing the high-speed multipliers with low power is one of the challenging tasks. Multiplier has three stages they are first is to generate the partial products, second is to reduce the partial products and stage addition. Out of three stages reduction of partial products takes a lot of time and consumes more power than other two stages. Many techniques have been proposed to reduce the critical path in the multiplier. Using compressor in the partial products reduction stage is a popular technique for reducing the critical path. Compressors are the basic circuits which are made up of half adders and full adders which count the number of ones in the given input. There are several compressors which are required to reduce the partial products in the multiplier. Various compressors like 3-2, 4-2, 5-2, 5-3, 7-2 and so on exist, but these compressors are used only for small size of multipliers like 2 × 2, 4 × 4 and 8 × 8. Higher order compressors like 15-4 are used for higher order multipliers like 16 × 16, 32 × 32 in order to reduce the power and delay. High order compressors provide better performance in terms of power and speed but, it consumes more area than the low order compressors.

All these techniques perform the accurate computation and these techniques produce the correct result with 100% accuracy in exact computing. Optimizing of all the parameters is not necessary in the exact computing for some of the applications. However, accurate computing is not essential for every application. Some of the applications like image processing and multimedia can tolerate limited errors and provide results. Approximate (inexact) computing techniques have become more popular because of its low complexity, less power consumption and faster operation. Error Distance (ED) and Error Rate (ER) are plays an important role in the approximate computing. Error distance is the arithmetic distance between an approximate output and actual output. Whereas error rate is given by a number of erroneous outputs over the total number of outputs.

The paper is organized as follows. Compressors are explained in section II. Design of approximate 5-3 compressor is presented in section III. Design of 15-4 compressor using 5-3 compressor is elaborated in section IV. Multiplier designs using 15-4 compressor is described in the section V. Proposed multiplier is explained in section VI. Section VII describes simulation results. Finally, the conclusion is presented.

II. COMPRESSORS

A. 3-2 Compressor

Compressor 3-2 compresses three inputs to two outputs. This compressor is similar to a full adder which consists of two XOR gates and one MUX gate. It takes 3 inputs X_1, X_2, X_3 and generates two outputs i.e., a SUM bit and a CARRY bit. The critical path is from X_1 to SUM. The basic equation of 3-2 compressor is $X_1 + X_2 + X_3 = \text{SUM} + 2 \cdot \text{CARRY}$.

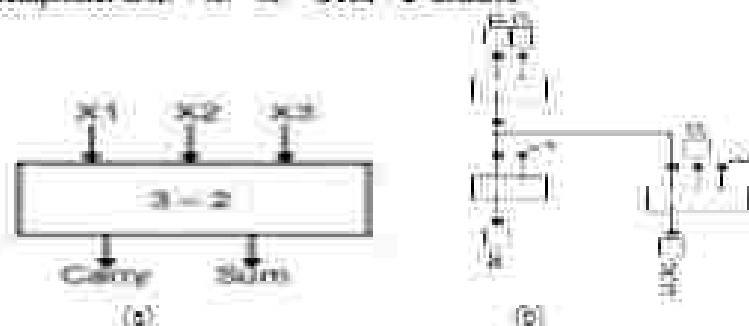


Fig 1 (a) 3-2 Compressor (b) Implementation of 3-2 Compressor

Document details - QoS aware multicasting using the enhanced differential evolution cuckoo search routing protocol in MANET

1 of 3

[Export](#) [Download](#) [View all](#)

Information (Journal of Microelectronic Design and Innovation)

Volume 8, Issue 4, 2018, Pages 235-248

QoS aware multicasting using the enhanced differential evolution cuckoo search routing protocol in MANET(Article)

Vijayakrishna, M., Saini, GS.

¹Department of Electronics and Communication Engineering (JNTU), Hyderabad, India

²Department of Electronics and Communication Engineering, NTMM College of Engineering Hyderabad, Hyderabad, India

Abstract

Mobile ad hoc networks contain small, self-organizing and easy communication to the aim of self-configuring network. The multicasting is one of the significant concepts which are used to convey the similar data from one host to numerous targets. So, it encompasses a variety of qualities such as conveying data with a little latency delay, high energy utilization, and so on. Therefore, we proposed an enhanced differential evolution cuckoo search routing protocol (DE-ES) to conduct the wireless communication in multicasting. The multicasting network is the mixture of two optimization algorithms such as differential evolution and cuckoo search optimization algorithm. The clustering is formed in a method for remote transmission of packet using differential evolution algorithm and the cuckoo search based the best route path in transmitting the message efficiently. The NS2 is a simulation tool which gives the consequence of our proposed method by comparing with the existing protocol. Therefore, it obviously indicates that the proposed protocol of DE-ES gives more efficiency with compared with other existing protocol. Copyright © 2018 International Frequency (IF)

Author keywords

[DE-ES](#) [enhanced cuckoo search routing protocol](#) [MANET](#) [Network for research](#) [Multicasting](#)

Indexed keywords

Engineering and related fields: [Evolutionary algorithms](#) [Evolutionary algorithms](#) [Multicasting](#) [Congestion](#) [Routing protocols](#)

Engineering and related terms: [Cuckoo search](#) [Differential evolution](#) [Differential evolution algorithm](#) [NS2/NT](#) [Multicasting protocol](#) [Optimization](#) [Traffic transmission](#) [DE and cuckoo search](#)

Engineering and related fields: [Network of networks](#)

Funding details

Funding source: **Funding number:** **Author:**

University Grants Committee

Biography text

Dr. Vijayakrishna has received his M.Tech from the Hyderabad Central University, M.Phil from the Osmania University and Ph.D from the Rajasthan University. He is working as a Professor since 2004 until now in the Department of Electronics and Communication Engineering at the JNTU College of Engineering Hyderabad (Juhapuram), Hyderabad, India. His

Cited by 1 document

[Rajendran, SA](#)
Control Energy Efficient Load Balancing On Dynamic Multicast Routing Protocol

[International Journal for Science and Engineering](#)

[View article at this journal](#)

Inform us when this document is cited in Scopus

[By email alert](#) [By RSS feed](#)

Related documents

[Find more related documents in Scopus based on:](#)

[Authors](#) [Keywords](#)

Scopus Topic Frontiers

Topic

From time period to

Document details - Design of a Novel High-Speed- and Energy-Efficient 32-Bit Carry-Skip Adder

1 of 3

[Export](#) [Download](#) [More...](#)
Location: *Turkic in Mathematics and Systems*

Volume 61, 2019, Pages 339-343

Design of a Novel High-Speed- and Energy-Efficient 32-Bit Carry-Skip Adder(Book Chapter)

Sarıgana, B., İşgören, K., ...

Department of ECE, G. İhsan Sabancı Institute of Technology and Science, Şirinkent, Hyderabad, India

Abstract

In this paper, different 32-bit carry-skip adders, i.e., Fixed Stage Size Conventional carry-skip adder (FS-Com-CSKA), Variable Stage Size Conventional carry-skip adder (VSS-Com-CSKA), Fixed Stage Size Concatenation and Incrementation carry-skip adder (FSS-C-CIRA) and Variable Stage Size Concatenation and Incrementation carry-skip adder (VSS-C-CSKA) are designed and compared in terms of power, energy, critical path delay, power-delay product, and energy-delay product using 65-nm static CMOS technology for different range of supply voltages, i.e., 0.7V, 0.9V, 1.1V. The results that are obtained using Verilog HDL simulations reveal that the Concatenation and Incrementation carry-skip adder with Fixed and variable stage size has 51 and 49% improvement in the critical path delay and energy, compared with those of fixed stage size conventional carry-skip adder and Variable Stage Size Conventional carry-skip adder. © 2019, Springer Nature Singapore Pte Ltd.

Author keywords

[Carry-skip adder \(CSKA\)](#) [FSS-C-CSKA](#) [FSS-Com-CSKA](#) [VSS-C-CSKA](#) [VSS-Com-CSKA](#)

ISSN: 2262-3197

Source Type: Book Series

Original language: English

DOI: 10.1007/978-981-13-5745-9_33

Document Type: Book Chapter

Publisher: Springer

B. Sarıgana, B., Department of ECE, G. İhsan Sabancı Institute of Technology and Science, Şirinkent, Hyderabad, India

© Copyright 2019 Elsevier B.V., All rights reserved.

Cited by 4 documents

Muhsen, A., Erupoth, S.
A delay efficient hybrid parallel prefix variable carry CSKA based multi-operand adder with optimized 5:2 compressor and skip logic

(2024) *International Journal of Electronics*

Khalifa, A., Chahar, B., Sharma, G.

High-Performance 32-Bit Parallel Hybrid Adder Design Using RNS and Hybrid PTL/CMOS Logic

(2024) *Journal of Circuits, Systems and Computers*

Mondal, A., Pawan, S.

Power and delay efficient 32-bit design using FSSA and V-C-SKA based 400th multiplier

(2024) *Microelectronics and Microsystems*

[View details of all 4 citations](#)

Inform me when this document is cited in Scopus

[Set email alerts](#) [See citation alert](#)

Related documents

Find more related documents in Scopus based on:

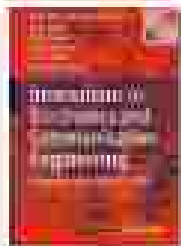
[Authors](#) [Keywords](#)

SciVal Topic Prominence: (0)

Topic

Participating journals





Innovations in Electronics and Communication Engineering pp 327–334

[Home](#) > [Innovations in Electronics and Communication Engineering](#) > [Conference paper](#)

Design of a Highly Reliable and Reconfigurable Pulsed Latch Circuits

B. Keerthi  & K. Rajini

Conference paper | [First Online: 08 February 2019](#)

677 Accesses

Part of the [Lecture Notes in Networks and Systems](#) book series (LNNS, volume 65)

Abstract

Pulsed latches are the most important storage elements used in many VLSI circuits, due to their low area and power consumption. The pulsed latch circuit consists of a pulse generation circuit, which generates a pulsed clock signal and is given to its corresponding latches. Among different latches namely Modified Hybrid Pulsed Latch (MHLFF), Transmission Gate Pulsed Latch (TGPL), and Static

BI-ORTHOGONAL WAVELET TRANSFORM BASED SINGLE IMAGE VISIBILITY ON HAZY SCENES

P. Madhuri, B. Swathi

Assistant Professor, PG Scholar

Department of Electronics and Communication Engineering

G. Narayana Murthy Institute of Technology and Science (for women), Hyderabad, India

Abstract: Digital images having a prominent role in applications of our daily life like magnetic resonance imaging, computer tomography, satellite television and in department of research and technology. This paper represents Single Image Visibility Restoration of Hazy Scenes using Bi-Orthogonal Wavelet Transformation technique. The outdoor images which are captured in poor weather like fog and haze are referred as hazy images and these images reduces the contrast. The visibility of digital images will be poor due to presence of different atmospheric substances which absorb and results in light scattering between captured object and digital camera. Image Dehazing techniques are categorized into three approaches and those are additional information approach, multiple images approach and single image approach. Here, Single Image Approach is preferred because of its low cost and flexibility. Image dehazing model is proposed with utilization of adaptive gamma correction technique, median filtering and dark channel prior technique. Dark channel prior method [5] is used to estimate scene depth in single image and to estimate red color channel with low intensity. This restoration technique uses difference in color values and enhanced transmission to achieve a scene with better quality and haze free. Simulation results will show good haze free images with better contrast under different weather conditions. The goal of restoration from hazy image is achieved by using a software tool, MATLAB.

Index Terms – Image, Image Denoising, Hazy Image, Image Dehazing, Bi-Orthogonal Wavelet Transform

I. INTRODUCTION

The important issue in images is presence of noise which is introduced because of compression and transmission errors. Mostly, natural images assumed to have additive random noise modelled as gaussian. To remove such noise from a noisy image, a method employed named as Image Denoising. The method which removes noise and preserves useful information of an image is referred as Image Denoising. The removal of noise from noisy image is one of the challenging task in Digital Image Processing. The challenging task in Image Processing is Image Dehazing. Three-dimensional image in real is converted to two-dimensional image by photo cells in camera which is used for capturing. To remove such haze, Image Dehazing is employed.

The method of retrieving a clean image from a hazy image without any ambiguities is defined as Image Dehazing. The aim of image dehazing is to improve the effects of visibility of a hazy image and to remove effects of weather factors. Based on differences in principles of dehazing, Image dehazing methods [6] classified into three methods like Image Enhancement based methods, Image Fusion based methods and Image Restoration based methods. Image Enhancement based methods improves the quality of image in perception of human eye and directly enhances the contrast of an image. This Enhancement methods do not solve the physical model of degraded image. Image Fusion based methods increases extraction of information to have more detailed information from each channel. These methods collect related information from multiple source channels. Image Restoration based methods analyze the purposes of degradation of scenes. By analyzing reasons, appropriate restoration model is employed. Most of the researchers use the general restoration model.

Single image visibility restoration method is one of the method of haze removal. This method is employed by applying Bi-Orthogonal Wavelet Transform. An Optical Imaging model is established to determine the factors of degraded scenes. This method removes the scattering of light due to atmospheric particles. Wavelet Transform is employed to determine the noise dominant regions in an image.

A Foggy Image Processing method is employed for haze removal. There are two methods i.e., non-model based image algorithms and model based algorithms. Non-model based algorithm highlight the details of foggy images, improves the level of contrast of foggy images and enhances the visual of foggy images. Consistency of adjacent images for video frames is guaranteed by non-model based algorithms. Model based algorithms compensates the degradation in foggy images.

II. RELATED WORK

Ermer, Bionnette [7] worked greatly to acquire more quality from images which are captured during rainy and foggy conditions. Recovering the image contrast by maximizing the local contrasts of hazy image is proposed by Tan, Tarel and Hautiere [8] employed non-linear filters to estimate air light scattering for easy haze removal.

Markov [9] established the adjustment of transmission map i.e., Gaussian Markov Random Field (GMRF). Kratz et al [9] used MRF algorithm to determine depth of information and scene albedo by assuming scene albedo is statistically independent.

Kaiming He, Jian Sun and Xiaoou Tang [5] proposed a new method of haze removal i.e., Haze removal using dark channel. Determination of transmission map, Soft Mating, restoring radiance of scene and atmospheric light estimation are the steps followed in Haze removal using dark channel prior.

Wancheng Wang and Xinhui Yuan [6] proposed various removal of haze methods which are Image Enhancement based methods, Image Fusion based methods and Image Restoration based methods. Internally these methods had many different strategies.

Document details - Blind DCT-CS watermarking system using subsampling

Info

[Epubs](#)
[Download](#)
[View...](#)

Cited by 0 documents

Keywords: Intelligent Systems and Computing

Volume 888, 2019, Pages 388-394

International Conference on Soft Computing and Signal Processing, ICSSP 2019, Hyderabad, India, 22 June 2019 through 29 June 2019, Code 279029

[References](#)
[View this document's citation in Scopus](#)

Section	Section
Item	Item

Blind DCT-CS watermarking system using subsampling (Conference Paper)

[Narasimha Dev, E.W.](#),
 [Sudheer, D.](#)

© Narayana Institute of Technology and Science for Women, Hyderabad, India

Abstract

Digital image watermarking is the technology used to protect copyright information of multimedia objects. In this paper, a novel blind image watermarking in transform domain is proposed. The cover image is subsampled into four images, and the correlation between the subsampled DCT coefficients is exploited for locating the embedding locations for watermark. The CS measurements of the watermark are embedded into the selected DCT coefficients of the subsampled image. The watermark is compressively sensed for providing higher embedding capacity than the traditional transform domain watermarking techniques. The outcome of this method is improvement in the security of the system, as the watermark can be recovered only if the decoder has the knowledge of the measurement matrix which serves as a key. Experiments results demonstrate that the selected watermark and water-marked image is better in terms of PSNR, SSIM, NC, and RMSE under with and without cross attack condition. © Springer Nature Singapore Pte Ltd. 2019.

Related documents

[Find more related documents in Scopus](#)
[Full text](#)

[Authors](#)
[Keywords](#)

Author keywords

[Computer coding](#)
[Copyright domain](#)
[Subsampling](#)
[Watermarking](#)

Indexed keywords

Engineering - controlled terms
[Copyright coding](#)
[Digital watermarking](#)
[Copyright watermarking](#)
[Encoding](#)
[Image coding](#)
[Image watermarking](#)
[Soft computing](#)
[Watermarking](#)

Engineering - uncontrolled terms
[Copyright coding](#)
[Copyright domain](#)
[Digital image watermarking](#)
[Encoding capacity](#)
[Measurement matrix](#)
[Encoding key](#)
[Transform domain watermarking](#)
[Watermarking system](#)

Engineering main heading
[Image coding](#)

Document details - Speed-Breaker early warning system using 77 GHz long-range automotive radar

1 of 3

[Export](#) [Download](#) [More...](#)

Advances in Intelligent Systems and Computing

Volume 900, 2019, Pages 763–768

International Conference on Soft Computing and Signal Processing – ICSCSP 2018, Hyderabad, India, 18 June 2018 through 23 June 2018, Code 222129

Speed-Breaker early warning system using 77 GHz long-range automotive radar (Conference Paper)

Deevika, D., Raghunath, E., Kumar, K.R.

NS. Narayanaamma Institute of Technology and Science, Thalaseer, Hyderabad, India
 Trends Systems Pvt. Ltd, Hyderabad, India

Abstract

Road safety measures are one of the most important requirements of present times. An early warning system to avoid accidents due to speed breakers has been proposed in this paper. The novelty of this method is detecting a speed breaker and alerting the driver in advance. For this purpose, long-range automotive FMCW radar (LRR) with transmitting frequency of 77 GHz has been used. This paper mainly deals with detection of a speed breaker using fast Fourier transform (FFT) as a pre-processing technique. The main steps involved in a speed breaker detect on are receiving backscattered signals from radar returns, filtering the data, applying a pre-processing technique, and classifying the output of pre-processing using support vector machine (SVM) classifier and K nearest neighbors (KNN). © Springer Nature Singapore Pte. Ltd. 2019.

Author keywords

Automotive radar, Classification, Feature extraction, FFT, KNN, Speed breaker, SVM

Indexed keywords

Engineering controlled terms:

Classification (Information), Confusion matrix, Fast Fourier transform, Feature extraction, Matrix transposition, K nearest neighbor search, Signal processing, Soft computing, Speed, Support vector machine

Engineering uncontrolled terms:

Backscattered signal, Early Warning System, FMCW radar, K nearest neighbor (KNN), Pre-processing, Road safety measure, Transmitting frequency

Engineering main heading:

Automotive radar

Cited by 1 document

Prasad, S., Hattar, S., Sheikh, W.D.

Cloud based Single Shot Detector Model for Speed Breaker Detection

10241-10273 International Conference on Emerging Smart Computing and Information, ESCI 2023

[View details of this citation](#)

Inform me when this document is cited in Scopus:

All citations Not cited yet

Related documents

Find more related documents in Scopus based on:

[Authors](#) [Keywords](#)

Scopus Topic Prominence

Topic:

Prominence percentile

ISSN: 2394-3857
 e-ISSN: 2394-3859
 Source Type: Book Series
 Original language: English

DOI: 10.1007/978-981-13-8600-3_11
 Document Type: Conference Paper
 Volume Editor: Prasad V.K., Reddy G.H.M., Wang J., Reddy V.S.
 Publisher: Springer Verlag

Design and Simulation of Parabolic Double Biquad Micro strip Patch Antenna for UWB Applications

P. Udayaraj¹, N. Krishna prathibha²

¹PG Student, Department of Electronics and Communication Engineering,
G. Narayanamma Institute of Technology and Science, Hyderabad, India

²Assistant Professor, Department of Electronics and Communication
Engineering, G. Narayanamma Institute of Technology and Science,
Hyderabad, India

E-Mail: pdayarajee433@gmail.com

Abstract

This paper covers the analysis and design of Parabolic double biquad micro strip patch antenna with three different substrates such as FR4_epoxy substrate with a dielectric constant of 4.4 and a thickness of 1.45mm, Arlon substrate having a dielectric constant of 3 and thickness of 0.95mm and Neltec substrate with a dielectric constant of 3.45 and a thickness of 1.45mm. The simulation process has been done through HFSS(HIGH FREQUENCY STRUCTURAL SIMULATOR). The radiation characteristics of the simulated antennas are obtained and compared with that of designed Double biquad micro strip patch antenna operating at 6.05 GHz, 6.4GHz and 6.75GHz in terms of return loss, VSWR, Gain, Directivity, E-plane radiation patterns, Bandwidth. The performance characteristics of parabolic double biquad micro strip patch antenna using FR4_epoxy, Arlon and Neltec substrates are improved compared to Double biquad micro strip patch antenna.

Keywords— Parabolic double biquad micro strip patch antenna, HFSS, Bandwidth, Return loss, VSWR.

1. Introduction

The micro strip patch antenna offers the advantages of low profile, ease of fabrication, lighter in weight, low volume, low cost, smaller dimension, conformity and compatibility with integrated circuits. Micro strip patch antenna can provide dual frequency operation, frequency agility, Omni-directional patterning and broad band width. These antennas are used in different hand held communication devices [1].

For feeding the micro strip patch antenna, there are different methods like, line feeding method, coaxial feeding method etc. This paper uses coaxial feeding method. In this type of feeding technique the inner conductor of the coaxial connector extends through a dielectric and is soldered to the radiating patch, while the outer conductor is connected to the ground plane as shown in Fig 1.

Design of a Low Power and High Speed 512-Bit Shift Register Using Static Differential Sense Amplifier Shared Pulsed Latch Circuit

B.Keerthi¹ Dr.K.Ragini²

¹(MTECH, ECE Department, G.Narayanaswami Institute of Technology and Science (NTLH, INDIA)

²(Professor, ECE Department, G.Narayanaswami Institute of Technology and Science (NTLH, INDIA)

Corresponding Author: B.Keerthi

Abstract: Flip-flops and latches are the most considerable storage element used in many VLSI circuits. They are gaining more importance in designing shift register, which has many applications now a days. In this paper, shift register is implemented using PULSED LATCH circuit. The pulsed latch circuit is driven by the pulsed clock signal, generated by the pulse generation circuit. By using the pulsed clock signal, clock power is very much reduced, thereby reducing the overall power consumption. Among different pulsed latch circuits like Modified Hybrid Latch Flip-Flop (MHFF) and Transmission Gate Pulsed Latch (TGPL), the Static Differential Sense Amplifier Shared Pulsed Latch (SSASPL) which has low power and less delay is chosen to design 512-bit shift register in TANNER EDA tool using 180nm technology.

Index Terms: Pulsed latch, flip-flop, shift register.

Date of submission: 15-04-2018

Date of acceptance: 04-05-2018

1. Introduction

Low power VLSI has gaining much importance now-a-days. Flip-flops and latches are the important sequential elements used in many VLSI circuits and mainly used in shift registers, microprocessors, microcontrollers and also has its applications in image processing. Flip-flops and latches are the 1-bit storage elements used in many processors. The main difference between flip-flop and latch is that, the flip-flop is edge-triggered and latch is level-triggered.

The master-slave flip-flop is designed using two latches driven by the opposite clock edges. The reason for using two latches is to stop the race-around condition occurring in the JK-flip-flop. The race-around condition occurs when $J=K=1$ and when long clock pulse occurs, the output at this state is toggling. To avoid this, one solution is to drive another latch by giving opposite clock pulse which is caused in master-slave flip-flop. By doing this, the race around condition is eliminated completely, but the drawback is that the area is very much increased by using two latches thereby increasing the overall powerconsumption.

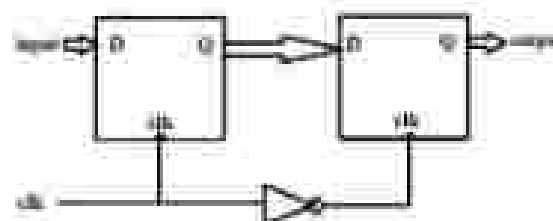


Fig.1 Master-slave flip-flop

Another solution for eliminating the toggling effect is by using pulsed latch circuit. The pulsed latch circuit consists of only one latch driven by pulsed clock signal, generated by the pulse generation circuit. By using the pulsed latch circuit which uses only one latch, the area which is the drawback in the case of the master slave flip-flop, which uses two latches with opposite clock signal is eliminated. And also by using the pulsed clock signal the clock overhead is very much reduced thereby reducing the overall power consumption.

NOVEL SIMULINK MODEL FOR DETECTING LIVER TUMOR USING MULTIPLE THRESHOLD METHOD

Y Rajesh Kumar, A Sravathi

(Assistant Professor, PG Scholar)

Department of Electronics and Communication Engineering

G. Narayanaamma Institute of Technology and Science (for women), Hyderabad, India

Abstract: Liver cancer is a pathological disorder of human, huge number of people are been affecting with liver cancer worldwide. The early detection and diagnosis of abnormal part of liver tissue, helps the physician for curing in early stage. Medical imaging is the trending area in the field of scientific imaging. Medical image segmentation is a tedious task for extracting tumor from liver tissue due to close similarity with neighbourhood organs. Liver tumor segmentation can be achieved using various methods, but their implementation requires high level language for coding. This objective lead to the use of a graphical dataflow based programming environment within Matlab, which is Simulink, which is very easy to handle with other software and also used for real-time implementation. In this paper a novel simulink model for detecting liver tumor using multiple threshold method is proposed. The proposed methodology is facilitated by using a median filter as a image pre-processing step, followed by multiple thresholding and finally tumor is extracted by applying some elementary morphological operations like erosion and dilation as post-processing. Dataset of CT scan liver tumor images used for testing the proposed simulink model. Finally size of perfectly extracted liver tumor is evaluated as a performance analysis using computer vision toolbox of simulink blocks.

Index Terms - Medical Imaging, Segmentation, Simulink, Multiple threshold method, computer vision toolbox.

I. INTRODUCTION

Liver is the largest organ in the abdominal region, with many vital functions like protein synthesis, detoxification and helps in metabolic activities. It regulates biochemical reactions such as breakdown of complex molecules, produces bile, acts as an alkaline compound aids in digestion. Tumor is referred as abnormal growth of the tissue, detection and segmentation of liver tumor is difficult due to reasons like large variations in geometric properties of liver shape and size and its close similarity with nearby organs. In such case manual extraction of tumor leads to misdiagnosis. Therefore model is designed to segment out tumor part automatically from CT scan liver tumor image using simulink. Various imaging techniques has been adopted to detect abnormalities in liver. The imaging techniques are CT (computed tomography), MRI (Magnetic Resonance Imaging) and PET (Positron Emission Tomography). By using these three imaging techniques the anatomical structure of the organ is studied, mostly CT scan is commonly used for abdominal organs, which provides precise data about shape, size and position of liver tumor. Tumor may be either cancerous or non-cancerous.

Segmentation [1] refers to partitioning an image into segments, it is an essential step in medical imaging. The main aim of segmentation is simplification i.e. representing an image into meaningful and easily analyzable way. Image segmentation is necessary, and it is first step in image analysis. The goal of image segmentation is to divide an image into several parts/segments having similar features or attributes. There are many segmentation methods for extracting liver tumor, automatic and a semi-automatic type. A great segmentation will benefit physicians because it will give important information for surgical planning or early detection of liver tumors.

Simulink, a model based design for processing, a graphical representation of MATLAB toolbox, it has ready-to-use blocks for modelling, simulating and analyzing the models. Simulink, a add-on to MATLAB and a tool for rapid design, prototyping, graphical simulation. It is a multi-domain dynamic system since it has many toolbox like computer vision, control system, DSP toolbox etc. In simulink the model focuses on processing an image pixel by pixel and its modification of pixel neighbourhoods can be applied to the entire image. It has a special feature like efficient code generation, HDL coder and block sets can be used in conjunction with real-time workshop to automatically generate embedded C code for real-time execution. Simulink simply acts as interface between software and hardware, prior to hardware implementation software or models are been simulated with proper simulation step time and solver type, in simulink environment.

II. RELATED WORK

Sagis Lewan and CL Wandeo [2] proposed image recognition using MATLAB simulink blockset to detect selected object from the crowd is processed. A unique simulink model is designed for recognizing objects of interest in an image using morphological



IJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 5 **Issue:** IV **Month of publication:** April 2018

DOI: <http://doi.org/10.22214/ijraset.2018.4237>

www.ijraset.com

Call: ☎ 08813907089

E-mail ID: ijraset@gmail.com



Comparative Analysis of Routing Protocols in Wireless Networks

A. Ravali¹, M. Vijayalakshmi²

^{1,2} ECE, BITUM

Abstract: Mobile ad-hoc network (MANET) is constructed by means of host mobile nodes. Since such self-distributed networks do not require pre-existing base stations, they're predicted to use in various conditions which include military affairs and rescue paintings in disaster work sites. In MANETs there is no path from source to destination for finding path from source to destination using routing protocols. AODV routing protocol is an On-demand distance vector. The AODV protocol builds routes between nodes only if they are requested by source nodes. DSDV is a table-driven routing protocol. Routing information is distributed between nodes by sending full dumps infrequently and smaller incremental updates more frequently. DSR is an On-demand distance vector. Network nodes cooperate to forward packets for each other to allow communication over multiple "hops" between nodes not directly within wireless.

Keywords: MANETs, routing protocols, AODV, DSDV, DSR

I. INTRODUCTION

A mobile ad hoc network (MANET), also known as ad hoc wireless network, is a commonly self-configuring, infrastructure-less network. In a MANET each device is free to move independently in any direction, and it will, change its links to other devices frequently.

Unrelated to its own use every device must forward traffic, and therefore it will be a router. The primary challenge in building a MANET is equipping each device to maintain the information required to properly route traffic continuously. Such networks may be connected to larger network or may be operate by themselves [1].

They may contain one or multiple and different topologies between nodes. This results in a highly dynamic, autonomous topology. MANETs are a kind of wireless ad hoc network (WANET) that usually has a routable networking environment on top of a Link Layer ad hoc network. MANETs consist of a peer-to-peer, self-forming, self-healing network. MANETs typically communicate at radio frequencies (30 MHz – 5 GHz).

A. Routing in MANETs

The absence of fixed infrastructure in a MANET poses several types of challenges. The biggest challenge among them is routing. Routing is the process of selecting paths in a network along which to send data packets. An ad-hoc routing protocol is a convention, or standard, that controls how nodes decide which way to route packets between computing devices in mobile ad-hoc network [1]. The basic idea is that a new node may announce its presence and should listen for announcements broadcast by its neighbors. Each node learns about nearby nodes and how to reach them, and may announce that it can reach them too. The routing process usually directs forwarding on the basis of routing table which maintain a record of the routes to various network destinations. Thus, constructing routing tables [2].

B. Routing protocols in MANETs

The growth of laptops and 802.11/Wi-Fi wireless networking have made MANETs a popular research topic since the mid-1990s. Many academic papers evaluate protocols and their abilities, assuming varying degrees of mobility within a bounded space, usually with all nodes within a few hops of each other[2]. Different protocols are then evaluated based on measures such as the packet drop rate, the overhead introduced by the routing protocol, end-to-end packet delays, network throughput, ability to scale, etc. In MANETs no-routing will be there in order to find the routing we have to use the routing protocols.

II. CLASSIFICATION OF ROUTING PROTOCOLS

The routing protocols for ad-hoc wireless network based on the routing information mechanism. This routing protocols can be defined by three types.



IJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 5 **Issue:** IV **Month of publication:** April 2018

DOI: <http://doi.org/10.22214/ijraset.2018.4089>

www.ijraset.com

Call: ☎ 08813907089

E-mail ID: ijraset@gmail.com



Automation in Wireless Control System: A Small Review Study of Automation of Water Motor using ZigBee

Chilupuri Anusha¹, Dr. S Karimnagar Reddy²

¹Department of ECE, G. Narayana Murthy Institute of Technology & Science, Hyderabad-500104

²Department of Mathematics, JNTUH College of Engineering, JNTUH Hyderabad-500073

Abstract: The paper shows an attempt of a small review study of integrating features of the hardware components implemented in the application of water motor in the platform of ZigBee technique. Presence of every module has been reasoned out and placed carefully, thus contributing to the best working of the unit. Secondly, using highly advanced IC's with the help of growing technology, the study has been successfully implemented. The implemented process and results have been successfully designed and tested. Study in the paper reveals the automatic operation of motor to control the water levels in a tank, using the wireless medium as well as a controlling medium. PIC (Peripheral Interface Controller) microcontroller is used as a controlling equipment and ZigBee modules are used in the wireless transmission of the messages. Module of microcontroller and a ZigBee module is a significant technique of detecting required level of the operating device.

Keywords: Microcontroller, ZigBee, Automation Control

I. INTRODUCTION

An embedded system is a compositional method of both software and hardware to perform a any technical task. The very common devices implemented in embedded products are microprocessors and microcontrollers. In some cases, it is required to control the AC motor from remote places. The objective in the study is to control the AC motor automatically using ZigBee modules. This deals with the design and development of hardware and software for Wireless AC motor speed control system. ZigBee is a wireless technology at global standard designed for the unique needs of low-cost, low-power wireless M2M networks[1]. The ZigBee standard operates on the IEEE 802.15.4 physical radio specification and operates in unlicensed bands including 2.4 GHz, 900 MHz and 868 MHz. ZigBee devices have the ability to form a mesh network between nodes. Meshing is a type of daisy chaining from one device to another [3,4]. This technique allows the short range of an individual node to be expanded and multiplied, covering much larger area. ZigBee is an established set of specifications for wireless personal area networking (WPAN), i.e., digital radio connections between computers and related devices. This kind of network eliminates use of physical data buses like USB and Ethernet cables. The devices could include telephones, hand-held digital assistants, sensors and controls located within a few meters of each other [5]. ZigBee is one of the global standards of communication protocol formulated by the relevant task force under the IEEE 802.15 working group [6]. The fourth in the series, WPAN Low Rate ZigBee is the newest and provides specifications for devices that have low data rates, consume very low power and are thus characterized by long battery life. Other standards like Blue tooth and IrDA address high data rate applications such as voice, video and LAN communications [7].

II. METHODOLOGY AND APPROACH OF ZigBee

The study in the present paper uses regulated 5V, 500mA power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac output of secondary of 230V/12V step down transformer.

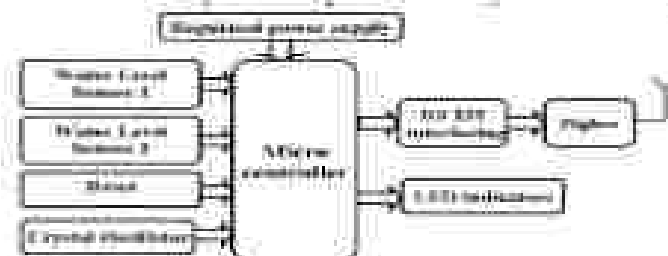


Fig.1. Schematic diagram for Transmitter

**ADAPTIVE PROBABILISTIC ROUTING ALGORITHM FOR WIRELESS
COMMUNICATION NETWORKS: A CASE STUDY OF NETWORK
ROUTING PROBLEM**Chilupuri Anusha¹, Dr S Kumarakar Reddy²¹Department of ECE, G. Narayana Institute of Technology & Science, Hyderabad-500104²Department of Mathematics, JNTUH College of Engineering JNTUH Hyderabad-500072

Abstract — The back-pressure algorithm cannot be efficient for adaptive routing as the delay performance is very common problem. In this paper, an attempt has been made to design, an probabilistic algorithm that is modified version of back-pressure algorithm. By minimizing a probabilistic routing table that changes slowly over time, real packets do not have to explore long paths to improve throughput, this functionality is performed by the shadow "packets". The proposed algorithm also allows extra link activation to reduce delays. The algorithm has also been shown to reduce the queuing complexity at each node and can be extended to optimally tradeoff between routing and network coding.

Keywords-Microcontroller, probabilistic algorithm, back-pressure algorithm, Network routing

I. INTRODUCTION

Large-scale, are a part of today's global communication infrastructure. In the recent global communication networks involve wide area data networks with large scale. In the areas of different fields such as electronic commerce and entertainment, Networks, Internet is a significant social medium. The demand and services from such networks keeps on increasing [1]. Delivering data and transforming the information from one network node to another is basic feature of the network. Huge graph with routers assumed with vertices and transmission lines as edges is treated as data network. A logical connection established between nodes in a network is modeled as routing, for transmission of data packets [1]. The task of developing efficient network is with the leveling of scale and capacity of distribution of the physical network. Routing algorithms play a vital role in the functioning designing of appropriate scalable distribution network. Moreover, necessity of routing algorithms is calculation of paths in for distribution of data in the global network of higher efficiency[3]. A global data network with millions of hosts is an Internet. Logical Internet connectivity is dependent of inter- and intra-domain routing algorithms.

II. PROPOSED SYSTEM AND METHOD

In the earlier attempted studies of network routing problems, a poor delay performance and involve high implementation complexity is observed in the back-pressure algorithm. The minor modifications are made in the back-pressure algorithm of present proposal. This algorithm is proposed as a solution to the problems faced by existing routing using backpressure algorithm [4]. As opposed to existing routing which decides in favor of single path, it assigns probabilities multiple paths between a source-destination. The modified backpressure algorithm using probabilistic routing table will reduce the delay performance and low complexity solution. Additionally, the implementation of the back-pressure algorithm requires each node to maintain per-destination queues that can be burdensome for a wired or wireless router [5]. In the present study a new adaptive routing algorithm is developed which is built upon back-pressure algorithm. The technique of de-coupling the routing and scheduling components of the algorithm by a method of a probabilistic routing table used to route packets to per-destination queues [6]. The Scheduling decisions in the case of wireless networks are made using counters called shadow queues. The results are also extended to the case of networks that employ simple forms of network coding. In that case, our algorithm provides a low-complexity solution to optimally exploit the routing-coding tradeoff [7]. An Adaptive Probabilistic routing Algorithm is modified backpressure algorithm using probabilistic routing table. The advantage of this approach is that buildup of the shadow queues can take place to provide a routing "gradient" for the back-pressure algorithm without corresponding buildup of the real queues, but at the cost of compact network capacity [8]. So we brought a new idea which allows the reduction in the number of real queues by routing via probabilistic splitting. One more important observation in the present attempt is reducing delays in routing case because of partial decoupling of shadow back-pressure and real packet transmit allows us to activate more links as compare to regular back-pressure algorithm [9].

IOT Based Smart Irrigation System

P. Roopa Rajani & Greshk Srinva

Assistant Professor, G Narayanaswami Institute of Technology and Science, Hyderabad

Assistant Professor, G Narayanaswami Institute of Technology and Science, Hyderabad

Email: roopa_ece@gmail.com, srinva_greshk@gmail.com

ABSTRACT: In the present era one of the greatest problems faced by the world is water scarcity and agriculture being a demanding occupation consumes plenty of water. Therefore a system is required that uses water judiciously. Smart irrigation systems estimate and measure diminution of existing plant moisture in order to operate an irrigation system, restoring water as needed while minimizing excess water use.

With the water requirements in irrigation being large, there is a need for a smart irrigation system that can save about 50% of the water. This prototype aims at saving time and avoiding problems like constant vigilance. As technology is advancing, there is always a chance of reducing risks and making work simpler. Embedded and micro controller systems provide solutions for many problems. This application precisely controls water system for gardens by using a sensor micro controller system. It is achieved by installing sensors in the field to monitor the soil temperature and soil moisture which transmits the data to the microcontroller for estimation of water demands of plants.

INTRODUCTION

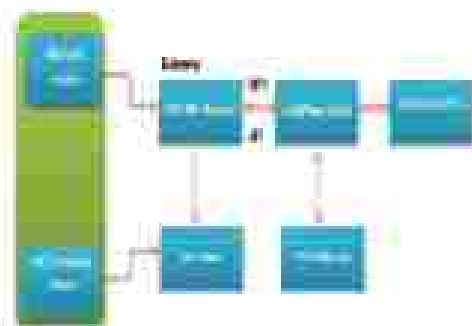
In the present era one of the greatest problems faced by the world is water scarcity and agriculture being a demanding occupation consumes plenty of water. Therefore a system is required that uses water judiciously. Smart sprinkler systems estimate and measure diminution of existing plant moisture in order to operate an sprinkler system, restoring water as needed while minimizing excess water use.

A real-time wireless smart sensor array for scheduling irrigation prototyped a real-time, smart sensor array for measuring soil moisture and soil temperature that uses off-the-shelf components was developed and evaluated for scheduling irrigation in cotton.

This system is specific for a crop and hence its usage is limited. Proper scheduling of irrigation is critical for efficient water management in crop production, particularly under conditions of water scarcity. The effects of the applied amount of irrigation water, irrigation frequency and water use are particularly important. To improve water efficiency there must be a proper irrigation scheduling strategy. So our project defines a simple system, using a microcontroller to automate the

irrigation and watering of small potted plants or crops with minimal manual interventions.

I. Block Diagram



Moisture Sensor: It is an analog sensor used to measure the moisture content in the soil.

DHT11 Sensor: It is a digital sensor used to measure the temperature and humidity level of surroundings.

MODEM: It acts as a gateway which is used to convert the analog signals to digital signals and to communicate with the cloud.

SERVO MOTOR: It is used to turn ON and OFF the sprinkler to the soil by rotating the motor from 0° to 180°.

CLOUD: It is used to receive the signals sent by the modems and to retrieve back the signals.

The following are the main features that are included in system:

- It displays the temperature and humidity values on the website.
- It automatically controls the water sprinkler pump.
- The sprinkler can also be manually controlled through website.
- It automatically controls the water flow based on the soil type.
- It also displays the moisture values on the website.

II. OPERATING ENVIRONMENT

ARDUINO IDE

Arduino is an open-source prototyping platform based on easy-to-use hardware and software. The Arduino Integrated Development

Document details - Performance improvement of 4G OFDM systems using CTSTC techniques

Info

[Epubs](#) [Download More...](#)

[Cited by 0 documents](#)

International Journal of Engineering and Technology (IJET)

Volume 7, Issue 2, 2018, Pages 136-144

[References where this document](#)

[is cited in:](#)

Section	Section
View	Read

Performance Improvement of 4G OFDM systems using CTSTC techniques [\(Article Open Access\)](#)

[E. Padma, C. Malinvar, B.L. ...](#)

[IJET](#), Hyderabad, India

Abstract

The combination of channel coding and diversity schemes are essential in the 4G communication systems to improve the reliable data rate transmission. To address Bit Error Rate performance enhancement, the paper presents the coding gain and diversity gain benefit using the proposed CTSTC scheme by adding modified turbo features and Space Time encoding features. Simulation results are provided using MATLAB and compared the results with conventional code Space Time Coding technique. © 2018 Author.

[Related documents](#)

[Find more related documents in Scopus](#) [Full text](#)

[Authors](#) [Keywords](#)

Author keywords

[Efficiency](#) [Communication with space-time coding](#) [Turbo coded space-time coding](#)

ISSN: 2278-0248

Source Type: Journal

Original language: English

DOI: 10.14188/IJET.V7I2.11819

Document Type: Article

Publisher: Science Publishing Corporation (S)

[E. Padma, C. Malinvar, B.L. ...](#)

© Copyright 2018 Science P.V. All rights reserved

[Scopus Impact Prominence](#) 

Sign:

[Publish with Scopus](#)



Document details - A DCT-CS Watermarking Method for Monochrome and Color Image

1 of 1

[Export](#) [Download](#) [More...](#)

Lecture Notes in Electrical Engineering
Volume 471, 2018, Pages 1-8
International Conference on Information, Electromagnetics and Telecommunications, ICIST 2017, Telangana, India, 9 September 2017 through 10 September 2017, Code 210819

A DCT-CS Watermarking Method for Monochrome and Color Image (Conference Paper)

Samir D., Renuka Devi, S.M.

G. Narayana Murthy Institute of Technology and Science (for women), Hyderabad, India

Abstract

In order to overcome the threat of data transmission over internet, watermarking techniques have been developed. Watermarking can be implemented in spatial or in frequency domain. In this paper, watermarking is implemented in frequency domain using DCT transform and compressive sensing technique. The paper deals with a proposed watermarking scheme that can be applied to binary, monochrome, and color image. Here, the features of compressive sensing are considered in order to overcome the drawback of insecure data transmission. A random Gaussian matrix is used as the secret key for encrypting the watermark in the process of compressive sensing. This encrypted watermark is then embedded into the mid-frequency DCT coefficients of the host image. Experimental results depict that the performance of our algorithm is better than basic DCT watermarking in terms of robustness. It is observed that the security level and embedding capacity are also improved by the usage of compressive sensing. © Springer Nature Singapore Pte Ltd. 2018.

Author keywords:

Compressive sampling, Discrete cosine transform, Watermarking

Indexed keywords:

Engineering
computer science

Compressed sensing, Cryptography, Data transfer, Digital watermarking, Discrete cosine transform, Frequency domain analysis, Image authentication, Image extraction, Watermarking

Engineering
uncontrolled terms

Compressive sampling, Compressive sensing, Embedding capacity, Encrypted watermark, Gaussian matrix, Watermarking algorithm, Watermarking method, Watermarking schemes

Engineering
media

Image watermarking

Cited by 0 documents

Inform me when this document is cited in Scopus:

Subscription:
 E-mail:

Related documents:

Find more related documents in Scopus based on:

Author(s) | Keyword(s)

Home [More](#) 

Article

Design of a UWB planar monopole antenna for breast cancer tumour detection using HFSS

Jan 2018 - International Journal of Pure and Applied Mathematics - 119(15):37-47 - [Follow Journal](#)

N. Krishna Jyothi - N. Harini

Research Interest Score	0.3
Citations	0
Recommendations	0
Reads 	33

[Learn about stats on ResearchGate](#)

Full text requested

Share More 

Overview

Stats

Comments

Citations

References

...

Abstract

This paper covers the design of an ultra-wide band planar monopole antenna working in the frequency range from 5-10 GHz. The antenna has very compact size (area of 9 mm * 10.5 mm) and is immersed to liquid of high dielectric constant for breast tissue to be improved and increase the dynamic range of the system. The time domain performance of the antenna is to show the negligible distortion so that can make it perform better for medical imaging systems. Due to the better performance of the antenna the effect of the multilayer breast tissue is also investigated by calculating the fidelity factor across all the tissue layers. Now for better performance and to meet the requirements a Planar Monopole Antenna (PMA) is designed and optimized regarding to different parameters. A crossslot has been introduced to the design to find the better result. The simulated results show the reflection coefficients of designed antenna are less than 10dB over the entire frequency band of interest.



Performance Analysis of 4G Systems with Channel Coding Algorithms

C. Padmaja, B.L. Mallawari

ECE Dept., GNTS, Hyderabad

Email: padmaja@rediffmail.com

Received: 06th October 2017 Accepted: 14th November 2017, Published: 31st December 2017

ABSTRACT

The performance of wireless communication system is degraded by the burst errors due to deep fades under multipath environment. So, techniques like forward error correction algorithms or automatic repeat request (ARQ) or a combination of both (Chase Comb ARQ) minimizes the bit error rate (BER). The paper focuses on the performance comparison analysis of different error control codes that gives the near Shannon capacity.

Keywords: Shannon Capacity, Bit Error Rate, Forward Error Correction Codes, Signal to Noise Ratio

1. INTRODUCTION

The wireless channel is often affected by atmospheric conditions such as scattering and reflections from surroundings. These multiple signals with different amplitudes and phases reaches the receiver, thus causes either constructive or destructive fading [1].

The poor performance of a reliable communication depends on the received signal strength. The deep fade event due to destructive phenomenon depends on the fading channel coefficient magnitude, 'a'

$$|a| < \frac{1}{\sqrt{SNR}} \quad (1)$$

Communication receiver will suffer from errors due to deep fades. To combat the deep fading and to improve the performance of the system, employ the technique called "diversity" [2-3].

Diversity is a process of sending the same information symbols over multiple independent identically distributed fading paths, for maximum diversity gain can be achieved. Also, minimizes the output SNR by combining each branch SNR using diversity combiner.

The probability of deep fade event (P_{df}) decreases as SNR increases. For 'L' paths between transmitter and receiver, P_{df} decreases as $(1/SNR)^L$ due to multiple fading IID channels employing Diversity [4-5].

Shannon's capacity defines the maximum error-free data transmission rate for a given bandwidth and signal power and received noise power [6]. The channel encoder improves the bit error rate and performance of transmission link over the multipath fading channels [7].

The code rate is defined as the fraction of 'k' information symbols and 'n' encoded symbols denoted by k/n . The maximum code rate depends on the type of error correcting code used. The error rate, capacity and throughput can be improved by using multicarrier modulation techniques called

Orthogonal Frequency Division Multiplexing (OFDM) [8] - [12].

For an AWGN channel, the theoretical comparison analysis under BPSK modulation between the coded and uncoded system w.r.t. Shannon's capacity is given below:

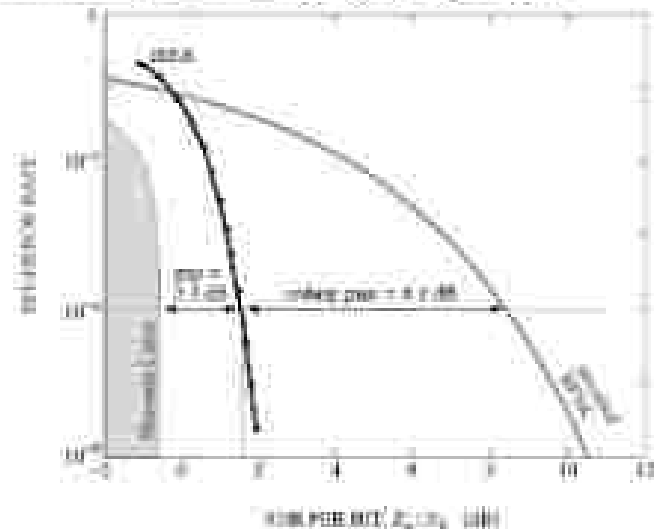


Fig 1. Theoretical analysis of coding gain [13]

There are number of error correcting codes in the literature such as convolutional codes, block codes, Turbo codes or Low Density Parity Check codes (LDPC) and so on. They differ in terms of decoding complexity, efficiency and optimality [11-13].

The paper evaluates the comparison analysis of convolutional coded system, Turbo coded parallel concatenated convolutional code and uncoded system in terms of decoding complexity [14-17].

Section 2 deals with the system model and the analysis of various coding schemes described in section 3 and section 4 lists the simulation results under Rayleigh fading channel. Section 5 concludes the paper.

II. SYSTEM MODEL

Consider an OFDM based system employing diversity gain through space encoding technique and channel coding through Turbo coded technique.

The information bits are encoded by Turbo channel encoder and then mapped by digital BPSK modulation. The mapped data is again encoded by Orthogonal Space Time Block Code (i.e. OSTBC encoder). The independent data streams are passed through OFDM modulators which perform by IFFT and add Cyclic Prefix (CP) then it is passing through IID channel.

AN EFFICIENT TRUST COMPUTING SCHEME FOR IMPLEMENTING A TRUSTWORTHY AND COLLABORATIVE CLOUD SERVICE

Syam

PG Scholar, Department of IT

G.Narayana Institute of Technology and
Science (NTUS), Hyderabad,
Telangana, India

Abstract— The vital task of cloud computing programme is to provide trusted services to users. The user wants to deliver their critical tasks and information to cloud data centre. So that, the burden of the cloud consumer is shifted to cloud data centre. Trust has a prime role between user and cloud service provider. There are many approaches available to calculate trust value in collaborative cloud computing. In the proposed system, to provide security, data uploaded to cloud will be in encrypted format. Perishal trust computing scheme will calculate the trust. A thread will be created for each user request and will be fast as it has to calculate the trust for single user. Trust will be determined based on successful login, and response time. The response time calculated from each request is added to matrix window, from which we can predict and recommend the best performing cloud services to user. The experimental result support practicality and success of the proposed system.

Keywords—trust, security, cloud computing, trust value, collaborative cloud computing, response time.

1 INTRODUCTION

Cloud computing uses a network of remote cloud servers to provide storage, management, and processing of data on the internet rather than a personal computer system. In simple words, the cloud users can store and access the data and programs using the internet, rather than users with computer hard drive. The conclusive target of cloud computing is to provide infrastructure, platform, and

A. Shama Sankarini

Assistant Professor, Department of IT

G.Narayana Institute of Technology and Science (NTUS),
Hyderabad, Telangana, India

software services at minimal cost. The user can also scale up and down their demands on a payment basis [1].

In collaborative computing, the data and programs are stored on a central cloud server, from where they can be distributed and acquired by other users using cloud computing. In collaboration computing, the resources are completely distributed, virtualized and are heterogeneous. There are many benefits of collaborative computing, namely: better organization, better access to big files, real time updates [2].

With the advancement of collaborative computing, cloud users can transport their important tasks and information to the cloud datacenter to lessen their burden. The cloud provider store and processes the task on behalf of the user and supply the outcome to the cloud customers.

As the cloud customers are storing their information to a third party cloud data sites, the security concerns have been raised. To reduce the issues of a large number of users, multiple numbers of trust factors should be provided such as security, availability, and reliability. It is the authority of third party cloud data sites to store the resources and provide the response to the user securely and efficiently.

Trust is more than security. From a cloud consumer's point of view, providing trust has the following benefits:

1. Increased security: the potential to take precautions against unauthenticated behaviour.
2. Increased quality of service (QoS): the power to provide a secure service as stated by the SLA [3].

There are many methods to calculate trust but not sufficient to quantify today's big data as multiple number of users are requesting their

data and the cloud has to calculate trust for each request and recommend to user.

II. RELATED WORKS

In this paper, T-Broker is a broker which is an intermediary between cloud provider and service user for managing trust and scheduling resources. Soft sensors are going to monitor real time resources for dynamic services behavior and social feedback. Hybrid and adaptive trust model is used to compute the trust by combining dynamic service behavior and social feedback. Minimization deviation practice is used to compute direct trust from the dynamic services behavior unlike traditional methods where attributes of trust are weighted manually or subjectively. This method has faster convergence than the earlier approach. T-Broker uses hybrid and adaptive trust model which combines direct trust (first hand) and indirect trust (social feedback). In current studies, hybrid model either ignores the problem or uses manual or subjective methods to assign weights for the computation of trust [3]. Importance of resource and reputation management: Resources are distributed geographically and utilization of resources and availability of resources dynamically changes. In collaborative cloud computing, different nodes have different QoS in resource provisioning. It may provide low QoS because of system problem such as insufficient cooling, not willing to provide high QoS to save cost, attacked by viruses etc. Therefore, resource management needs reputation management to measure reputation value based on the evaluations made by others about the performance in selecting the trustworthy services. In previous studies, these two issues were addressed separately and simply combining the issues generate double overhead. Previous resource and reputation methods are not efficient. Therefore, this paper proposes collaborative cloud computing platform, Harmony that is going to integrate resource and reputation management. The contribution can be summarized as: Evaluate reputation of multiple resources by indexing resource information and reputation of each type in same directory node. It becomes easy to access information and reputation of available resources. Client is going to choose the resource based on QoS requirement such as price, distance, storage, efficiency etc. Client pays to resource provider for the resource

Harmony enables node to adaptively adjust price to maximize profit, maintain reputation and avoid overload.

Drawbacks of this paper: Simply building and combining resource management and reputation management generate high overhead. Previously, in reputation management the method assigns one reputation value for each node for all of its resources. Previously, in resource management, assume single QoS demand of users, such as security and efficiency. Security (overload) oriented reputation management selects one with highest reputation management whereas organization (small success rate) oriented management selects one with highest accessible resources [4]. In this paper, there is high overhead and low dependability.

Limited work on resource efficiency: most of works are unsuccessful to examine the problem of resource constraints of nodes or used complex algorithms to evaluate the trustworthiness of the nodes. Limited work focused on dependability. Existing system: trust management system collects the feedback then aggregate to yield global reputation for the node that can be used to evaluate global trust degree (GTD) of the node. But in WSN, there is large number of malicious nodes. Feedback from these nodes will yield incorrect evaluation. Therefore previous studies lack to solve problem of unauthorized feedback, which influence the dependability feedback accessibility [5].

III. SYSTEM ANALYSIS

Existing Method:

In collaborative computing, providing trust to the cloud consumers is composed of three stages.

1. Real time scanning of data: A scattered and commutable architecture for big data is developed. The real time data is extracted from this scattered and

commutable architecture. The agents collect the quality related data and security related data.

2. Trust calculation: Based on big data monitoring by the agents, a high speed and low overhead trust evaluating procedure is build. It uses time window and time decay functions to calculate the trust. By using parallel calculating scheme, the speed of evaluating trust is increased using this architecture.
3. Match making: The final resources are provided to the cloud consumers based on trust value. Therefore, supplying of resources to the cloud consumers are directly proportional to the trust values calculated.

The agents in this architecture have following features:

1. Real time scanning of data
2. Pre processing the real time data
3. Trust degree mining of the data
4. Access control based on the trust
5. Authorization

Modules of the existing system:

1. Communication and agent management module
 - I. Cloud service connection and adaptation: This module collects and indexes all the information of resources and form a single set of API. Therefore, the cloud customer needs to be cautious about one set of API.
 - II. Agents publish and agent based data perceiving: The agents are dispersed in remote sites and examine the real time behaviour incorporating security related information and QoS related information. If a new version of agent is developed, it is the job of this module to publish the latest version to all the agent managers.
2. Cloud resource management module: All the resource information is reserved in this module in the form of catalogues. This module is connected to the highly trusted resources and supplies these resources to the cloud consumers through unified service portal.

- Trust computing module: This module is the chief part of this architecture. Using real time monitoring of information, all the resource information are classified according to their performances and converted in cloud resource management module. A unified service portal is provided for both user and administrator. A user can open a unified service portal and choose trusted service. Administrator manages the resources and serves an unified service portal [6].

- There are chances that the malicious users can get the unauthorized access of the information.

Proposed method:

Now a days, users wants to transfer their crucial information and data to the cloud sites to lessen their own burden, now it is the job of cloud sites to reserve all the information of the cloud customer. But, trust has a dominant role in between the cloud customer and cloud server sites. Therefore, trust agents evaluate the trust and provide these outcomes to the user for recommendations and predict the best services to the users.

Working of the proposed system:

There is numerous numbers of techniques available to calculate trust, but for collaborative computing these techniques are not sufficient. Steps included in the proposed system are:

Disadvantages:

- Calculation of accurate trust: Trust has a dominant part in collaborative computing and clarified the problem of providing security to the cloud customers. Trust incorporates multiple factors such as, accessibility, dependability, and certainty.
- There are numerous number of cloud customers sending their request to the cloud server. Therefore, it is inconvenient to provide fast response to the cloud customer.
- Cloud customers are storing their information to cloud. Therefore, calculating trust becomes difficult.

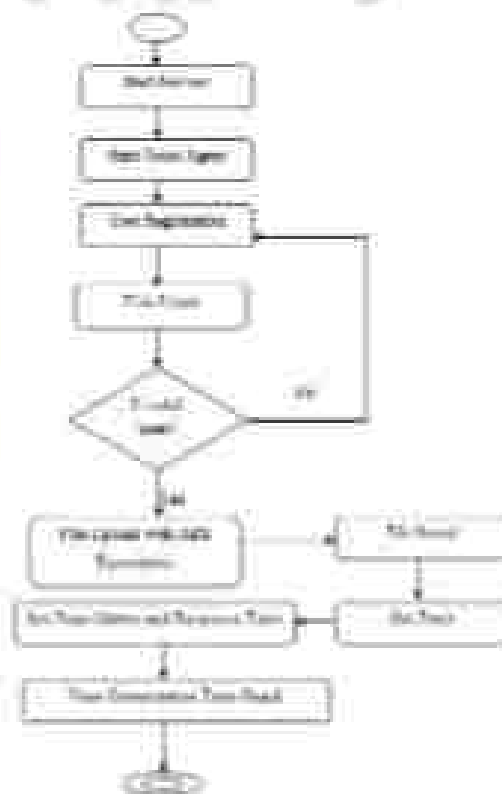


Fig Working of the system.

- The user must have to start the server, because the information of the cloud customers is going to be stored at the server.
- Trust agents must be started because, the trust agents are calculating the trust and provide it to cloud customers.

III. The user shifts their information to the cloud server sites to reduce their own burden. Therefore, registration is necessary to get the authorization.

IV. Only authorized users can gain the access. Therefore, for authentication purpose login is required. If the cloud customer is valid, the access is gained otherwise the access is denied.

V. The user can upload their information if the access is authentic. To provide security, the file is encrypted prior to upload, to hide the information from unauthorized users. The file is encrypted using AES method.

VI. Now, the information is stored at the cloud server.

VII. To calculate trust, this system is considering successful login and response time and encryption is provided using AES encryption method.

With each request, a separate thread will be created and the entire request will be appended to the matrix window. Therefore, response time will calculate trust. If the response is less, the server is trusted otherwise not. If the data provided by the cloud user is not valid, the access is denied.

VIII. The time matrix and response time information is shown to the cloud customer so that it can be utilized for recommendation and predict the best service.

IX. Finally, the computation time graph is shown, in which the parallel and non-parallel calculation is pictured and the response time is shown.

ADVANTAGES:

1. Parallel trust computing calculation: This concept makes this system faster.
2. Thread creation: When a user is requesting to the cloud server site, a separate thread is created, which will be processed. All the requests will be appended to the matrix window and the response time will be evaluated.
3. Encryption: To provide security to the system, when the file is upload. The file is encrypted first and then it is conserved at the cloud server. Therefore, the cloud consumer's data is protected from unauthorized users.

IV. ALGORITHM DETAILS

This system has following modules:

- User
- Trust agent
- AES Algorithm

TRUST AGENT MODULE DESCRIPTION

Trust agent module is going to evaluate the trust based on response time and successful login. If the response time is less, the cloud site is considered to be trusted otherwise it is not. If the cloud customer supplies wrong information, the access is denied. Therefore, only authorized cloud consumers can gain the access of the resources.

CLIENT MODULE DESCRIPTION

Client registers themselves and login to this system by supplying their personal information such as name, password, and email id. They have to put their information to the system to gain the access. If the information is correct, the access is granted otherwise it is denied.

In this architecture, AES algorithm is used. This algorithm is much faster and safer than DES [5]. The users information is encrypted using this algorithm and is uploaded to the cloud site. Therefore, only authorized cloud consumers can get the access and it is protected from unauthorized access.

EVALUATION

Trust has a major part and is beyond security. Using parallel trust evaluation, the speed of the system is increased because all the requests are processing at the same time and can be calculated by response time. All the requests are appended to the matrix window.

For authentication, successful login is provided, if the user is valid the entry is provided to the cloud consumer otherwise the access is denied.

To provide security, the file is encrypted before it is uploaded to the cloud site. The file is encrypted using AES method. This is an advanced type of DES and is much stronger and faster than DES algorithm.

VI. RESULTS

The user is transferring their information to the cloud center, to reduce their own burden and the cloud server will reserves the information of the user on their behalf. But this is genuinely based on trust. The cloud customer should trust a cloud server. Therefore, the trust agent has a major part in this architecture. The trust agent calculates the trust incorporating multiple factors such as response time, login, and encryption to provide trust values to the user. The trust agent calculates the trust so that it can be advocated to the users.

The trust agents show the time matrix window, trust values to the cloud customer and the comparison time graph which differentiates the parallel and non-parallel computation. So that, the cloud user can recommends and predict the best services.



Fig 2. The cloud customer uploads the file to the cloud site so that can get the trust value.



Fig 3. Trust agent showing the trust values of the cloud server.



Fig 4. Comparison between parallel and nonparallel trust computing.

CONCLUSION AND FUTURE WORKS

As a supportive method with earlier security methods, trust clarifies the problem of accessibility, security, and reliability. We

introduced a new scheme to provide trust to the cloud consumer. We have proposed a system that calculates trust and predict the best service.

In our system, the cloud consumer login for validation. If the user is valid, access is granted otherwise access is denied. Then the file is encrypted using AES method and stored at the cloud server. Then, the trust agent calculates the trust and provides the trust value stating that which server is providing the response much faster. So that it can be recommended to the users. Then finally, computation time graph is shown to provide the difference between the parallel and non-parallel computing, such that the best services can be predicted.

The proposed system can be evaluated on different cloud environment for future enhancement. Such as remote computing and distributed data sharing. Providing an accurate trust can also be considered as an important point for future research directions.

REFERENCES

- [1] [Online]. Available <https://www.investopedia.com>
- [2] R.P. Naddikeri, 2016 THE EMERGING ROLE OF ARTIFICIAL INTELLIGENCE IN MODERN SOCIETY. International Journal of Creative Research Thoughts, 4, 4 (906-911)
- [3] [Online]. Available <https://log.marco.net/eeen>
- [4] Sikander Mahaleemuddin Mohammad, "DEVOPS AUTOMATION AND AGILE METHODOLOGY". International Journal of Creative Research Thoughts (IJCRT), ISSN:2326-2832, Volume 5, Issue 3, pp.946-949, August-2017. Available at <http://www.ijcrt.org/papers/IJCRT17033441.pdf>
- [5] X. Li, H. Ma, F. Zhou, and W. Yan, "Trust broker: A trust-aware service brokering scheme for multiple cloud

collaborative services," IEEE Trans. Inf. Forensics Security, vol. 10, no. 7, pp. 1402-1413, Jul 2015.

[6] H. Shan and G. Liu, "An efficient and trustworthy resource sharing platform for collaborative cloud computing," IEEE Trans. Parallel Distrib. Syst., vol. 25, no. 4, pp. 862-875, Apr 2014.

[5] R.P. Naddikeri, 2017 ARTIFICIAL INTELLIGENCE IN CARDIAC MANAGEMENT. International Journal of Creative Research Thoughts, Volume 5, Issue 3, 930-931.

[6] [Online]. Available <https://www.geeksfargeeks.org/>

[7] Sikander Mahaleemuddin Mohammad, "IMPROVE SOFTWARE QUALITY THROUGH PRACTICING DEVOPS AUTOMATION", International Journal of Creative Research Thoughts (IJCRT), ISSN:2326-2832, Volume 6, Issue 1, pp 251-254, March 2018. Available at <http://www.ijcrt.org/papers/IJCRT18014831.pdf>

[8] Xiaoyong Li, Beiyun, Huidong Ma, Weifan Yao. IEEE Transactions on Information Forensics and Security. Year 2018 | Volume 13, Issue 3. Journal Article | Publisher: IEEE

BIBLIOGRAPHY

Small has received the B.Tech. degree in computer science engineering from Mita Ram Institute of Engineering and Management college, Raipur, India, in 2014, and presently pursuing M.Tech. in computer networks and information security from G.Maryamma Institute of Technology and Science, college, Hyderabad, India.

A. Binu Sankaram is an assistant professor in GNITS and has seven years of experience in teaching. His areas of interest are Data Structures, Big Data, Operating System, and Data Base Management System.

Retail Giant Sales Forecasting using Machine Learning

Ashwini Rekha, Banjanagari, Vijaykumar, B.

Abstract—Sales forecasting is widely recognized and plays a major role in an organization's decision making. It is an integral part in business execution of retail giants, so that they can change their strategy in response to the near future. This helps in better management of their resources like machine, money and manpower. Forecasting the sales will help in managing the revenue and inventory accordingly. This paper proposes a model that can forecast near profitable segments at granular level. As most retail giants have many branches in different locations, consolidation of sales are hard using data mining. Instead using machine learning model helps in getting reliable and accurate results. This paper helps in understanding the sales trend at monthly or product future applicable on different types of sales patterns and products to produce accurate prediction results.

Index Terms—Machine Learning, ARIMA, sales forecasting, smoothing, COV and classical decomposition.

I. INTRODUCTION

Most of the organizations need increasing the return for such a forecast is the customers would need a sufficient lead time for the products to be delivered and they do not want to wait too long. So, it is very obvious the organizations need to predict what the future demand would be and they need to have sufficient stock on hand so as to reduce time to deliver the product to the customer. Time series analysis is used in this project which is based on time stamped data.

II. PROBLEM DEFINITION

Global Mart is an online store having widespread operations which takes orders and transport across the earth and deals with all the major product categories - consumer, corporate & home office. Sales manager responsibility is to finalize the plan for the next 6 months. Sales and the demand has to be forecasted for the next six months, that would help in managing the expenditure and inventory accordingly. The store caters to 7 different market segments APAC (Asian Pacific), Africa, EU (European Union), Canada, Australia, EMEA (Europe, Middle East and Africa) and America and in the 3 major categories. Forecast should be at the granular level, so the data has to be subsetted into 21(7*3) buckets before analyzing it. But not all of these 21 market buckets are important from the store's point of view. So we need to find out 2 most profitable and consistent segment from these 21 and Estimate the purchase and demand for these segments.

III. DATA UNDERSTANDING

Now the data is currently under input level data. There is only one data set for this project that is Global superstore this is a CSV file. This is obtained from the information provided by the global mart online store. It contains the information of attributes of that company like date and sales of the products like order date of the products in which market segment they ordered how much profit they received of those products of all 7 market segments. We just consider only relevant data attributes for the analysis then check the data. Pick important variables such that increase revenue and manage inventory we need to perform data cleaning.

TABLE I. ATTRIBUTES AND THEIR DESCRIPTION

Attribute	Description
Order date	Order was placed on that particular date
Segment	Customer belongs to that particular market (region)
Market	Geographical market segment where the customer belongs to
Sales	Total Selling value of the transaction
Quantity	Amount of the product ordered
Profit	Profit produced on the transaction

Exploratory Data analysis has to be performed after data understanding in EDA we first segregate the market segment based on sales and quantity. As mentioned in the problem statement we need to analyze 21 buckets to find the best 4 in terms of profitability. Either we can go for creating 21 subset of the main dataset or we can use some in built function for consumer level, corporate level and home office level.

Then combine the market and segment variable and check the levels of covariance variable then first create a first subset of Africa Consumer variable. Perform the function of coefficient of variation calculation then order the matrix. Check the data frame if any data frame rows are empty lets remove those empty rows. Then order the matrix and find the most profitable segments using coefficient of variation.

Received Version Manuscript Received on 10 September, 2019
Ashwini Rekha Banjanagari, Information Technology, G. Nanayamma Institute of Technology and Science, Hyderabad, India.
Email: ashwinirekha12@gmail.com
Vijaykumar, B, Information Technology, G. Nanayamma Institute of Technology and Science, Hyderabad, India.
Email: vijib@nitms.org



IV. DATA PREPARATION

We have to convert the transaction-level data into time series. The CoV (coefficient of variation) CoV is equal to standard deviation value divided by the mean value. This is used to find the most profitable segments. Segments with least CoV values are the most profitable segments, hence APAC consumer and EU consumers are considered.

TABLE II CALCULATING COV VALUES

Market	COV
APAC Consumer	0.8016
Africa Corporate	1.8830
EU Corporate	0.8977
APAC Corporate	0.7407
LATAM Corporate	0.3909
LATAM Consumer	0.6889
US Corporate	1.0396
APAC Home Office	1.0412
US Consumer	1.3085
EU Home Office	1.1281
US Home Office	1.82219
LATAM Home Office	1.3199
Africa Consumer	1.4466
Africa Home Office	2.0139
EU Consumer	0.8535
EMEA Consumer	2.7499
EMEA Home Office	8.1402
EMEA Corporate	6.3618

Flow of paper



V. MODEL BUILDING

Once you arrive at the 2 most profitable segments, the next challenge is conjecture the commerce and quantity for the next 6 months. You are supposed for using classical decomposition and into ARIMA for forecasting. Also, it is advised that you smoothen the data before you perform classical decomposition. Building a model on the smoothened time series using classical decomposition for that we need to convert the time series to a data frame then fit a multiplicative model with trend and seasonality to the data. The components of the time series are trend, seasonality, cyclicity and noise we need remove these from the data and make data stationary.

The seasonality will be modeled using a sinusoid function which means the function is like a sin function which is stretched or compressed using an function. Now we need to look at the locally predictable series then we will model it as an ARMA series we check for Autocorrelation Factor (ACF) and partial autocorrelation factor (PACF) these are used to check the stationarity and seasonality of time series. Then we'll check if the residual series is white noise using augmented dickey fuller test (ADF) and Kwiatkowski-Phillips-Schmidt test (KPSS) test.

VI. MODEL EVALUATION & RESULTS

Once you came up with a satisfactory model, the next step would be to prognosticate vending demand for next 6 months using this model. For testing accuracy of your forecast, you must initially separate out the last 6 month values from your dataset after aggregating the transaction level data into the monthly data. Then check your 6 months forecast using the out-of-sample figures.

To determine the best performing model we evaluate the model using Mean Absolute Percentage Error (MAPE) and make a prediction for the next six months then compare our predictions with actual values, using MAPE. To get a visual feel of the fit we plot the predictions along with the original values till now we performed classical decomposition. Arima fit also performed and evaluated using MAPE. Same as the sales we need to perform for the demand and then we need to consider which model is better fit for forecasting this online store.

Fig 1. Forecasting Sales and demand- APAC consumer Sales

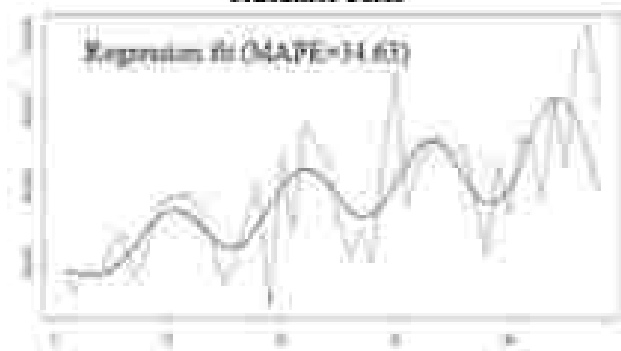


Fig 1.a Regression fit for APAC Consumer Sales

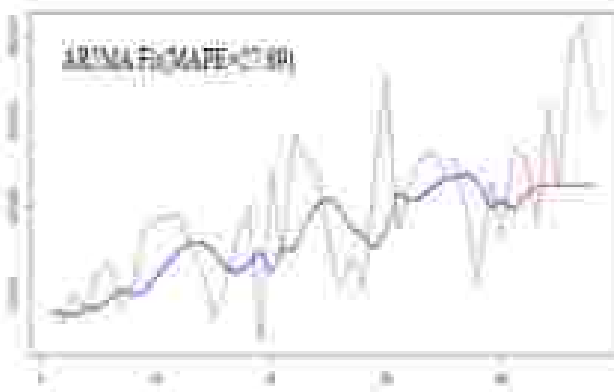


Fig 1.b ARIMA fit for APAC Consumer Sales Original Data

Original Data
 Predicted Data
 Forecasted Data

In figure 1 between regression fit and ARIMA fit former looks a better fit visually. However, the ARIMA fit has lower MAPE value

Fig 2. Forecasting Sales and demand -EU consumer sales

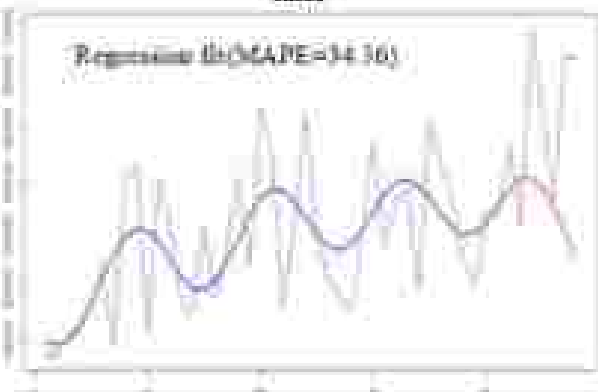


Fig 2.a Regression fit for EU consumer sales

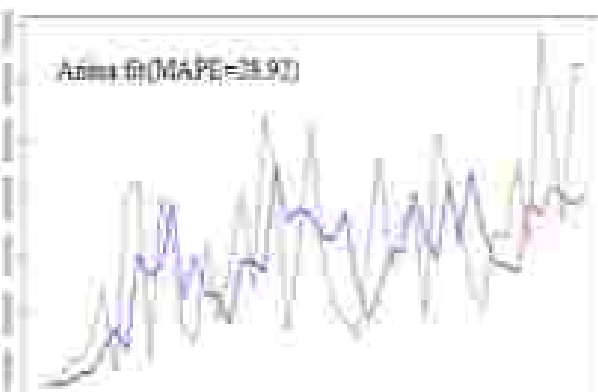


Fig 2.b ARIMA fit for EU consumer sales

In figure 2 visually both regression fit and arima fit look similar however arima fit has a lower maape value.

Fig 3. Forecasting Sales and Demand - APAC Consumer Demand

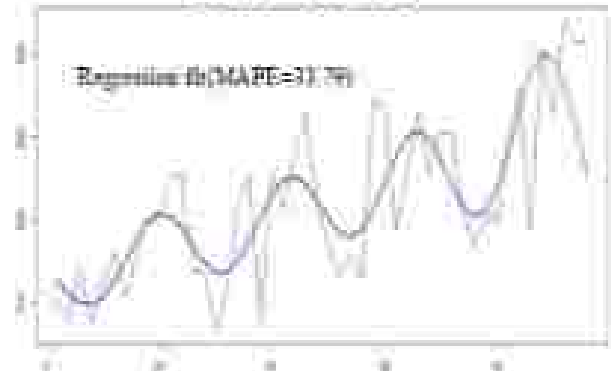


Fig 3.a Regression fit for APAC consumer demand

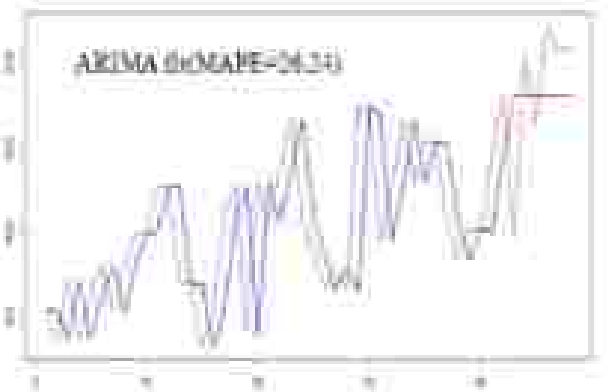


Fig 3.b ARIMA fit for APAC consumer demand

In figure 3 between the regression fit and the ARIMA fit, the latter looks like a better fit visually. As expected, the ARIMA fit has a lower MAPE value

Fig 4. Sales and Demand - EU Consumer Demand Forecasting

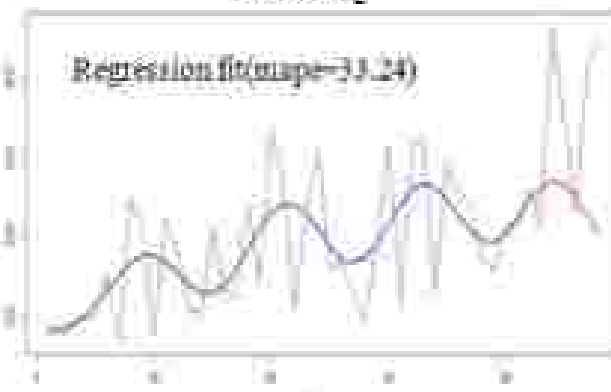


Fig 4.a Regression fit for EU consumer Demand

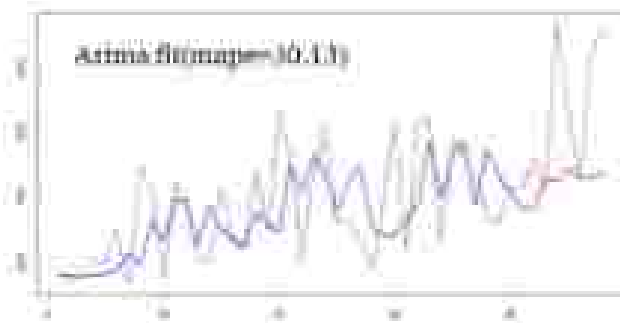


Fig 4.b ARIMA fit for EU consumer Demand

In figure 4 both the regression fit and the ARIMA fit looks like very bad fits, when looked at visually however, the ARIMA fit has a lower MAPE value

VII. MOST PROFITABLE SEGMENTS

APAC and EU consumer segments seem to be the most profitable ones. So these 2 we need to consider first and manufacture more compare to other.

TABLE III. APAC AND EU MAPE VALUES

Market Segment	Model	Sales	Demand
APAC	ARIMA fit (MAPE)	27.69	26.24
	CD fit (MAPE)	34.63	33.79
EU	ARIMA fit (MAPE)	28.93	20.13
	CD fit (MAPE)	34.98	33.24

VIII. CONCLUSION

APAC and EU consumer segments seem to be the most profitable ones. So in stock keep these items a bit more than other. Inventory levels should be kept as predicted by the ARIMA model (around 400 units) for the case of EU consumer segment, since the ARIMA model's predictions had a low MAPE value. However, the regression model should be used for predicting inventory requirement for the APAC consumer segment, as it is the only one of the two that is able to capture the seasonal behavior of sales and demand for this segment. In general, a buffer of at least 25% should be kept on inventory levels, as none of the models used was extremely accurate (lowest MAPE value was 20.13).

IX. ACKNOWLEDGMENTS

I would like to convey my special thanks of gratefulness to my guide B. Vjay Kumar sir, is an Assistant Professor in G. Narayanaswami Institute of Technology and Science, as well as our head of the Department Information technology, Dr. J. Ravi Prakash Reddy in G. Narayanaswami Institute of Technology and Science, who gave me a valuable opportunity to do this wonderful project, which also helped me in doing a lot of Research and I came to know new things. I am really thankful to them. Secondly, I would also like to

thank my parents and friends who helped me a lot in finalizing this paper within the limited time frame.

REFERENCES

1. Paul H. A. Collins, 200. *The Experience Economy*(M), Harvard Business School Press, Boston, Massachusetts, 2000.
2. Liu Qianlin, "A dynamic regression system analysis of the competitiveness of the market [J]", *The study of enterprise*, pp. 36-37, 2003.
3. C. W. J. Granger, R. Ramanathan, "Improved Methods of Forecasting", *Journal of Forecasting* 1984,11 pp. 197-204.
4. Hong Lili "The analysis in Direct Marketing of E-Commerce mall in domestic", No. 5, 2011, Serial No. 207.
5. Mohit Gumber, Vignesh Kacker, Pooja Shah, Sandhya Umalak, Vijay Kamath, and Rami Bhatnagar "Department of Computer Engineering and Information Technology".
6. J. Collinson, R. Sijpmala, P. L. Negulescu and S. J. Carter: "ARIMA models to predict multi-day electricity prices", in *IEEE*, 1054-1059. *Transactions on Power Systems*, vol. 18, no. 3, pp. Aug. 2003.
7. Mohit Gumber, Vignesh Kacker, Pooja Shah, Sandhya Umalak, Vijay Kamath, and Rami Bhatnagar "Department of Computer Engineering and Information Technology, VJI, Mumbai, India. Indian Science Press, India, Feb. 2015.
8. H.R. Varian, M. M. A. Salama and V. H. Quansah "Application of the Regression technique for forecasting the load of a large electric power network," in *IEEE Proceedings - Generation, Transmission and Distribution*, vol. 140, no. 1, pp. 13-18, Jan 1993.

2021 Taylor & Francis Group, LLC. All rights reserved. No part of this publication may be reproduced, stored, transmitted, or disseminated, in any form, or by any means, without prior written permission from Taylor & Francis, to whom all requests to reproduce copyright material should be directed, in writing. For copyright clearance information, please visit www.copyright.com.



International Journal of Computers and Applications

Volume 42, Issue 2

26 / 0

0

View CrossRef citations for this item.

Article

Node pattern state and trust-rate base route selection for reliable data transmission in mobile ad hoc networks

P.V. Venkateswaramma & L. Raj Prakash Reddy

Accepted 14 Feb 2021; Received 04 Nov 2020; Accepted 12 Jul 2021; Published online 22 Aug 2021

View the article <https://doi.org/10.1080/10917681.2021.2021933>



[Full Access](#) [Figures & Data](#) [References](#) [Citations](#) [Metrics](#) [Terms & Permissions](#) [Read this article](#)

Abstract

Mobile ad hoc networks (MANET) have plethora of security issues related to its dynamic topology. Black-hole and grey-hole attacks are more commonly impending issues in the data transmission between nodes in the selected route. This manuscript addresses the proposal of node pattern state and trust-rate (NPSR)-based reliable data transmission in MANET. The method NPSR allows detecting optimal route without the nodes compromised to black-hole and grey-hole attacks. The model is proposed as an extension to the earlier proposed model trust-rate-based cooperative neighbor selection for optimal routing in MANET. The proposed solution scales the optimality of the routes. The test results from the experimental study have shown that the results are very effective when compared to those of the contemporary models. The proposed model focuses on improving the specificity and detection of black-hole and grey-hole attacks under very minimal computational costs.

Keywords: [black-hole](#) [grey-hole](#) [communication](#) [distributed system](#) [trust-rate](#) [routing](#)

[Previous article](#)

[View statistics of article](#)

[Next article](#)

Log in via your institution:

[Access through your institution](#)

Log in to Taylor & Francis Online

[Log in](#)

Return content access

[Receive email alerts for new issues about this journal](#)

Home > All Journals > Engineering & Technology

> International Journal of Computers and Applications > Current Issues > Volume 42, Issue 2

> Node pattern state and multi-rate queue selection...

Back To Table

PDF download + Online access

• 40 hours access to article PDF & PDF extracts

• Article PDF can be downloaded

• Article PDF can be searched

USD 50.00

Buy Now

Issue Purchase

• 30 days online access to complete issue

• Article PDFs can be downloaded

• Article PDFs can be searched

USD 267.00

Buy Now

View the full record on Crossref

Disclosure statement

No potential conflict of interest was reported by the authors.

Additional information

Notes on contributors

EV Venkateswaranna

Venkateswaranna Venkateswaranna Pagada has 12 years of teaching experience. Venkateswaranna Venkateswaranna Pagada's research interests include E-Proc, ERP, Management IT, from R.V.R. & J.C. College of Engineering, Guntur, currently Venkateswaranna Venkateswaranna Pagada is pursuing Ph.D. under academic guidance of Dr. L. Ravi Prakash Reddy. The research interests are cloud computing and communication networks, machine learning and big data analytics.

L. Ravi Prakash Reddy

Dr. L. Ravi Prakash Reddy received his B.Tech. from VSSUT College of Engineering, Hyderabad in 1994 and M.Tech. from Anna University, Madras in 1997. He obtained his Ph.D. from JNTU Hyderabad in 2011. He has over 20 years of teaching experience and has 28 research publications to his credit in both National and International journals. Currently his research students are pursuing Ph.D. under his guidance. He joined SVKM's in 2011 and took charge as Head of the department in 2011. He is a member of Editorial Board of Journal of Current Trends in Information Technology, and also a member of professional bodies such as IEEE and IETE.

Related Research

Recommended articles

Viewing

A Novel Trust-Based Routing Scheme Based on Data Rate for Selection for Mobile Ad Hoc Networks

Pengpeng Chen et al.

Intelligent Automation & Soft Computing

July 2022, Volume 32, Issue 3

Home > All Journals > Engineering & Technology

> International Journal of Computers and Applications - Current Issue > Volume 42, Issue 2

> Node pattern state and multi-rate gear route selection for reliable data transmission in mobile ad hoc networks

April 2019, pp 2

International Journal of Computers and Applications

Published online 22 Feb 2019

[Click for Full Text \(opens in new Desktop browser for people with Internet Explorer using ActiveX Control\)](#)

[Download this article as PDF file](#)

[Journal of Applied Research in Technology](#)

Published online 26 Nov 2019

View more

Review on Application of Data Mining Techniques for Student Performance Analysis

D. Sudhakar Reddy, Dr.K Venugopala Rao

Associate Professor, Professor

Dept of Information Technology, Department of Computer Science
G Narayanamma Institute of Technology & science, Hyderabad, India.

Abstract: For an educational organization the primary objective is continuous improvement in the quality of education. In the current scenario of Digitization lot of information is stored about the programs offered, information about various stakeholders of the system which includes employees of the organization, students enrolled for various programs along with their progress in the respective Areas/Activities. Improvement of quality of education can be done by identifying the factors contributing to student's performance, identifying strength and weakness of students, suggestions of suitable courses for the students, improvement in the Design of the course structure etc. Hence it is essential to have a systematic approach to analyze the huge voluminous data and to provide an appropriate data structure for better decision making by the corresponding Teams responsible for the same.

Index Terms- Classification, Data Mining.

I. Introduction

Most of the educational institutes stores data about various stake holders of the system. Primary stake holders of the system are students. Data about students includes academic performance, participation in co-curricular activities, demographic information etc. Many tools are available for analyzing student's data which includes data mining, machine learning Techniques etc. In this paper we present an overview of various data mining functionalities used by different analysts for analyzing data. We have organized this paper as follows:

Section II: Introduction of the concept of data mining and various data mining functionalities. Section III: overview of various data mining functions used by analyst for student performance analysis applications in the context of educational data mining.

Section IV: Explanation about the application of data mining Techniques for classification of student based on their grade.

Section V: Conclusion and Future scope.

II. Data Mining

Data Mining is the process of discovering knowledge from the data. Data Mining is a step by step procedure used for discovering and extracting knowledge from the data available as data present in databases may exhibit the following characteristics:

1. **Noisy Data:** Values stored are not valid or may not be filled.
2. **Continuous Values:** Each Sample may be representing different values.
3. **Inconsistency:** Different users would have stored data in different formats (eg: Representation of Date in different formats).
4. For the process of knowledge discovery a subset of the huge data is sufficient, so it is essential to identify the data necessary for the analysis.

Steps in Data Mining

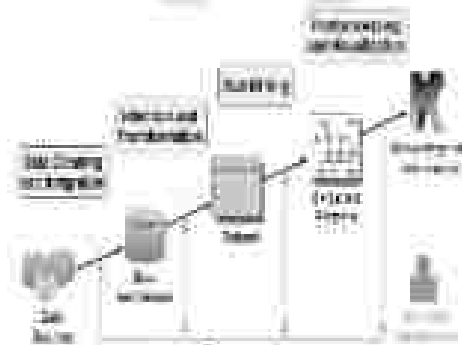


Figure 1

Data Cleaning - This process fills missing values, and invalid values are replaced with appropriate values.

Data Integration - This process involves collection of data from multiple data sources.

Data Selection - This process is responsible for identifying the data necessary for performing data mining task.

Data Transformation - This process involves conversion of the data to common format and if the range of values are very high they are converted to suitable range using normalization.

Data Mining – In this process an appropriate data mining functionality is applied to extract useful patterns.

Pattern Evaluation – In this process extracted patterns are evaluated against given set of chosen thresholds and patterns which satisfies the given thresholds are considered as interesting patterns. But specifying thresholds may be tricky for better training we may provide some domain knowledge and patterns extracted earlier can be given as input for this module for better results.

Knowledge Presentation – An appropriate representation of the patterns must be chosen to present the patterns.

Data mining functionalities

Classification:

It is the process of constructing a model that distinguishes classes. Membership of the facts in a given class can be obtained by using model. Decision Tree, Naive Baye, Neural networks are widely used for classification.

In the context of educational data mining we may find the grade of the student, using classification, generating a model for finding whether student is going to get placement or not or to find what factors are contributing to student's success or failure.

Regression Analysis:

Regression analysis is a statistical methodology used for numeric prediction. It is used for representing relationship between multiple variables.

Linear regression is used for representing relationship as a straight line equation that best fits two variables so that one variable can be computed using the other variable.

Multiple linear regression is used for representing relationship between more than two variables. In case of student performance analysis, we may use regression for predicting future grade using grades scored in previous years.

Clustering:

It is a process of organizing objects into clusters such that objects in the same cluster exhibit high degree of similarity similar and objects from different clusters have high degree of dissimilarity. For clustering we must specify no. of clusters and threshold for similarity metric.

Characteristics are derived for each cluster.

Clustering is used for building successful and unsuccessful student profiles.

Association Analysis:

It is useful for discovering interesting relationships hidden in large data sets. Relationships are expressed using association rules.

For example

$(bread) \rightarrow (butter)$

Indicates sales of butter is strongly related to sales of bread. The strength of the rule is indicated by using confidence and support. After extracting all the rules whose support and confidence are above the specified threshold are considered as strong association rules. Apriori algorithm, FP growth Algorithm are widely used for mining association rules.

Association analysis can be used for finding most adaptive students for a given course.

III. Background

In the paper "Student Performance Evaluation Using Data Mining Techniques for Engineering Education" [1] authors have used WEKA as tool for Students performance in the course "Network Theory" is analyzed using the hybrid of fuzzy inference system and neural network. When compared with classical approach hybrid approach has provided the better results.

In the paper "predicting student performance using data mining techniques" [3] authors have used SVM, Naive Baye, and Decision tree algorithms by considering various attributes about the student. In this paper authors have identified student's performance as function of not only academic performance but also behavioral and demographic attributes.

In the paper "An Efficient use of Ensemble Methods to Predict Students Academic Performances" [2] authors have used ensemble methods (bagging, boosting, and voting) for improving the accuracy.

In the paper "Student's Performance in the Context of Data Mining" [16] authors have used classification and clustering algorithms for analyzing student's performance.

In the paper "Using Data Mining Techniques to Predict Students at Risk of Poor Performance" [14] authors have used CHAID, C & R Tree for the assessment of risk level for achieving good honors degree.

For the improving the quality of education various authors has used data about student's academic performance and behavior information and demographic information to perform the following:

Prediction of student's grade.

Prediction of student's placement.

Impact of various factors (academic performance, demographic information) on student's performance.

Identifying characteristics of slow learners and fast learners.

Identification of relationship between different courses so that appropriate courses can be suggested for students.

Identifying factors contributing to student's Dropout.

Finding the impact of assignments on final student's performance.

IV. Related work

We have collected the data about the student's academic performance along with demographic attributes and applied bagging, boosting techniques for generation of models to predict student's grade.

Bagging

Bagging is a technique that is carried out in multiple iterations. In each iteration a training set D_i is sampled with replacement from the given of data D . A classifier model M_i is learned for each D_i to classify an unknown tuple X each classifier returns a class prediction, which is counted as one vote. The bagged classifier M , counts the votes and assigns the class with the most votes to X .

Boosting

In boosting weights are assigned to each training tuple. A series of k -classifiers is iteratively learned. After a classifier M_i is learned, weights are updated to allow the subsequent classifier M_{i+1} . The finally classifier M_n , combines the votes of each individual classifier.



Figure 2:

Using WEKA knowledge flow environment as shown in the Figure 2 models are generated for classification using bagging and ada boosting and the performance of these methods are indicated in the table 1:

Table 1

Algorithm	TP Rate	FP Rate	Accuracy
Bagging	0.832	0.333	83.20
Ada Boosting	1.17	1.17	11.87

V. Conclusion and Future scope

Data Mining can be used as a tool for systematic analysis of data stored by educational institutions across various dimensions which includes assessment of student's performance, identifying factors contributing to student's success or failure, finding students adaptability for a given course etc. Most widely used data mining functionalities is classification, prediction, clustering. To improve the accuracy authors have proposed ensemble methods like bagging, boosting. With the help of agent based mining performance can be improved with the support of distributed data mining. For feature extended various feature selection algorithms can be used to identify the most relevant features for analyzing student performance. By applying feature selection methods identify the attributes most relevant for data analysis then apply data mining algorithms.

References:

- [1] Veena Deshmukh, Smitayee Mangalwade, Danduz Hrudhama Rao, "Student Performance Evaluation Using Data Mining Techniques for Engineering Education", *Advances in Science, Technology and Engineering Systems Journal* Vol. 3, No. 6, 359-364 (2018).
- [2] A. Dinesh Kumar, S.Pandis Selvam, K.Sathesh Kumar, "Review on Prediction Algorithms in Educational Data Mining", *International Journal of Pure and Applied Mathematics*, Volume 118 No. 9:2018, 531-537.
- [3] Aisha Soni, Virek Kumar, Rajwant Kaur, D. Hensavathi, "predicting student performance using data mining techniques", *International Journal of Pure and Applied Mathematics* Volume 119 No. 12 2018, 221-227.
- [4] Mubael Al hitaybi, Alim Tackier and Laila Yousefi, "The Prediction of student future using classification methods: a case study" pp. 79-90, 2018. CS & IT-CSCP 2018.
- [5] Pooja Kumar, Prashant Kumar Jain, Rajendra Prasad "An Efficient use of Ensemble Methods to Predict Students Academic Performance", 978-1-5396-3036-6 12, 2018 IEEE.

- [6] Kinokhoni Innocentia Mpho Ramaphosa, Fransz Zama, Ronoj Kwizima, Educational Data Mining to Improve Learner Performance in Gauteng Primary Schools, 978-1-5386-3065-0/18 © 2018, IEEE
- [7] CH.M.H.Sri Baba, Akhila Gowda, Mani Krishna Sai Ravev, Venkatesh Praneeth Samsirey "student performance analysis using classification techniques", International Journal of Pure and Applied Mathematics, Volume 115 No. 4 2017, 1-7
- [8] Bhavesh Patel, Chetan Gondalaya "Student Performance Analysis Using Data Mining Technique" IJCSMC, Vol. 6, Issue 3, May 2017, pp.64-74
- [9] N.V. Krishna Rao, Dr. N Mangalabayaru, Dr. M. Sreematha Rao, "Evaluation and Prediction of Student Multi-Dimensional E-Learning System with Cluster based Data Mining Techniques" 978-1-5090-4257-4/17 © 2017 IEEE, 701-707
- [10] Mukesh Kumar, Prof.A.J. Singh "Evaluation of Data Mining Techniques for Predicting Student's Performance", I.J. Modern Education and Computer Science, 2017, 1, 25-31
- [11] Md. Hossain Rahmani, Md. Rabihul Islam "Predict Student's Academic Performance and Evaluate the Impact of Different Attributes on its Performance Using Data Mining Techniques" 2nd International Conference on Electrical & Electronic Engineering (ICEEE), 27-28 December 2017
- [12] Anoushka Jain, Tejaswriya Choudary, Praveen Mar, A.Sai Behatha "Statistical Student Performance Analysis by comparing various data mining techniques", 978-1-5386-3144-9 2017 IEEE
- [13] Maryam Zaffar, Manzoor Ahmed Rafiqani, H.S.SAVITA, "Performance Analysis of Particle Selection Algorithm for Educational Data Mining", 978-1-5386-0790-9/17 © 2017 IEEE
- [14] Zalyah Alharbi, James Comfort, Lina Doider and Beatriz De La Iglesia "Using Data Mining Techniques to Predict Students at Risk of Poor Performance" 978-1-4473-3460-5/14 © 2014, IEEE
- [15] MAO Rui, TU Mingyuan, CHEN Qingzhong, "Discovering the most adaptive students of our course by data mining", 978-0-7695-3517-4/09 © 2009, IEEE, 242-243
- [16] Kamran Shaukat, Iqra Nawaz, Samreena Arif, Saad Zaher, Usman Shaukat, "Student's Performance in the Context of Data Mining" 978-1-5090-4300-2/16 © 2016 IEEE



SMART MACHINE APPLICATION TO MAKE A FIRE MONITORING SYSTEM MORE DEPENDABLE

FAZAL UNNISA BEGUM ¹, Ms.CH SRAVANTHI ²

¹ Student, Department of Information technology, GNITS, Telangana India

² Assistant Professor, Department of Information Technology, GNITS, Telangana India

ABSTRACT: The dependability of a fire monitoring system can be improved by introducing a mobile smart machine in addition to the fixed IoT sensors. The parameter values obtained from the fixed sensors can prove to be inaccurate. The mobile smart machine, equipped with the temperature, smoke and gas sensor is introduced to acquire more reliable values for the related parameters, thus helping in better and quick decision making. A smart machine also guides the user to identify faulty conditions like false alarm.

The smart machine is basically a robot supported with wheels. It is mounted with the temperature, gas and smoke sensors. Ultrasonic sensor is also connected to help the smart machine to avoid collisions with obstacles in its path. The live video streaming of the monitored area is also provided by the camera setup on the mobile robot. The software and hardware involved in implementing the smart machine is achieved by Raspberry Pi and Arduino Uno. A radio frequency identification module is also supported to know the exact location of smart machine in the monitoring scenario which in turn helps in narrowing down the search for a faulty component. The control of the smart machine movement is done at the user interface.

KEYWORDS: Arduino Uno, Dependability, IoT sensors, smart machine, RFID

1 INTRODUCTION

The implementation of Internet of Things (IoT) along with a smart machine helps in realizing the IoT applications which demands a high level of reliability, due to involvement of economic and human loss. The data collected from the fixed sensor system during monitoring of a fire hazardous situation will not be able to give the accurate picture of the considered environment. The improvement of reliability of these applications is based on additional verifying information obtained with the introduction of independent mobile smart machine.

The recent development in the robotic technology has helped human lives to become more convenient and secured. It has created a pathway to

access any type of monitoring system which becomes inaccessible due to different hazardous situations like fire.

A fire detection system comprises basically a group of devices such as smoke sensor, temperature sensor, gas sensor, automated alarms, water sprinklers etc. These devices can prove to be faulty at any instant of time. The smart machine mounted with the additional sensors contributes in identifying the faulty condition to improve the dependability of the system.

The process of monitoring consists of two sections: They are the monitored environment section and the monitoring section or simply the user interface. In the monitored section, the smart machine is introduced in addition to the fixed sensors. On the smart machine all

the required sensors are installed along with the camera for live streaming and a RFID module for location detection.

2. RELATED WORK:

The values of the different parameters involved in fire detection system like temperature, heat, smoke and gas tend to deviate from its exact or original value due to which the performance of the fire detection setup degrades[7]. There is no accountability related to the adverse effects of environmental conditions over a period of time from the very first step of their installation.

The different sensing systems provides additional information about the ongoing operation to create a clearer picture of the fire hazardous situation. It deals with only the collection of additional values from the installed sensors for better understanding of a situation.

3. PROPOSED SYSTEM:

The proposed system aims at minimizing the downtime of the system due to the occurrence of False alarms due faulty stationary sensors by introducing a mobile smart machine in the area of hazard. Error or noise free communication can be achieved to and from the monitoring base by communication with mobile robot equipped with the various sensors and e-carriers relying the exact scenario. It aims at reducing the down time by correctly identifying proximity area of hazard.

3.1 Hardware Description:

The main components that are decided upon are the robot chassis for the body and wheels, with a Raspberry Pi to control it. Arduino Uno microcontroller supports all the sensors mounted on the smart machine. Based on the number of sensors pertaining to fire monitoring system, an alternative robot chassis have be customized that would fit in with all the components involved

along with their power sources. The decision of using the Raspberry Pi was made based on the fact that it supports wireless control and the programming of Raspberry Pi is generally considered simple. The block diagram of a mobile smart machine is given in the figure below.

Block Diagram of the Smart Machine



Microcontroller supports all the sensors mounted on the smart machine. Based on the number of sensors pertaining to fire monitoring system, an alternative robot chassis have be customized that would fit in with all the components involved along with their power sources. The decision of using the Raspberry Pi was made based on the fact that it supports wireless control and the programming for Raspberry Pi is generally considered simple. The flexibility of the Raspberry Pi supports the camera for the live streaming and also for capturing and sending images.

3.2 Hardware Components

Raspberry Pi

The version 'A' belong the basic version is lesser in cost and consumes less power when compared to variant 'B' of Raspberry Pi. As the smart machine's components are powered by batteries, version 'A' of the Raspberry Pi which consumes negligible power is preferred for the present project.

Raspberry Pi is not assigned to control the motors directly. An electronic circuit termed as motor shield is connected between the Raspberry Pi and the motors.

The camera connected with the Raspberry Pi is done in serial type and monitor if connected have a three lines in which two are for the information transfer and the last one is for the clock or time impulse.

The GPIO pins are connected to the Arduino Uno microcontroller through the connecting cables. These pins retrieve the information like the parameter values that the sensors sense from the hazard area from the Arduino and delivers it to the Raspberry Pi which further pushes the sensory values on to the user display screen thus guiding the user to take a better decision based on the more reliable data acquired with the correctly done calibration sensing equipment mounted on the moving smart robot.

A RFID module is also connected to the Raspberry pi having a primary function of identifying a component, individual or a location. The process of recognition is done between the module and card without the involvement of the visible sight between the components considered. The means of communication between the source and destination is through radio waves which is shared between them by a same frequency. The most commonly used operating system for the Raspberry Pi is termed as "Raspbian Linux". Raspbian Linux is specifically prepared for the Raspberry Pi[6]. Its structure is based on the specific version of Linux known as Debian Linux.

The basic path followed to establish communication between systems with Linux OS is secure shell also termed as SSH. The secure shell communication protocol is an encrypted version thus making the communication more secure and confidential by hindering the unwanted middlemen from creating any kind of error.

Arduino Uno:

The board of the Arduino Uno have both analog as well as digital pins involved in it. The analog pins are six in no. whereas digital are more in no. when compared to analog taking its count to fourteen. The microcontroller is programmable with a software termed as the Arduino Integrated development environment commonly termed as: Arduino IDE [7]. The protocol for the interaction

is the standard-5V/500. The present protocol enables the microcontroller to send the sensor values through the transmitter and receiver pins. This setup between the two important hardware entities is achieved using the Universal Asynchronous Receiver or transmitter communication channel.

The microcontroller Arduino Uno is included in the hardware setup of the smart machine for retrieving the parameter values like temperature, smoke or heat which are obtained from their respective sensors. The sensors involved are connected to the microcontroller. This microcontroller collects the more reliable values obtained from the sensors equipped the hardware of the robot. The collected values are instantly transferred through the male-female leads connecting the microcontroller to the Raspberry Pi. The GPIO pins of the microcontroller accumulates the parameter values in the memory before relaying it to the user interface making it available for the user operator to analyze the true situation of the area in consideration. The different sensors namely the temperature sensor, heat sensor and the smoke sensor fall in the category of capturing the value of the parameter at that instant of time. Apart from the parameter sensing sensors the additional sensor included in the connection to the microcontroller, an Ultrasonic sensor is also incorporated. The ultrasonic sensor is used in order to avoid any obstacle in the path of the mobile smart robot.

4. Complete setup:

The following figure shows all the hardware components mounted on the chassis:



The Raspberry Pi is connected to the Arduino Uno microcontroller to share the incoming load of the sensors. The connection is done through the GPIO pins (6). Along with the microcontroller, the camera for live streaming and a radio frequency identifier is also connected directly to Raspberry Pi. The data collected from these components are relayed on to the display HTML page on the user end. The motors connected to the wheels of the robot are driven by the commands received from the Raspberry Pi which acts as a receiver and interpreter of the commands issued from the web page. The communication between the HTML page and the Raspberry Pi is a two way process. The microcontroller Arduino Uno is connected with sensors related to a fire hazard situation. The values from these sensors gives the clear picture of the current area monitored.

5. Display screen:

The display on the monitoring screen on the user end is shown in figure below.



The user interface is basically a hypertext markup language page. This page is created to communicate with Raspberry Pi. The communication is a two way process. Firstly the values retrieved by the sensors and live video

streaming is communicated to the display page from the Raspberry Pi. The controls for the smooth movement of the robot are done at the operator level and these commands are given to the Raspberry Pi.

The display screen consists of the live video streaming from the monitored area. The motor control commands are also on the user interface for the observer to control the movement of the robot around the hazardous area. Along with the values for temperature, smoke and heat, the ultrasonic sensor gives out distance of an obstacle hindering the machine travel path. The radio frequency identifier module connected directly to the Raspberry Pi gives out the location of the smart machine which is displayed on the screen. The location can be referred, which reference to track machine.

6. Conclusion

The implementation of the smart machine in a monitoring system with fixed IoT sensors can greatly help in making the system more reliable and trustworthy. The faulty values from the stationary sensors can be compensated with introduction of the mobile machine. Successful determination of a false alarm condition is expected. Reducing of response time and improvement of the system performance is an achievable task. Minimum downtime value is aimed for different environments thus reducing any form of losses.

7. Future Scope

Counter action taken by the smart machine based on the information collected by itself from the hazardous scenario of fire without the intervention of the responsible manpower at the remote end can be classified as the promising future (in any hazard) of the proposed system.

8. References

1. G. P. Colucci, M. Polem, E. Spasnik and D. Truncho, "Internet of Things as a means to improve agricultural sustainability," 2017 IEEE Biomedical Circuits and Systems Conference (BioCAS), Terina, 2017, pp. 1-4.
2. A. Miles, D. Marco, S. Pinati and P. Rinaldi, "A Logical Approach to Home Healthcare with Intelligent Sensor-Network Support," in *The Computer Journal*, vol. 53, no. 5, pp. 1257-1276, Oct.
3. K. W. Lee, S. H. Park and R. D. Oh, "Design of active semantic middleware system to support incomplete sensor information based on ubiquitous sensor network," 2010 4th International Conference on Application of Information and Communication Technologies, Tashkent, 2010, pp. 1-5, 2010.
4. C. A. Somo, K. Eomer, R. Eoem, K. Wirmal, M. Beumach (2016, Nov.) "Dependability for the Internet of Things - from dependable networking in harsh environments to a holistic view on dependability," *IEEE Transactions on Dependable and Distributed Systems* [Online], 133(7), pp. 304-329. Available: <https://doi.org/10.1109/MDA.2017.2671007> [Accessed Aug. 14, 2017].
5. S. A. Rana, N. Siddiqui, N. Muzina, K. Rogan and K. Srivastava, "Real-time automation system using Arduino," 2017 International Conference on Innovations in Information, Embedded and Communication Systems (ICIEECS), Coimbatore, 2017, pp. 1-3.
6. "MicroPython documentation." Internet: <https://docs.micropython.org/en/latest/mp2266/>, [Oct. 18, 2017].
7. "Raspberry Pi documentation." Internet: www.raspberrypi.org/documentation/, [Oct. 18, 2017].
8. 1. Polycar for smart machine applications: Anatoliy Kargin 1, Oleksandr Ivannik 2, Georgii Galych 3, Artem Panchenko 4 1,2 Ukrainian State University of Railway Transport, 7 Pavlovska Sq., Kharkiv 61030, Ukraine, {kargin, ivannik}@ukr.net.ua 3 Vasyi Stus Donetsk National University, 21 638-richya Str., Vinnytsia, 21021, Ukraine, g.galych@donnu.edu.ua 4 V. N. Karazin Kharkiv National University, 4 Svobody Sq., Kharkiv, 61022, Ukraine, panchenko74@ukr.net The 9th IEEE International Conference on Dependable Systems, Services and Technologies, DESSERT 2018 24-27 May, 2018, Kyiv, Ukraine

LOCATION SHARING SYSTEM WITH ENHANCED PRIVACY IN MOBILE ONLINE SOCIAL NETWORK

K.Laxmi Deepthi

PG Scholar, Department of IT

G Narayamma Institute of Technology and science
JNTUH, Hyderabad, Telangana, India.

Dr.I.Rani Prakash Reddy

Professor, Department of IT

G Narayamma Institute of Technology and Science
JNTUH, Hyderabad, Telangana, India.

Abstract—Area sharing is one of the basic segments in versatile online informal organizations, which has pulled in much consideration as of late. With the appearance of mobile networking, an ever increasing number of clients area data will be gathered by the specialist co-ops in location sharing. Notwithstanding the client's security, including area protection and informal organization security, can't be ensured in the past work without the trust supposition on the specialist co-ops. In this paper, going for accomplishing improved protection against the insider assault propelled by the specialist organizations, we present another engineering with numerous area servers out of the blue and propose a safe arrangement supporting area sharing among companions and outsiders in area based applications. In our development, the client's companion set in every companion's inquiry submitted to the area servers is separated into numerous subsets by the informal community server authority. Every area server can just get a subset of companions, rather than the entire companions' arrangement of the client in the past work. Also, out of the blue, we propose an area sharing development which gives check capacity of the looking outcomes came back from area servers in a proficient manner. We additionally demonstrate that the new development is secure under the more grounded security model with upgraded protection. At last, we give broad explanatory outcomes to show the effectiveness of our proposed development.

Keywords—sharing the location, encryption, privacy of location.

1. Introduction

With the approach of portable registering, customary social systems have progressively turned out to be new standards called portable online informal organizations (mOSNs) which like the conventional Web-based informal community, mOSNs likewise happen in virtual networks for spreading substance, expanding availability, furthermore, involving clients from any place they are. mOSNs carry economic changes to customary interpersonal organizations and render versatile interpersonal organizations as a piece of day by day life on the grounds that of its portability of cell phones. This new kind of interpersonal organizations gives more extravagant client experience and advantageous correspondences [1].

Area based-administrations (LBSs) are a standout amongst the most significant parts in mOSNs, which gives data and amusement administration dependent on the geographical position of the cell phone [2]. LBS has encountered touchy development as of late, especially utilizing the quick advancement of portable innovation and the distributed computing. In LBS, the area of a gadget, speaking to a standout amongst the most significant logical data about the gadget and its proprietor, is misused to create imaginative and esteem added administrations to the clients' close to home setting. Numerous individual, business, and undertaking focused LBSs are as of now accessible and have picked up notoriety. Different LBS applications have been proposed, such as area based portable publicizing to cell phone clients. In E-wellbeing frameworks, LBS can likewise be connected to enable access to patient records outside the emergency clinics by specialists with

location-based get to innovation. There are likewise numerous instances of LBS counting versatile registration alternatives like FourSquare [2], social systems like Loopt [4], and area empowered applications like Google Maps. Examiners venture the incomes for LBS to develop from 2.8 billion of every 2010 to hit 10.3 billion by 2015.

With the expanding prominence of LBS, the security concerns on clients' areas have been raised. Since the location-tracking capacity of cell phones has been improved incredibly, clients' close to home data, for example, the position and inclination will be spilled and powerless against inappropriate use. As an outcome, it abuses clients' security and blocks the improvement of different LBS applications. An ongoing MIT study demonstrated that, with a piece of data gathered from cell phones, they can particularly recognize 95% of 1.5 M individuals in a portability database [5]. This risk turns out to be significantly progressively genuine when it comes to mOSNs, in which clients' physical areas are being corresponded with their profiles [6]. Without an assurance of security, clients might be reluctant to share areas through mOSNs [7]. Thusly, how to secure the area protection is one of the fundamental difficulties in mOSNs.

Be that as it may, none of these strategies thought about the security necessity of interpersonal organization protection. We call attention to that the past works can't avoid the area specialist organization from learning clients' nearby data of his informal organization by connecting inquiries from a similar client. There are two stages which may conceivably release the client's personality data to the area server. One is the stage amid creating/refreshing client's data in the area server. The essential security necessity in LBS is to accomplish namelessness of client's character against the area server in a solitary inquiry. The greater part of the past work can just accomplish the security concerning this prerequisite. Notwithstanding, another significant stage is the inquiry stage. There are two sorts of area questions, including the close-by companions' question and outsiders' inquiry. For companions' area question, a client can present an inquiry to get the majority of his/her close-by companions' areas. Notwithstanding, the informal community server needs to send the client's companions' numbers to the area server so as to think about the separation between the client and the majority of his companions. Regardless of whether the interpersonal organization server sends the privacy character list to the area

server, despite everything it will be connected to a similar client by the area server. All the more explicitly, for shortening that two companions' inquiries from a similar client will be connected errors on the whole of the past works.

II RELATED WORKS

An overview of portable distributed computing: Architecture, applications and methodologies. Crestora H. T. Dinh, C. Lee, D. Niyim, and P. Wang. Driven by advancements, for example, versatile registering, distributed computing framework, DevOps and Elastic Scaling, the micro service structural style has risen as another option in contrast to the solid style for planning enormous programming frameworks. Solid heritage applications in industry experience relocation to micro service-arranged models. A key test in this setting is the extraction of micro services from existing solid code bases. While casual relocation examples and strategies exist, there is an absence of formal models and robotized bolster services here. This paper handles that challenge by exhibiting a formal micro service extraction model to permit algorithmic suggestion of micro service competitors as a refactoring and movement strategy. The formal model is structured in an online model. An evaluation assessment shows that the deployed methodology gives sufficient execution. The proposal quality is assessed quantitatively by custom micro service-explicit measurements. The outcomes demonstrate that the delivered micro service competitors bring down the normal advancement group size down to half of the first size or lower. Moreover, the span of suggested micro service adjusts with micro service estimating revealed by experimental reviews and the area explicit excess among various micro services is kept at a low rate.

Unique in the group: The security limits of human portability. Crestora Y.-A. Mamtjaye, C. A. Hidsigo, M. Verlynen, and V. D. Simbel. We present a default directing model to upgrade the distribution of undertakings in a portable crowd sensing (MCS) framework. The players of our game are detecting administration requesters that desire to course their interest along ways that are comprised of assets having a place with the group members. Asset use includes lead-subordinate expenses and one asset may serve a few demands in the meantime. Because of human contribution and portability there exists vulnerability, which we address by presenting conviction parameters. For the

Nash equilibrium of our game, we can exchange productivity ensures, i.e., the most pessimistic scenario proportion between the welfare of a balance and the welfare of a social ideal is provably limited by a little steady when cost capacities are polynomials. An epsilon-estimation of a Nash balance arrangement can be processed in polynomial time for relative cost capacities. In light of our model, we build up a component for the mechanization of effective assignment algorithms in MCS Framework and we present a proof for the honesty of this system.

Adaptable security protecting area parking in portable online interpersonal organizations. AUTHORS: W. Wei, F. Xu, and Q. Li, 'MobShare: Area sharing is a principal segment of portable online interpersonal organizations (mOSNs), which additionally raises noteworthy protection concerns. The mOSNs gather a lot of area data after some time and the clients' area protection is undermined if their area data is mishandled by enemies controlling the mOSNs. In this paper, we present MobShare, a framework that gives adaptable security protecting area parking in mOSNs. MobShare is adaptable to help an assortment of area based applications, in that it empowers area sharing between both confided in social relations and untrusted outsiders, and it supports range question and client characterized access control. In MobShare neither the interpersonal organization server nor the area server has total information of the clients' personalities and areas. The clients' area security is ensured regardless of whether both of the substances intrigue with various clients.

Ensuring area security of clients in mOSNs has gotten a colossal consideration as of late. There are a few different ways to accomplish the area security, for example, concealing the relations between client character and area [17], area secrecy, etc. Area secrecy is a successful strategy for area security assurance. In this strategy, cell phones or the confided in third server first procedures area data through down to earth techniques, for example, encryption, to conceal clients' character and afterward sends the outcomes to the server supplier to perform inquiry. These strategies of accomplishing area obscurity can be ordered into three sort:

1) K-obscure. The primary thought of this K-anonymization, which was proposed by Sweeney [18], is to smudge the real area by developing shrouding districts that contain the areas of K mysterious clients.

2) Dummy areas. The primary thought of the fake area technique, which was proposed in [19], is to give clients a chance to create enough dummy areas and exchange them to the specialist co-op. The genuine area is incorporated into the fake areas, and the administration supplier can't recognize which is the genuine area from the phony areas.

3) Location encryption. Knothgordon [20] proposed an encryption strategy for the clients' area based on Hilbert bends, which uses Hilbert bends to change the unique area to an encoded area. There are additionally numerous different works proposed to comprehend the area protection issues by consolidating the previously mentioned three strategies. Dockham and Kulk [21] proposed a formal model for area jumbling methods, for example, including incorrectness, imprecision, and ambiguity.

Krumm [22] demonstrated that the impacts of spatial shrouding calculations and including Gaussian corruption or undermining the area (i.e., lessening granularity) can debilitate the ID accomplishment of the enemy. There are additionally some other related chips away in different applications. The paper [23] exhibited an arrangement of MobMix, which is a street network based blend zone structure to secure area protection of portable clients going on street systems. As opposed to spatial coding-based area security assurance, the methodology in MobMix is to break the progression of area presentation by utilizing blend zones, where no applications can follow the client development. In informal communities, security controls must be adaptable enough to permit sharing between both confided in social relations what's more, untrusted outsiders. To address this issue, [24] proposed a framework called SmokeScreen, which talked about sharing business with the two companions and outsiders while saving client protection. As demonstrated in a past research [25], area and business are two wellspring of protection spillage presented by mOSNs. SmokeScreen [24] takes care of the issue of how to adaptably share business with the two companions and outsiders while saving client protection. Part work [26], [27] talked about sharing area between built up relations in a protection safeguarding way. Afterward, considering adaptable security protecting area sharing in mOSNs, Wei et al. [6] proposed MobShare, which is an augmentation of SmokeScreen. In MobShare, clients can share their area data with outsider applications. Furthermore, different clients, however, either the OSN

supplier or the area server has total learning of the clients' character and area.

This is accomplished by part area requesters into two gatherings, to be specific, outsiders and companions. At that point, utilizing an encryption plan to ensure the area information, this data is transmitted to the area server or the online social arrange. In any case, this arrangement can't anticipate the area server from connecting the questions from a similar client and concentrate delicate data.

III. SYSTEM ANALYSIS

Existing Method:

We see that the personality of the equivalent questioning client is linkable by the area specialist organization in the companions' area inquiry of past works. Albeit various counterfeit personalities have been embedded for every client in these frameworks, companions' inquiries from a similar client will be connected in light of a similar companion set. Thus, this security defenselessness will possibly support the area specialist co-op recognize which record is valid in the area database and make area fakers futile. In expansion, with the genuine phony personality, the area administration supplier can get the companion relations and areas regardless of whether some of them are fakers. All the more truly, if we consider various questions without area referrals, the area specialist organization can in long last get the topological structure of the informal organization and dispatch various assault.

Going for fixing this security issue, we propose another framework by presenting another design with various area servers. All the more explicitly, all area data will be put away in every area server. At the point when a solicitation of companions' area is submitted from a client, this set will be separated into various subsets, and every subset will be sent to an area server, individually. Along these lines, companions' area inquiries from a similar client will be not quite the same as the point perspective on every area server with enough high likelihood. Therefore, these questions can't be connected to a similar client, and improved security has been accomplished in this new framework.

Disadvantages:

1. It can be make an increasingly number of versatile results must consideration as of less

1. The protection of the security was less dimension of the portable online informal community.
2. Occurrence of failure in single point.

Proposed method:

In this undertaking, going for accomplishing upgraded protection against the insider assault propelled by the specialist organizations in mOSNs, we present another engineering with various area servers out of the blue and propose a safe arrangement supporting area sharing among companions and outsiders in area based applications. In our development, the client's companion set in every companion question submitted to the area servers is isolated into various subsets by the informal organization server arbitrarily. Every area server can just get a subset of companions, rather than the entire companion set of the client in the past work.

These methods of accomplishing area obscurity can be arranged into three kinds:

1. Geo location API which was proposed to muddle the genuine area by developing shrouding locales that contain the areas of mysterious clients.
2. DES Encryption strategy is utilized here for the security reason.
3. In expansion, out of the blue, we propose a Location based administrative method which gives check capacity of the looking outcomes came back from area servers in a proficient manner.

ADVANTAGES:

1. The secure arrangement supporting area sharing among companions and outsiders in area based applications.
2. Location sharing development which gives check capacity of the looking outcomes came back from area servers in a productive manner.

IV. ALGORITHM DETAILS

This venture has following modules.

- Geo location API
- Location based services technique
- AES Algorithm.

ADMINISTRATOR MODULE DESCRIPTION

Administrator needs to login by giving username and secret phrases. On the off chance that the username and secret word matches, at that point administrator will see all clients. Administrator used to include area with spot name, unique of that spot and depiction of the spot.

CLIENT MODULE DESCRIPTION

Client right off the bat registers by giving his/her activities and after that login with username and secret key. Client can share his/her present area to their companions, with the goal that his/her companions can see his area in encoded group (Index). To decode the mutual area, client will send key solicitation to the next client. Client can look through any area by giving the watchword.

In the above two different algorithm are considered. In the first method every node receives traffic with equal intensity for other network also. The part of the total load happens the number nodes and sum of loads in the network along with network when interpreting the results. In the second method, each node obtains the incoming traffic to only two adjacent nodes. Thus maintain the constant total incoming load for each node in various overlays.

V. ARCHITECTURE



The area protection is in danger by SOGN coming with unscrupulous clients. The shot of getting to clients' areas is when accepting the request from LS in companions what's more considers area question. Note that, in these servers amid the two phases, the genuine areas are secured by the symmetric nonce cipher encryption plot, which won't release any data to SOGN.

Interpersonal organization. Privacy the security of the interpersonal organization is kept from LS by including sham clients into every companion's area inquiry. Along these lines, the interpersonal organization data for each autonomous area question is shielded from LS. Moreover, for every client, distinctive pseudo-IDs will be appointed when the client refreshes his area. Subsequently, for various area inquiries from a similar client U, the pseudonymity of U as well as the phony personalities of his companions will be unique if every one of them have refreshed their areas. Along these lines, it will be outlandish for LS to get the data from the social organize server. The area servers even don't know which client is presenting the area-question since we apply sham area updates and questions to keep LS from knowing which client's genuine phony personality is. In light of the investigation on the previously mentioned two, the relations between client's phony personality and his companions phony characters are covered up also. At last, we can reason that the protection of the informal organization is safeguarded.

Approved Access. In our security model, the area servers and informal organization server are thought to be "insect but inquisitive." Each client characterizes two limit separations: for companion's area question and those shunnam's area inquiry. In this manner, on the off chance that the area servers and informal organization server play out the questions in a legitimate manner, the area data and character data of the clients will be spread with the end goal that 'one fulfilled client' data will be returned as the question result.

EVALUATION

1) Evaluation on Mobile Device. For the client with versatile gadget, the tasks including Location Updates and Area Query have been tried dependent on the previously

mentioned picked parameters and cryptographic instruments. Area Update: In this stage, a symmetric key encryption is requested. On the off-chance that any client is erased from his companion list, a BE is likewise required. The collectors in the BE are the majority of the client's companions demonstrate the execution times of the AES what's more, BE compare:

a) Two AES usage are analyzed in, and the end is that the local usage called ΔT has preferred productivity over android API, while both fulfill pragmatic necessities.

b) The execution time of BE is appeared in, and we can see that the normal time of encryption is about 1.6 s and that of decoding is about 1.1 s. Since the BE plan is utilized in the key dissemination between companions, it can likewise fulfill the convenience application. The computational expense for the division of companions' set is immaterial contrasted and the other computational time and in this way is excluded here. As appeared in Fig. 4, we can see that the encryption what's more, decoding times are direct with the quantity of companions. Indeed, even the quantity of companions is greater than 100, the execution time is just 200 ms, and therefore, it is effective and down to earth. Consider Location Query: To present a question for considers' areas, the client just needs to present a question moving forward without any more.

2) Evaluation of Location Server: The location server must work under multithread mode to improve concurrent ability. For LS, the operations include Location update, Friends' Location Query, and Strangers' Location Query, which are tested. Location Update: In this phase, the location server decrypts the position encrypted using the BE scheme. The average time of decryption is about 33 ms. Friends' Location Query: The location server encrypts the data containing records of nearby friends. We can see that the execution time is linear with the number of records, for the reason that the user's ID with length less than 10 will be contacted and encrypted by AES-CBC. Strangers' Location Query: Similar to the friends' location query, the location server encrypts all of the ID strings using the AES-CBC model. Therefore the execution time is linear with the number of records. However, even the number of records is 1000, and the average encryption time is only 30 ms, so that the system is very efficient and practical.

3) Comparison With Other Systems: Until now, there are three normal area sharing frameworks for mOSN:

Mobishare in 2012 and our proposed framework. Table II records the examinations of exhibitions among them.

a) About the cell towers: The Mobishare framework employment:

cell towers to go about as a confided in focus, and some cryptographic calculation will be kept running in them. So that as a way, the different frameworks needn't bother with them and make the framework progressively adaptable.

b) About the presentation in a cell phone: Three frameworks have comparable exhibitions. At the point when a client needs to refresh his sharing key, N-Mobi share and our framework will attribute what the BE plot, however the Mobi share expects client to execute n-times symmetric encryption. For this situation, the previous will be progressively adaptable and proficient.

c) About the presentation in the OSN server: To give better security, our framework requires the OSN server to store clients' area to multi location servers. Looked at with two different frameworks, our framework must scramble more area data for these servers.

d) About the exhibition in the area server: In our framework, every area server will have a superior execution since it requires among the latter informational indices after separating the areas to multi servers. In actuality, the different frameworks require putting away the majority of the areas into the single server, which is anything but difficult to shape the bottleneck.

VI RESULTS

1) Security of User's Identity

The client's close to home data, counting the client's character and explicit companions' data, ought to be shielded from the area servers. Note that such data does not have to shield from the informal organization server. In this way, we just need to think about what the area servers can get from the collaborations and other put-away data. The client's personality has been anonymized by the interpersonal organization server with a pseudo identity each time when the client performs the area update or sends

the adjacent companions' area demand. Along these lines, the area server can't get the genuine character of the client.



CONCLUSION AND FUTURE WORKS

2. Protection of User's Friends Information

When a client submits companions' area inquiry, the interpersonal organization server will initially include their client data in the clients' genuine companions' set. Moreover, the companions' set with their clients is additionally partitioned into arbitrary subsets and sent to various area servers. The prerequisite of the quantity of these clients included into the genuine companions' set ought to be bigger than some predefined number, which may rely upon the quantity of genuine companions and area servers. On the off chance that the number is sufficiently enormous, at that point the complete number of subsets will be sufficiently enormous. Subsequently, every area server can just get some portion of the companions' list with their clients, who can't separate companions from outsiders with no other data. Albeit different solicitations will be sent by the same client, the area server still can't connect them precisely to a similar client on the grounds that the subset allocated to it will be unique with a high likelihood.

We have tended to the issue of clients' protection against insider assault propelled by the specialist organizations in mOSNs. Two sorts of protection have been considered, including the area protection and informal community security. We have presented another design with different area servers out of the blue and proposed a safe arrangement supporting area sharing among companions and outsiders in area based applications. In our development, the clients' companions' set in every companions' question submitted to the area servers is separated into different subsets by the informal organization server arbitrarily. Besides, every area server can just get a subset of companions, rather than the entire companions' set. Along these lines, an improved interpersonal organization security against the insider assault can be accomplished. To further secure confidentiality, the personality of every client in the inquiry set will be supplanted with a pseudonymity before sending the inquiry to the area servers.

We have additionally demonstrated that the new development is secure under the more grounded security model with improved protection. At long last, we have given broad trial results to show the effectiveness of our proposed development.

REFERENCES:

- [1] H. T. Dinh, C. Lee, D. Niyato, and E. Wang, "A survey of mobile cloud computing Architecture, applications, and approaches," *Wireless Commun. Mobile Comput.*, vol. 13, no. 8, pp. 1587–1601, Dec. 2011.
- [2] (2010, Apr.) Top Benefits of Location-Based Services. [Online]. Available: <http://www.pigeonhole.com/blog/top-benefits-of-location-based-services/>
- [3] [Online]. Available: <https://bitbucket.com>
- [4] [Online]. Available: <https://www.locpt.com>
- [5] Y.-A. Montjoye, C. A. Hidalgo, M. Veitch, and V. D. Blondel, "Unique in the crowd: The privacy bounds of human mobility," in *Nature Str. Rep.*, vol. 3, 2013, Art. ID: 1376.
- [6] W. Wei, F. Xu, and Q. Li, "MobShare: Flexible privacy-preserving location sharing in mobile online social networks," in *Proc. INFOCOM 2012*, pp. 2614–2620.
- [7] L. Barkhuus and A. K. Dey, "Location-based services for mobile telephony: A study of users' privacy concerns," in *Proc. INTERACT. 2005*, vol. 3, pp. 392–393.
- [8] F. Li, F. Li, X. Chen, Z. Liu, and C. Ju, "MobShare: Security-improved system for location sharing in mobile online social networks," in *Proc. Int. Workshop MST*, 2013.
- [9] Z. Liu, J. Li, X. Chen, J. Li, and C. Ju, "New privacy-preserving location sharing system for mobile online social networks," in *Proc. IFGCN*, 2013, pp. 214–218.
- [10] Z. Liu, D. Luo, J. Li, X. Chen, and C. Ju, "N-MobShare: New privacy-preserving location-sharing system for mobile online social networks," *Int. J. Comput. Math.*, 2014.
- [11] D. R. Shau, D. Sumanth, and S. F. Shahabuddin, "Adaptive DCA: broadcast encryption with constant-size secret keys and ciphertexts," in *Proc. Int. Conf. Security, Privacy*, 2012, pp. 306–321.
- [12] U. Feige and J. Kilian, "Making games short (extended abstract)," in *Proc. 28th Ann. ACM STOC*, New York, NY, USA, 1997, pp. 516–518.
- [13] R. Canetti, E. Pava, and G. Rothblum, "Two protocols for delegation of computation," in *Information Theoretic Security*, ser. Lecture Notes in Computer Science, A. Smith, Ed. Berlin, Germany: Springer-Verlag, 2012, vol. 7412, pp. 57–61.
- [14] B. Golle and E. Mironov, "Uncheatable distributed computations," in *Proc. Conf. Papers Cryptology—CRYPTO 2001*, pp. 435–449.
- [15] M. Bellare and P. Rogaway, "The exact security of digital signatures—How to sign with RSA and Rabin," in *Proc. EUROCRYPT*, 1994, pp. 395–416.
- [16] D. Boneh, E. Lynn, and H. Shacham, "Short signatures from the Weil pairing," in *Proc. ASIACRYPT*, 2001, pp. 314–332.
- [17] Y. Lu, A. Quatieri, and E. Pierre, "Mobile services access and payment through reusable tickets," in *Computer Communications*, vol. 32, no. 4, pp. 603–610, Mar. 2009.
- [18] L. Sweney, "K-anonymity: A model for protecting privacy," *Int. J. Uncertainty, Fuzziness Knowledge-Based Syst.*, vol. 10, no. 5, pp. 557–570, Oct. 2002.
- [19] H. Kato, Y. Yanagisawa, and T. Satoh, "Protection of location privacy using dummy for location-based services," in *Proc. Int. Int. Conf. Emerg. Eng. Workshops*, 2001, p. 1248.
- [20] A. Khoshgouzar and C. Shahabi, "Blind evaluation of nearest neighbor queries using space transformation to preserve location privacy," in *Proc. ISITD*, 2007, pp. 239–257.

- [21] M. Darkhan and L. Kolik, "A formal model of obfuscation and negotiation for location privacy," in *Proc. PERSASIVE*, 2005, pp. 152-170.
- [22] J. Krumm, "Inference attacks on location tracks," in *Proc. 35th Int. Conf. PERSASIVE*, vol. 4430, LNCS, Berlin, Germany: Springer-Verlag, 2007, pp. 127-143.
- [23] B. Palmisani and L. Liu, "MobMix: Protecting location privacy with mix-zones over road networks," 2011, pp. 494-505.
- [24] L. P. Cox, A. Dalton, and V. Mavropodi, "SenseScreen: Flexible privacy controls for presence-sharing," in *Proc. MOBISEC*, 2007, pp. 133-143.
- [25] B. Krishnamurthy and C. E. Wills, "Privacy leakage in mobile online social networks," in *Proc. WOSN*, 2010, p. 4.

BIBLIOGRAPHY

K. Laxmi Deepthi was born in Telangana, India in 1991. She has received the Diploma in computer Science from TRR Polytechnic college, Hyderabad, India in 2009 and B.Tech degree in Computer Science from Eshy Reddy College Engineering and Technology for Women. Now, she presently was pursuing M.Tech in Computer Networks and Information Security from G.Narayanan Institute of Technology and Science for Women.

Dr. T. Ravi Prakash Reddy pursued his B.Tech from Vasavi College of Engineering, Hyderabad in 1994 and M.Tech from Andhra University, Vizag in 1997. He obtained his Ph.D from INTU Hyderabad in 2011. He has over 20 years of teaching experience and has 20 research publications to his credit in both National and International Journals. Currently 5 research scholars are pursuing Ph.D under his guidance. He joined GNITS in 2001 and took charge as Head of the department IT in 2011. He is a member of Editorial Board of Journal of Current Trends in Information Technology, and also a member of professional bodies such as CSI, ISTE. He is in-charge of computer purchase, maintenance, Internet & Wi-Fi in the Institution.

IOT Based Vehicle Tracking and Monitoring System Using GPS and GSM

A. Monika, Anisha Chaturu

Abstract: Generally the usage of vehicle tracking system has been increased rapidly. The major concern of the proposed system is identifying the vehicle theft by implementing anti-theft. Vehicle tracking system is beneficial in many ways such as providing security to the personal vehicles, taxi, rickshaws, school buses and others. Vehicle tracking system is designed to know the position of the vehicle. Tracking system is developed by using GPS and GSM modules to locate the user's vehicle easily. GPS module is used to track the location of the vehicle in the form of values such as latitude and longitude. These values are transmitted to the user using GSM modem through mobile network. Different sensors are used to detect alcohol consumption and to identify the accident. The sensor values can be monitored by anyone from anywhere in the world using thingspeak channel. RFID technology is used to facilitate security in the vehicle tracking and anti-theft system. Ignition key is used to detect the theft and when theft is detected, GSM control app is used to control the vehicle remotely.

Keywords: Arduino, GPS, GSM, IoT, MQ3, RFID, Thingspeak

I. INTRODUCTION

One of the most usable technologies in this trending world is IoT. IoT describes about the embedded devices which are interlinked with the internet. IoT (Internet of Things) encompasses devices like sensors, actuators, routers etc. Nowadays the major concern of the people is securing the valuable objects like vehicles. Security is enhanced by using GPS. The proposed system is used as an anti-theft system in transport systems, public vehicles.

GPS uses satellite technology to determine the location of the object. It finds the values in the form of latitude and longitude. Previously a two way GPS communication mode was used to find the location of the lost vehicle but by using GSM modem it made easy to communicate in two ways which is cheaper and simple method.

There are many different methods or technologies which are used to control the vehicle when theft is identified. Some of the technologies are alarming system, password security, face recognition, using RFID tags, etc. So, here in the proposed system theft is identified by using a ignition key and vehicle can be controlled by using GSM app remotely from anywhere. Different sensors are used to detect accident and alcohol percentage. Thingspeak channel uses Google cloud to store the sensors data. It allows visualizing and analyzing the live data of the sensors. By using this data, automobile owner can monitor the sensors data graphically from anywhere in the world.

II. RELATED WORK

Many different technologies were used to control the vehicle when it is lost. Previously it was very difficult to determine the position of the automobile but now by using GPS technology it became very easy to track the position of the vehicle. A system is designed to note the location of the vehicle and to identify the theft by passing the information to the automobile owner. Such system includes GPS and GSM modules to determine the position of the vehicle and to deliver the information to the owner.

This system is designed for continuous monitoring of the vehicle and to describe the status of the vehicle on request [3].

Face recognition system is used to identify theft. This face recognition system will be placed inside the vehicle. When a person strikes ON the vehicle, it captures the image and compares the new image with the stored image and verifies whether the image is already there in the list or not. If the image is not found in the list, the message will be sent to the automobile owner. Now the owner is allowed to see the image of the thief and location of the vehicle [4].

III. PROPOSED SYSTEM

This paper presents a system which is designed to trace the vehicle when it is lost using GPS and GSM technology. GPS receiver and GSM module uses Arduino UNO controller to forward the commands. This system is fixed inside a vehicle. GPS module will transfer the location values to the controller. Controller will receive it and sends that information to the automobile user using GSM modem. Now the owner can take appropriate action using GSM mobile App.

To provide security to the system which is placed inside car RFID technology is used. To monitor the sensors data a channel is used which is Thingspeak. This uses a IoT technology to store and visualize the sensors data.

Received Version Manuscript Received on 12 September, 2019

A. Monika (Corresponding Author), Anisha Chaturu, India
(E-mail: anishachaturu111@gmail.com)

Dr. Anisha Chaturu (Corresponding Author), India
(E-mail: anishachaturu111@gmail.com)

A. Flow Diagram

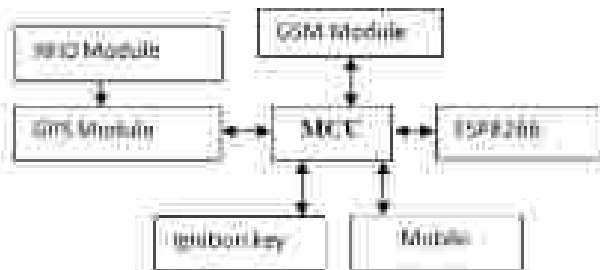


Figure: functional pattern of vehicle tracking system.

The above image shows a flow diagram of vehicle tracking system which is implemented using a GPS and GSM platform. It contains Arduino, GPS, GSM, RFID, sensors, ESP8266 modules.

B) Interfacing Devices

i) ARDUINO UNO

The main part of the vehicle tracking system is microcontroller. Arduino UNO is a open source microcontroller. Arduino controller board contains 14 input and output pins which are used to interfaced embedded devices. It works with a voltage of 5v. It has a flash memory of 32KB and static RAM of 2KB.

Arduino controller can be programmed in embedded c language in Arduino IDE.



figure 2: ARDUINO UNO microcontroller.

ii) Global Positioning System

Global Positioning System uses a satellite technology to trace the signals. It works on the principle of 3D trilateration. When an object sends signals to the satellites, satellites send the feedback signals back to the object. The time required to send the feedback signal is calculated to determine the geographical location of the object. GPS Tracking system uses Global Navigation Satellite System network to track the exact location of the vehicle. Vehicle tracking systems have been categorized into two types, passive and active system. Passive system monitors the location and stores the data whereas active tracking system monitors and sends information to a central tracking portal.



Figure: GPS module

It contains a serial port which is used to interface with the microcontroller. GPS Receiver sends the location data to the controller. Controller receives the data and transmits the data to the user using GSM.

iii) Global System For Mobile Communications

GSM is a serial communication device which is used to connect computer systems over a network. GSM module is interconnected with the microcontroller.

The receiver pin of microcontroller is wired with the transmitter pin of GSM modem and its transmitter pin of microcontroller is wired with the receiver pin of GSM modem.



Figure: GSM modem.

It uses the attention commands to select the mode, to transfer and receive the messages, to call etc. It has an inbuilt SIM card holder which is used to insert the SIM for user operation. It uses time division multiple access technology.

The following are the few commands which are used:

COMMAND	PURPOSE
AT+CMGF	TEXT MODE
AT+CMGS	SEND MESSAGE
AT+CMGD	DELETE MESSAGE
AT+CMGSS	SEND STORED MESSAGE
AT+CMGA	ANSWER THE CALL

ii) RFID Technology

Radio-Frequency Identification works in electromagnetic field. RFID Technology uses radio frequency to scan the tags or objects. For automatic detection and data capture RFID technology is used. Passive tags can operate even at hundreds of meters. It does not require the object to be in line of sight.



Figure: RFID reader and tag.

RFID contains three parts: an incorporated circuit which is used to store the data and process the information which it further modulates and demodulates the radio frequency signals, power source and antenna.

This technology is used to provide security to the vehicle tracking system. By using the RFID tag only an authorized user can operate the vehicle tracking system.

iii) Thingspeak

Thingspeak channel is correlated to the applications of IoT. Thingspeak is a platform which provides various services for the IoT applications. It allows real time data collection. The collected can be visualized in the form of charts. The data will be updated minute by minute. To create a channel first we need to signup, once we have a channel we can transmit the data and monitor it from anywhere in the world.

IV. METHODOLOGY

GPS uses a tracking method to find the position of the lost vehicle in terms of latitude and longitude values and it transfers that information using GSM module in the form of text SMS to the automobile owner.



Figure: sequence diagram

Now the user can operate the vehicle remotely by sending the text message to the GSM modem over a network using GSM App. Sensors are used to identify the alcohol consumption and accident detection. The automobile owner can know the position of the vehicle whenever he wants by sending the TRACK command.

If alcohol sensor or accident detection sensor is activated the owner gets the message and the sensors data will be updated in the thingspeak channel.

V. RESULTS

Initially when ignition key is ON it identifies the automobile owner as vehicle theft. If the vehicle is driven by unknown person, the automobile owner blocks the vehicle by sending BLOCK command.

A) When ignition key is ON

When ignition key is in active mode the user gets message, generally if car is driven by owner he uses ignition key to run the vehicle and he ignores the message. If the car is driven by an unauthorized person, the automobile owner gets the message and he should take an appropriate action. To identify the theft we are using ignition key in this proposed system. Now the owner uses a mobile app and sends message to block the vehicle.



Vehicle Monitoring System
IGNITION ON

Fig.1: when vehicle is in ignition mode

B) When vehicle is blocked

When the vehicle is driven by an unauthorized person the user gets the message. Now the user controls the vehicle remotely by sending the message using GSM app. Using this App reduces the time consumption to send the message. When the user sends the message to block it blocks the vehicle and vehicle stops there.





Fig: when vehicle is in BLOCK mode

C) When we want to track the vehicle

After blocking the vehicle to find the location of the vehicle exactly where it has been stopped, owner has to send track message. The owner gets the location with latitude and longitude values and points out on the Google map. Until and unless the owner sends the start message the vehicle will not start, it will be in block mode.



Vehicle Monitoring System
Location



D) When sensors are in active mode

Here we are using two sensors one is alcohol sensor to detect alcohol content and the other one is piezoelectric sensor to detect collision or accident. When alcohol sensor is in active mode, the controller sends the message to the automobile owner and updates the data into the thingspeak channel.

When accident is occurred the respective sensor will be in active mode. When it is in active mode the owner gets the message with location values and automatically the vehicle stops. Unless and until the owner sends a start message the vehicle will not move.

Vehicle Monitoring System
Location

<https://www.google.com/maps/@17+22.07886N,078+28.78994E>
Accident Detection



Fig: sensors' detail in thingspeak channel

The sensors data will be stored in Google cloud. First we should open the thingspeak and login by giving the credentials like login ID and password. Select the required number of fields. When we enter into the channel we get the API key by using which we can send the sensors data to the cloud. We can monitor the sensors from anywhere in the world. First provide wifi SSID name and password in the program to get connected with the internet. The sensors data will be updated every minute.

VI. CONCLUSION

The most essential thing in today's world is providing security to the public and private vehicles. So, vehicle tracking system is proposed to locate the exact position of the vehicle when it is lost or hidden somewhere. GPS technology is used to track the location and that data is transmitted to the user using GSM. Along with the tracking system anti-theft system is also developed to provide security. It is mostly applicable in fleet management, transportation system, military applications, school buses, public vehicles etc.

VII. FUTURE SCOPE

Further this system can be enhanced with the advanced system which uses IoT concept to operate the vehicle remotely by anyone from anywhere in the world. It can be arranged in such a way that it can connect a call to the owner or it can send the information to the multiple persons.



REFERENCES

1. H. B. Pham, M. Hritonenko and C. E. Sargent, "Development of vehicle tracking system using GPS and GSM module," in *IEEE Conference on Open Systems (ICOS)*, Kuching, 2013.
2. Mithlesh Mishra, "GPS based Advanced Vehicle Tracking and Vehicle Control System", *I.J. Intelligent Systems and Applications*, 10(2):13-17.
3. Abhishek Anand, K. Eshwarappa, "Cloud Computing Based Vehicle Tracking Information System", *ISSN: 2229-4333 (print) | ISSN: 0975-3401 (Online)* ICSEI Vol. 2, Issue 1, March 2014.
4. Anshul Arora, Dinesh and S.A. Madhu, Design and Implementation of Vehicle Tracking System Using GPS, *Journal of Information Engineering and Applications*, ISSN 2224-2798, Vol. 1, No. 1, 2011.
5. M. Mithlesh Mishra and M. Hritonenko, "Remote vehicle tracking system using GSM Module and Google map," in *IEEE Conference on Innovative Education and Development in Engineering and Technology (CSEDET)*, Noida, 2015.
6. M. Purnam, K. Anand, G. Mithlesh and M. Hritonenko, "A theoretical model of GSM network based vehicle tracking system," in *International Conference on Electrical and Computer Engineering (ICECE)*, Dhaka, 2011.
7. K. Rajaram, S. Valarmathy D., S. Karthikeyan, S. Srinivas and M. Chinnappa, K. Changan, "Vehicle Tracking and Locating System Based on GSM and GPS," *I.J. Intelligent Systems and Applications*, vol. 09, pp. 69-70, August 2013.
8. P. P. Wadhvani and P. S. Dhadar, "Real Time Vehicle Locating and Tracking System using GSM and GPS Technology: An Android System," *International Journal of Technology And Engineering Systems*, vol. 2, no. 1, 2011.
9. P. Varma and J. Bhalla, "Design and Development of GPS/GSM based Tracking System with Geographic based Monitoring," *International Journal of Computer Science, Engineering and Applications (IJCSA)*, vol. 2, no. 2, June 2012.
10. N. Mangla, K. Sathya, C. Kumbha, "DB Implementation of Parallel Mining for Big Data", *Indian Journal of Science and Technology*, 2018.
11. T. Lu-Fan and Y. Peng-Lin, "Tracking and Tracking System for Mobile Vehicles in Large Area," *Fifth IEEE International Symposium on Multiscale Design, Test and Applications*, pp. 27-30, January 2009.
12. P. Prakash, A. Nehra, B. Suman and A. Bhimani, "Design and Development of GPS/GSM based vehicle tracking and alert system for commercial inter-city buses," *IEEE 4th International Conference on Adaptive Science & Technology (ICAST)*, October 2012.

Energy Adaptive Intrusion Detection System for Energy Harvesting IoT

S.Prabavathy, J.S.Kanchana

Abstract: Internet of Things (IoT) is an emerging technology that makes network of physical objects which can identify, communicate and share information through Internet. The edge of IoT network are mostly simple sensors. The success of the IoT application depends on the quality of sensor data at the right time, this leads to the requirement of IoT devices to long term, self-maintaining and have the ability to harvest their required energy from deployed environment. Such devices have additional security challenges because of prolonged life time and change in the life cycle of devices. A novel intrusion detection system is designed for energy harvesting 6LoWPAN based IoT network considering the energy scavenging characteristics of devices in addition to conventional IoT. The simulation results confirm that the proposed intrusion detection system is efficient and accurate in detecting the attacks.

Keywords: Energy Harvesting, Intrusion Detection System, Internet of Things, 6LoWPAN, IRL.

1. INTRODUCTION

The Internet of Things (IoT) is a global network of smart objects called 'things' embedded with electronics, sensors and software. The evolution of IoT makes billions of devices to be connected in the dynamic network to provide intelligent applications for supporting human in applications such as environmental monitoring, healthcare, logistics, security and surveillance [1]. IoT is made up of new revolutionary technologies providing combinations of ubiquitous and pervasive environment to human. To realize such an environment wireless sensor networks (WSN) are used which is battery powered. As the number of wireless nodes increases, number of batteries also increases which leads to the problem of increased production, proper maintenance and disposal of these batteries [2]. Energy harvesting mechanism provides a better solution to solve this problem in many instances.

To provide low cost IoT applications, the sensor nodes must incur low cost and involve low maintenance. Though the advancement in the field of electronics has led to the design of sensors with low power requirements, cannot satisfy the increasing demand of wireless sensor network applications. This results to development of energy harvesting sensors. These energy harvesting sensors has the

capability to extract the required energy from the deployed environment. The harvesting energy from ambient light, vibrations, thermal gradients and other forms of motion is converted into electrical energy to power up the node [3].

Low cost IoT applications have limited power and memory, this leads to the requirement of communication protocol which can efficiently manage the resource constrained devices. 6LoWPAN provides solution to efficiently manage the low cost IoT application. The 6LoWPAN can be implemented using energy harvesting sensors. 6LoWPAN consist of adaptation layer in network protocol stack to integrate IPv6 into low power networks such as IEEE 802.15.4. This provides the advantage for existing IP network to use the address space and infrastructure of IPv6. The 6LoWPAN is connected to the internet through the border router. The border router handles the data communication within the network and to the Internet. RPL (Routing Protocol for Low Power and Lossy Network) is the routing protocol for 6LoWPAN. In 6LoWPAN security threats can be from both Internet through adaptation layer and within the 6LoWPAN network. The security mechanism in RPL can detect external threats only, but not the internal threats [4].

The energy harvesting capability of the sensor nodes increases the lifetime of sensor nodes. This lead to the change in the life cycle of sensor node which provides new security challenges to WSN [5]. In regular 6LoWPAN the compromised sensor nodes run out energy and stop its attacks at some instant of time, but in energy harvesting network the attack continues, since the life time of the sensors are prolonged. Therefore, security solutions designed for regular 6LoWPAN is not sufficient for energy harvesting 6LoWPAN. A new security mechanism has to be designed considering the energy scavenging characteristics of the sensor nodes in 6LoWPAN. Intrusion detection system (IDS) is the first layer of defense from the adversary in WSN. In this paper, a novel intrusion detection mechanism is proposed in order to provide security to energy harvesting IoT based on the energy availability of the nodes.

The remainder of the paper is organized as follows: Section 2 briefly discuss the security requirements of energy harvesting IoT. Section 3 provides a brief introduction to the 6LoWPAN based IoT network. Section 4 overviews the related work and compares the proposed system with existing works. Section 5 describes the design of the proposed Energy

Received Manuscript Received on December 05, 2016

* Corresponding Author

Dr.S.Prabavathy, ||Department of IT, Government College of Technology & Science, ||Tiruchirappalli, India.

Dr.J.S.Kanchana, Department of IT, S.J.S. College of Engineering, Madurai, India.



adaptive intrusion detection system. Section 6 provides the simulation and results of the proposed work. Section 7 summarizes of the proposed system.

II. SECURITY OBJECTIVES OF ENERGY HARVESTING-IOT

The security mechanisms in an energy harvesting WSN should protect the data transmitted over the network from attacks of malicious nodes along with energy scavenging activities. The essential security objectives of energy harvesting IoT are listed below:

A. Integrity

In conventional system integrity is protection against unauthorized modification and tampering of object's identity and their data. In context of Energy Harvesting IoT integrity is extended to protect against any kind of impersonation, data modification along with energy level modification. Some of the attacks against integrity are Sybil attacks, defacement etc.

B. Confidentiality

The security mechanisms should ensure that a node should allow only authorized access to its data. In the context of Energy harvesting IoT confidentiality is extended to protect the energy information of each node along with the data. The various types of attack against confidentiality are Man-in-middle attack, traffic analysis attack, etc.

C. Availability

The security mechanism should ensure that the services should be available always available. In the context of Energy Harvesting IoT, availability should ensure data availability and energy availability. The legitimate devices should be always available for service. These malicious devices can disrupt the possibility to communicate with the legitimate devices. The various types of attack against availability are Denial of Service, selective forwarding, black holes etc.

III. BACKGROUND

In this section a brief introduction to various technologies of 6LoWPAN is provided.

A. IoT implementation using 6LoWPAN

IoT is made up of millions of devices connected in a network. 6LoWPAN is specialized task group formed by Internet Engineering Task Force (IETF). It provides efficient communication between the sensor nodes using IPv6 over a network of resource constrained devices [6]. 6LoWPAN uses Internet Protocol version 6 (IPv6) as networking protocols and RPL as routing protocols. It supports multi-hop routing among sensor nodes connected to 6LoWPAN Border Router (6BR). The 6BR is an end device which connects the sensor network with the Internet and performs the communication between IPv6 and 802.15.4 interfaces. 6LoWPAN is a multihop wireless network of lossy communication link with specialized routing protocol and operating system based on its specification. Contiki [7] is one of the open source operating system that supports 6LoWPAN based IoT application with multithread and multitasking environment.

B. RPL

IPv6 Routing Protocol for Low Power and Lossy Networks (RPL) is routing protocol specially implemented for low power and lossy networks such as 6LoWPAN. It supports point-to-point (P2P), point-to-multipoint (P2MP) and multipoint-to-point (M2P) communication. RPL routing protocol builds a Destination Oriented Directed Acyclic Graph (DODAG) topology with 6BR as its root. Each DODAG has unique identifier and it can be optimized using Objective Function that uses particular metric for optimizing the route. The objective function is represented by Objective Code point which uses the metrics such as energy, hop count, latency etc. [8] for route optimization. Each node in the DODAG is assigned a rank that determines its relative position and distance to 6BR. An example DODAG topology of 6LoWPAN is shown in Fig 1.

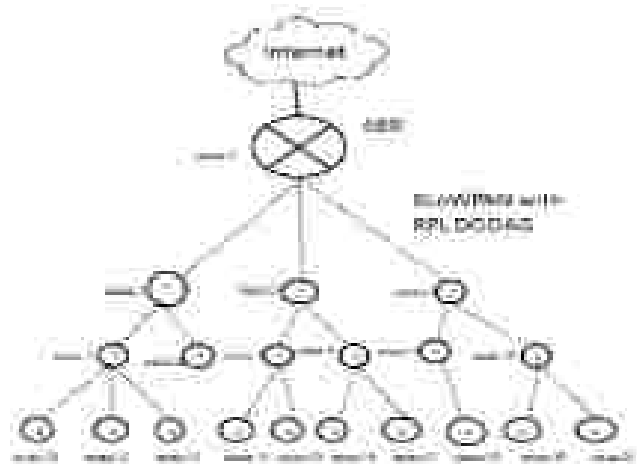


Fig. 1. Sample 6LoWPAN RPL topology

C. Security Challenges in energy harvesting 6LoWPAN

The security requirement of IoT varies from one application to another due to emergence decentralization in its architecture. This requirement leads to many security challenges in IoT. The IPsec protocol [9] provides end-to-end security for IPv6 communication and IEEE 802.15.4 link layer provides hop-by-hop security. These protocols provide message security and not the network security. The 6LoWPAN is vulnerable to numerous attacks [10] and the energy harvesting characteristic increases strength of the attack. Therefore an efficient intrusion detection mechanism is required for energy harvesting 6LoWPAN to protect the network from active and passive attack.

IV. RELATED WORK

Various researches have been performed in security requirements of IoT [11][12][13]. The co-existence of wireless sensor network and Internet in 6LoWPAN provides numerous security challenges. Various attacks against 6LoWPAN and RPL have been studied in [14][15][16]. The research area of IoT intrusion detection is very young and only very few works have been performed in it. Signature based intrusion detecting system proposed in [7] provides detection mechanism for resource constrained sensor network. The signature matching



mechanism for attack detection proposed in this consumes more power of sensor nodes.

The work proposed by [18] is an attack detection architecture built on the top of eboli network. It can detect only the DoS attack and this architecture is specific only to eboli network. The IDS proposed in [19] is a combination of distributed and centralized intrusion detection mechanism for 6LoWPAN. This detects the attack based on RPL DODAG topology inconsistency. It uses the centralized module called Glipper placed at 6BR to build the current network RPL topology and detects the inconsistency. Since detection mechanism is centralized it incurs more energy and delay in detecting the attack.

The IDS given in [20] is used to detect the wormhole attack in 6LoWPAN or non-leaf nodes of RPL DODAG topology. This mechanism cannot detect attack occurring at the leaf nodes of RPL DODAG topology. A specification based IDS were given in [21] which detect only the RPL topology attacks. Many clustering based IDS mechanisms [22][23][24] have been proposed for wireless sensor networks, which detects the intrusion. These mechanisms are not suitable for 6LoWPAN which spurs the traditional Internet traffic into WSN. The threat model and taxonomy of attacks for energy harvesting WSN was studied in [5] which provides only the conceptual overview.

The above mentioned intrusion detection systems does not consider the security issues involved in energy harvesting characteristics of the sensors. The proposed IDS for energy harvesting 6LoWPAN based IoT is distinct from all the above works in providing an energy adaptive intrusion detection approach.

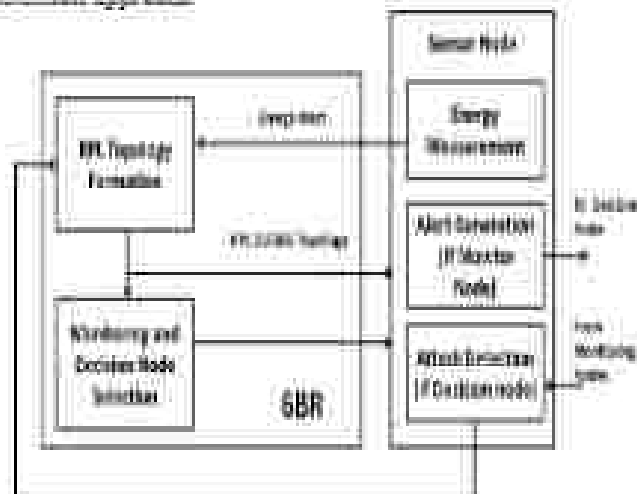


Fig. 1. Functionalities of the proposed IDS for energy harvesting 6LoWPAN

V. ENERGY ADAPTIVE INTRUSION DETECTION SYSTEM

The proposed Energy Adaptive Intrusion Detection System (EAIDS) is an agent based distributed collaborative approach designed for energy harvesting 6LoWPAN networks. In this approach attack is detected by the IDS agent at the nodes based on the abnormality behavior of the nodes. The intrusion detection agent will be implemented in the 6BR and in all sensor nodes. The IDS agents are activated only when the energy level is sufficient to handle intrusion detection process. The agents in nodes are used to detect the

attacks locally and transmit the alert message only when the attack is detected, thus reducing the communication overhead. 6LoWPAN uses RPL as routing protocol and creates a DODAG tree topology with the parent-child relationships among the sensors and border router 6BR as the root of the tree. In EAIDS, the IDS agent of a node will monitor the nodes where it has a direct relationship with them, i.e. its parents or its children, instead of monitoring all its neighbouring nodes. The detection results are compared locally at the decision nodes and final decisions about suspicious nodes is made. Thus, the attack is detected at faster rate than in centralized system. The information about the malicious nodes is sent to the 6BR to update the RPL topology. Based on the energy level of the nodes, monitoring and decision nodes are selected. The energy level of each node is obtained and stored by 6BR before the construction of DODAG topology. The operations performed by the proposed IDS are shown in Fig 2. The 6BR, which is the root of RPL DODAG does not require monitoring nodes because it is a high computing device that can protect itself using the any cryptographic measures. The leaf node has variant of monitoring node selection method and detection mechanism from non-leaf node. The overall activities of the proposed IDS are given in Algorithm 1.

Algorithm 1: EAIDS

```

At 6BR:
RPL DODAG Topology Construction
Monitoring Node Selection(node)
Decision Node Selection(node)
At Sensor Nodes:
If (Energy(node) > Energy_Threshold)
While (detection window W)
Alert_Generation(Monitoring Node)
Attack_Detection(Decision Node)
End while
Else
Create energy_alert
Forward(energy_alert to 6BR)
End if
End
    
```

A. Monitoring Node and Decision Node Selection

In order to reduce resource consumption, certain IDS agents are only activated for monitoring instead of making all IDS agents to involve in the monitoring process. Every node of 6LoWPAN maintains preferred parent list containing next possible parents based on the objective function of RPL routing topology. EAIDS uses this list to activate the IDS agent. To monitor a non-leaf node, its children nodes preferred parent list is analyzed to identify the nodes which has at least one common preferred parent with the energy level above the threshold. The IDS agents in these nodes are activated for monitoring the parent node and it is treated as monitoring nodes. Similar to non-leaf nodes, to monitor the leaf nodes, its sibling nodes preferred parent list is used to find the monitoring node. The selection of monitoring nodes is given in Algorithm-2.



Algorithm 2:

Monitoring Node Selection(DODAG topology)

```

Require: RPL DODAG Topology
For each node in DODAG topology
    // selecting nodes with common preferred parent list

    For each non-leaf node j except root // for non-leaf node
        child=GetChildren(j)
        For each node c in child
            If (preferredparent(c)  $\neq$  preferredparent(j-1))
                Nodes_With_common_parents(j) = c  $\cup$  c+1
            End if
        End for
    End for

    For each leaf node j // for leaf node
        Sibling=GetSibling(j)
        For each node g in Sibling
            If preferredparent(g)  $\neq$  preferredparent(j-1)
                Nodes_With_common_parents(j) = c  $\cup$  g
            End if
        End for

    // Varying energy levels of the above selected nodes
    For each node d in Nodes_With_common_parents
        If Energy(d) > Energy_Threshold
            Monitor(j)=d
        End if
    End for

    // If the nodes selected is more than half of the number of child or sibling then the nodes with more number of common preferred parent is removed
    If count(Monitor(j)) > count(child(j)) / 2 - 1
        While count(Monitor(j)) = count(child(j)) / 2 - 1
            n = nodes with highest common preferred parent
            Monitor(j) = Monitor(j) - n
        End while
    End if

    // If the selection return null then all the children or siblings are made as monitor
    If Monitor(j) =  $\emptyset$ 
        Monitor = child or sibling
    End if
End for
    
```

The energy for communicating all the data from monitoring nodes to centralized GBR for decision making about intrusion is high, so decision making is performed locally. The nodes which perform the decision making about intrusion based on data from monitoring nodes are called decision nodes. Decision nodes are selected by GBR based on the current energy level and RPL topology. The GBR selects

the one of common preferred parent of each set monitoring nodes as decision node. Sometimes a node can be both monitoring node for its parent and decision node for its child nodes. Algorithm 4 is used for selecting the decision node. The monitoring nodes and decision nodes are treated as regular sensor node by the next level nodes of RPL topology and monitored for any malicious activity. After the selection of monitoring nodes and decision nodes it is updated to the sensor nodes by GBR. A sensor nodes which receives this information activates its IDS to monitor or to make decision about intrusion.

Algorithm 3:

Decision Node Selection(DODAG topology)

```

Require: RPL Topology
For each node j in Monitor
    n = minimum occurred node in (preferredparent(j)  $\neq$  preferredparent(j-1))
    If Energy(n) > Energy_Threshold
        Decision = n
    End if
End for
    
```

B. Alert Generation by Monitoring Nodes

A detection window of size w units is used in FAIDS for performing monitoring and decision making. The IDS agent in monitoring node, observes the overheard packets for w period. If it identifies any abnormal behavior, it sends alert message to its decision nodes. The IDS agent in the monitoring node generates alert message if the observed security parameter value crosses the threshold criterion. This process is given in Algorithm 4. The process is repeated for every window of size w . The overall working of FAIDS is shown in Fig. 3, where MN are monitoring nodes and DN are Decision nodes.

Algorithm 4:Alert Generation(node)

```

While( window w)
    If (security parameter < threshold)
        Drop (packet)
        Create (security alert)
        Send (security alert to decision node)
    Else
        Forward (packet)
    End while
    
```

C. Attack Detection by Decision Nodes

The IDS agent in the decision nodes after receiving alert message it decides about the intrusion and sends its decision to GBR for RPL topology updating. If more than half of the monitoring nodes have raised an alert, then the parent node is considered to have abnormal behavior and IDS agent declare it as malicious node. The procedure for attack detection is given in Algorithm 5.

When the IDS agent in the monitoring node ascertains the abnormal activity it will issue alert message to the decision nodes. The IDS agent in the decision nodes makes the final decision associated with



the abnormal behavior of the parent based on alert messages received from the monitoring nodes and send its decision on attack to the GBR for topology updating. The IDS agent in the monitoring nodes at the leaf level of the RPL DODAG tree not only monitors its parent but also its siblings. When an abnormal activity of sibling node is determined, it will send the alert message to its decision node. Similar process to non-leaf nodes, the decision about alert is performed.

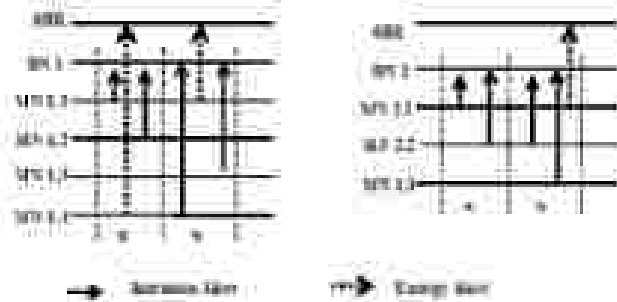


Fig. 3. Alert generation process
 Algorithm 3: Attack_Detection(node)

```

    While window w
        If Alert messages are from more than half of the
        monitoring nodes then
            Send attack_message to GBR
        Else
            Drop(Alert)
        End If
    End while
    
```

D. Energy Adaptation

The proposed IDS is energy adaptive in detecting the attacks. The difference in the stored harvested energy and energy consumed at any instance of time should be always greater than the specified threshold α . If it falls below the threshold then energy alert is generated by that node and sent to the GBR. If the energy alert is generated from the monitoring or decision node then GBR stops that node to perform monitoring or decision activities and selects new monitoring and decision nodes based on RPL DODAG topology. The equation (1) measures the energy of the node at any instance of time where E_h is the harvested energy and E_c is the consumed energy.

$$Energy(node) = \int_0^t E_h - E_c (dt) \quad (1)$$

The energy of a node $Energy(node)$ should be always greater than the Energy_Threshold α else energy alert will be sent to GBR and the node will initiate energy harvesting process.

$$Energy(node) > \alpha \quad (2)$$

E. Selective Forwarding Attack

6LoWPAN is a multi-hop network that forwards data through the participating nodes. These participating nodes

may selectively reject certain data [9] reaching the destination. The proposed IDS can efficiently detect such attack. In the proposed IDS, the IDS agent in the monitoring nodes observes the packet dropping rate of its parents to detect this attack. Let $PD(X_i)$ be the packet dropping rate of node i detected by the monitoring node j during the window w . Let β be threshold assigned for packet dropping rate of a node. The monitoring node j sends alert message to its decision node when $PD(X_i) > \beta$. When the IDS agent in the decision nodes receives some alert message from more than half of its monitoring nodes about the node i , then the decision node concludes that node i is malicious node. This decision is conveyed to GBR, to remove the node i from DODAG and to reconstruct the DODAG topology. This mechanism can also be used to detect the black hole and worm hole attacks by assigning appropriate thresholds.

F. Version Number Attack

Node disconnection is more frequent in 6LoWPAN due to worst link state or lack of battery power. To handle the disconnection, RPL contains local and global repair mechanism. Local repair use the temporary route through neighbor nodes with same rank or select next preferred parent where as in global repair mechanism, the entire DODAG is rebuilt. The global repair involves more control messages in DODAG construction which in turn incurs more energy and network resources. Malicious node introduces the version number included in the control messages sent by its parents. When these control messages propagated into the network leads to forced rebuild of RPL DODAG topology which results in largest energy depletion. The monitoring node verifies the DODAG version number of each control packet that is received and forwarded by its parent. If there is any change in version number it generates alert to the decision node. When a decision node receives such a alert it immediately sends the attack message to GBR, to remove malicious node from the RPL Topology.

VI. SIMULATION AND ANALYSIS

The experiments are performed in Cooja [15] simulator which uses Contiki operating system. Cooja simulator does not have energy harvesting sensor model hence a simple energy harvesting sensor model is designed using the Tinote Sky sensor nodes. Unit Disk Graph Medium, the Cooja's default lossy radio model is used for transmission. GBR is not a constrained node and it can be PC or equivalent, however currently there exist no PC equivalent IoT IIS-4 services, therefore we run the GBR natively i.e. on Linux. Five different configurations are used with 16, 24, 32, 40, 48 nodes. Fig 4 shows the simple configuration with 32 nodes. The GBR selects the monitoring and decision nodes for each configuration. Each experiment is performed 10 times, the mean and standard deviation for each measured value is calculated to maintain the accuracy of the result. Cooja does not have energy harvesting sensor model, so to simulate 6LoWPAN with energy harvesting sensors, a simple energy harvesting sensor model is developed for Tinote Sky nodes. The initial battery level of the node is assigned 300mAh.



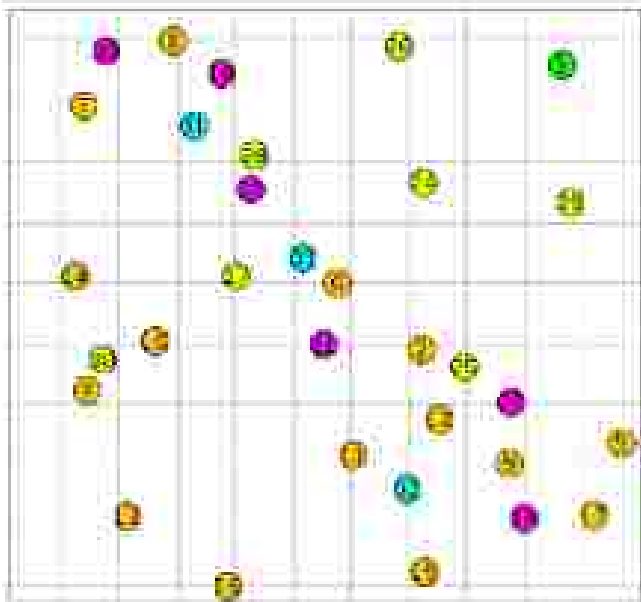


Fig. 4. Sample node configuration

The energy harvesting of a node is performed in parallel along with its regular operation. The energy harvesting is initiated when the energy level of the node reaches the threshold of 150mAh. When energy harvesting is initiated, the energy level of the node is increased linearly to 300mAh and stops the energy harvesting process. There is also energy consumption during energy harvesting process which is taken into account to for energy harvesting and it is deducted from the harvested energy.

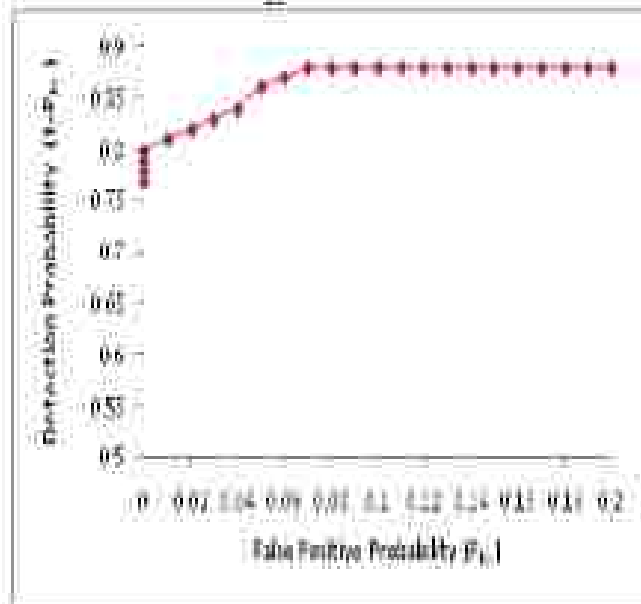


Fig. 5. Detection Probability vs False Positive probability. The proposed IDS efficiently detect the selective forwarding attack. Receiver Operating Characteristic (ROC) curve is used to measure the performance of the proposed IDS. The detection probability is (1- False Negative probability) can be obtained from the ROC with varying false positive probability. The Fig 5 shows ROC of the proposed method, which shows that, as false positive probability increases, the detection probability increases. When the false positive probability reaches zero still the detection probability is high in the proposed method.

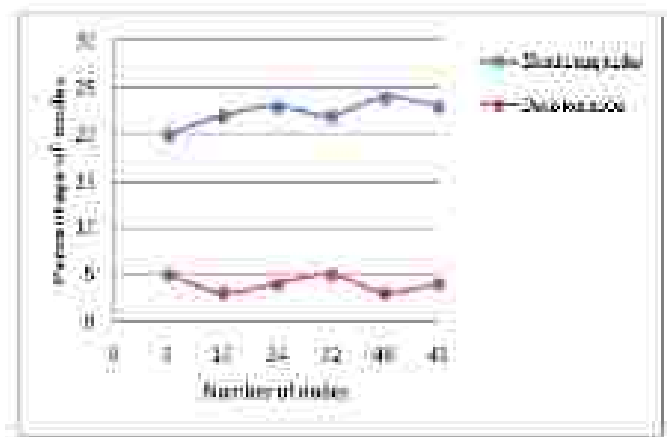


Fig. 6. Percentage of monitoring and decision nodes. The Fig 6 shows the percentage of monitoring and decision nodes selected by the proposed intrusion detection method. The energy consumed by Insecure node is calculated using equation (3). To measure the energy consumption by the node Centriki Powertraces [26] application is used.

$$E_n = [\text{Transmit} * \text{Current Consumption: MCU on, Radio TX} + \text{Listen} * \text{Current Consumption: MCU on, Radio RX} + \text{CPU} * \text{Current Consumption: MCU on, Radio off} + \text{LPM} * \text{Current Consumption: MCU off, Radio off}] * \text{Voltage} * 4296 * t \quad (3)$$

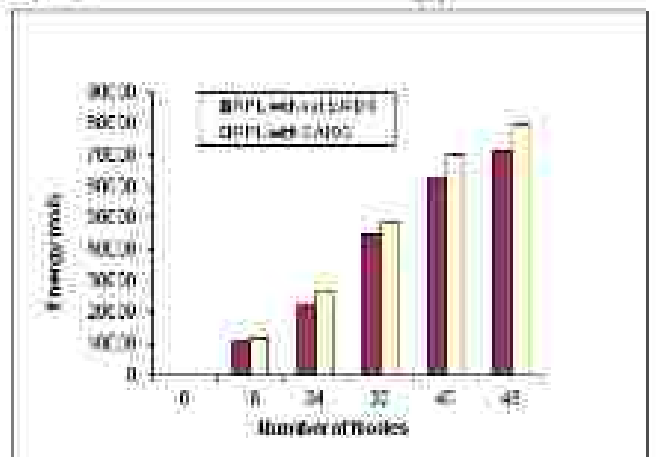


Fig. 7. Energy usage of the network. The Fig 7 shows the network wide energy usage for 10 minutes and Fig 8 shows the energy consumption per node. The results depicts that the proposed EPLS consumes lesser energy in addition to regular RPL mechanism.

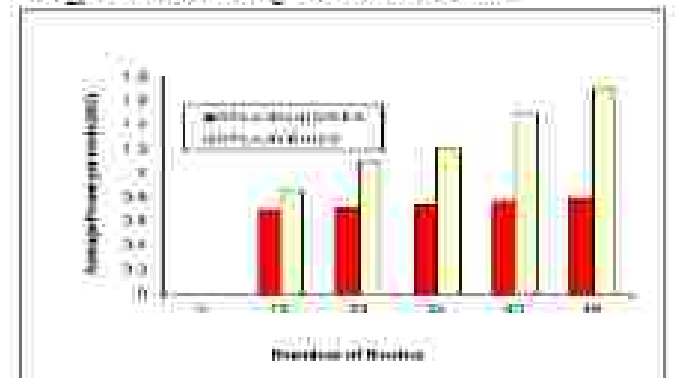


Fig. 8. Average Power consumption

VII. CONCLUSION

The impact of the well-known attacks of conventional WSN increases in energy harvesting WSN. Therefore, the proposed Energy adaptive intrusion detection system for energy harvesting dLWPN based IoT is a Decentralized system which detects attack locally considering the energy scavenging characteristics of the sensors. The Decentralized nature of the proposed system detects attack faster than the centralized system.

The future research is to extend this system to detect more potential attacks that are emerging from Internet of Things. It is also necessary to build a test bed to validate the results of simulation and to increase the performance by tuning the functionalities of the proposed framework.

REFERENCES

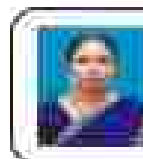
1. Misraoui, D., Guez, S., De Pellegrini, P. and Chetoui, L., 2012. Internet of Things: Vision, applications and research. *Handbook of the Networks*, 1873, pp.1477-1514.
2. Liu, B. and Walker, S., 2012. Spectrum Challenges in commercial design for pervasive computing systems. In *Proceedings of the 10th annual international conference on Mobile computing and networking*, 24-27, ACM.
3. Pflister, S. and Bostrom, H., eds., 2009. *Energy harvesting technologies* (VPL 21). New York: Springer.
4. Lu, A., Liu, L., Lu, H., N. Adak, M. and Liu, Y., 2012. dLWPN: a study on QoS security issues and communication energy balance detection system approach. *International Journal of Communication Systems*, 2012, pp.1119-1122.
5. De Marco, S., Pignatelli, M., Vigna, S. and Deegan, N., 2012. Taming a Threat: Models for Energy-Harvesting Wireless Sensor Networks. In *International Digital Technology* (pp. 241-261). Springer: Berlin Heidelberg.
6. Maffei, F. and Baccarelli, C., 2011. dLWPN: The wireless-enabled network (VLC 41). *Acad. Press* & Elsevier.
7. Dushkate, A., Choudhary, H. and Vajpey, T., 2014. Network-Centric, lightweight and flexible systems for any sensorized network. In *Local Computer Networks 2014, 20th Annual IEEE International Conference on*, 62-69, IEEE.
8. Hui, J.W., 2012. The energy problem for low-power and long networks. *IEEE Computer*, to appear, to appear, to appear, to appear, to appear.
9. Kwon, S., Zeng, L., Wang, Y., Wang, Y. and Brady, U., 2013. Security considerations in dLWPN: an integrated, three-layered, computing in sensor networks and networks. *ICONS*, 2013 International Conference on, 1-6, IEEE.
10. Karamcheti, T. and Liu, James, L., 2014. Security protocols and privacy issues in the Internet of Things. *Journal of Internet of Things*, 1(2), pp.142-148.
11. Vaidya, K.R., 2010. Internet of Things: New security and privacy challenges. *Computer Law & Security Review*, 26(1), pp.23-36.
12. Schachler, C.M. and Schmitt, A., 2010. An overview of privacy and security issues in the Internet of Things. In *The Internet of Things*, pp. 185-200, Springer: New York.
13. Karamcheti, T., Chen, J. and Li, J., 2014. On the design and challenges of security and privacy in distributed Internet of Things. *Computer Networks*, 77(16), pp.2204-2226.
14. Gollm, J., Bauer, S., Wattenig, S. and Pausmann, H., 2013. Internet of Things (IoT): A novel, ubiquitous ecosystem and some questions. *Vision: German Computer Science*, 2(7), pp.1447-1460.
15. Prange, P. and Chetoui, L., 2012. Security: A better Alternative for dLWPN in IoT. In *Future Computing (FC) 2012 International Conference on* (pp. 1-6), IEEE.
16. Hassan, B., Hillis, J., Wang, H., Hwang, M., Shalun, H. and Mulya, K., 2013. An IoT dLWPN: Distributed attacks and mitigation mechanisms. *Proceedings of the 10th ACM conference on Security and privacy in wireless and mobile networks* (pp. 17-21). ACM.
17. Anon, M.E., Gilligan, M.A., Hong, T.A. and Liu, S., 2010. dLWPN: A secure intrusion detection system for IP-based wireless sensor networks. *Sensors*, 10(3), pp.2447-2460.
18. Karamcheti, T., Pothuri, C., Gupta, H.A. and Vaidya, K., 2013. Online, Distributed Intrusion Detection in dLWPN based Internet of Things. In 2013 IEEE 10th International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), pp. 688-693, IEEE.

19. Kwon, S., Williams, L. and Wang, Y., 2011. dLWPN: Real-time intrusion detection in the Internet of Things. *Ad Hoc Networks*, 11(8), pp.2047-2058.
20. Prange, P. and Chetoui, L., 2013. Real Time Intrusion and Malware Attack Detection in Internet of Things. *International Journal of Computer Applications*, 11(17).
21. Lu, A., Liu, L., Liu, Y. and Lu, H., 2013. Efficient Speculation-based IPS for wireless WSN. *Ad Hoc Networks*, 11(1), pp.1-10.
22. Karamcheti, T. and Gupta, H., 2012. Security: Efficient intrusion detection using multiple sensors in a network of low networks. In *Security Systems, 2012. Proceedings of the 10th Annual Network International Conference on*, pp. 1-6, IEEE.
23. Hwang, S.A. and Lee, W., 2011. Detection of compromised intrusion detection system for wireless networks. In *Proceedings of the 10th ACM workshop on Security of distributed systems* (pp. 121-131). ACM.
24. Kwon, S., Wang, H., Wang, Y., Wang, Y., Lu, C.H., Wang, C.Y. and Brown, T., 2010. Attack: A general, adaptive intrusion detection mechanism for WSNs. In *International Journal of Computer Applications*, 27(7), pp. 2019.
25. Choudhary, H., Choudhary, A., Dushkate, A., Dushkate, H., Dushkate, M., Dushkate, P., and Dushkate, V., 2014. Real-time intrusion detection with deep learning. In *Local Computer Networks Proceedings 2014, 20th IEEE Conference on*, pp. 641-644, IEEE, 2014.
26. Dushkate, A., Karamcheti, T., Kwon, S. and Tuller, N., 2013. Intrusion, Network and power profiling for long-term wireless networks.

AUTHORS PROFILE



Dr.S.Prabhavathy, received the Ph.D. degree in Computer Science and Engineering from Anna University, India. Her research interests include Internet of Things, Fog Computing and Wireless Sensor Networks.



Dr.S.Prabhavathy, received the Ph.D. degree in Computer Science and Engineering from Anna University, India. Her research interests include Internet of Things, Fog Computing and Wireless Sensor Networks.



Privacy Preserving for Cloudlet based Healthcare Data Using NTRU and Bloom Filter

Chadive spandana

M.Tech, CNIS

G. Narayanamma institute of technology
& science, Hyderabad, India.

M.Bhavani

Assistant professor

G. Narayanamma institute
Of technology & science,
Hyderabad, India.

ABSTRACT—Healthcare social platform, together with Patients Like Me, can achieve data from other similar patients through data sharing in phrases of person's own findings. Though sharing scientific data on the social community is useful to both sufferers and doctors, the sensitive records is probably leaked or stolen, which raises privacy and security issues without efficient protection for the shared data. In this paper, I increase a novel healthcare system through utilizing the controls of cloudlet along with utilize Bloom filter hash intended for protection. The purpose of cloudlet consist of confidentiality, defense, information distribution & intrusion detection. The information build up through wearable gadget be transmit toward cloudlet. That information is within adding in the direction of the distant cloud in which medical doctors is able to acquire the accuracy of access to illness study.

Keyword—Cloudlet, Data Collection, Intrusion Detection.

I. INTRODUCTION

Cloud computing be a rising essential expertise intended for copy through scientific healthcare information. Through the growing demands on health consultation, it is challenging disputer toward mobility exchange healthcare information intended for various consumers within a convenient fashion[1, 3]. Though the obtainable mechanism present safety of information through resources of warding medible interruption [2], it is covering in supply information confidentiality. Because healthcare information be to use keen on deliberation in the direction of be the mainly responsive in requests, it desire a strong confidentiality even as distribution information stick between consumers. although distribution scientific in sequence be beneficial to both patients and medical doctors, the sensitive statistics might be leaked or stolen, which raises privacy and protection issues without efficient safety for the shared information. Therefore, a way to balance privacy protection with the ease of medical records sharing becomes a tough trouble.

At the point in time of import of personal health care information inside the cloud the administrator of information would be the physical handle in addition [4] it be capable toward be hack through the help of attacker. Therefore the supply the protection be a huge problem still as distribution individual health care information within cloud environment. This might be solve by resources of the make use of encryption method resting on the point in time of records sharing[5] so one can growth the confidentiality of the records in addition to records safety within the third party storage server. By making use of several encryption techniques consumer can keep the statistics on cloud without disturbing approximately the security.

This clinical statistics on the social community is useful to both patients and doctors, the sensitive information might be leaked or stolen, which causes privacy and safety problems without efficient safety for the shared data. MPOS (multi-keyword rank look for over encrypted data in cloud computing) [3] privacy safety gadget because protected, which aims to provide customers with a multi-keyword technique for the cloud's encrypted instances. Although this approach can provide result rating, whereas people are fascinated, the amount of calculation may be bulky. A priority base health data aggregation (PHDA) scheme turned into provided to shield combination intricate forms of healthcare data in cloud based wireless body area networks (WBANs)[4]. The article investigate privacy and protection problems in cell healthcare networks, along with the privacy safety for healthcare information aggregation, the security for instance processing and misbehavior. Here I describe a flexible protection model particularly for statistics centric programs in cloud computing based totally state of affairs to make certain data confidentiality, information integrity direct granted access manage to the software statistics.

With the advances in cloud computing, a huge quantity of data can be stored in diverse clouds, consisting of cloudlets and faraway clouds, facilitating data sharing in depth computations. However, cloud-based totally data sharing includes the following essential issues: How to protect the security of consumer's body records throughout its shipping to a cloudlet? How to access the records sharing in cloudlet will now not cause privacy trouble? at the same time as be able to be predictable, through the proliferation of digital clinical records (EMR/Medical-assisted packages, more and more attentions should be paid to the security problems regarding to a far off cloud containing healthcare huge data. How to relax the healthcare legal statistics saved in a far off cloud?

2 RELATED WORK

Cloud-Supported Cyber-Physical Localization (CCPLS)[6] represent by means of the assist of M Shamin, Hossain, Kir's miles a unexpectedly evolving techniques to affected person tracking and feature many interesting opportunities in regards to verbal exchange (localization), computation[6]. The design and improvement of such systems requires access to full-size sensor user contextual records which might be stored in our on-line world. Ensuring dependable and real-time acquire accurate of access to such information once in a while hindered by way of the excessive latencies of extensive-region networks underlying the CCPLS infrastructure. To recognize those characteristics of localization structures, the workload have to be measured by way of deploying proposed localization approach over public cloud offerings along with Amazon's EC2 platform. Some of the workloads are measured.

In the paper Privacy Protection and Intrusion Avoidance for Cloudlet primarily based Medical Data Sharing [1] build up a singular healthcare machine through utilizing the capability of cloudlet. The features of cloudlet encompass privacy protection, facts sharing & interruption recognition [7]. Within in sequence gathering make use of Nimbus Theory Research Unit (NTRU)[8] move toward to encrypt consumer's body data gather via wearable gadget. Those records might be sent toward close by cloudlet within a power well-organized method. Then gift a new concept as true with model to assist customers to pick unusable partners who need to exchange stored records within the cloudlet. The true version additionally enables equal patients to communicate with every other approximately their illnesses. divide team clinical facts saved in remote cloud of hospital into 3 parts supply them proper protection. Finally, with a view to guard the healthcare gadget as of malicious attacks, plan a extraordinary joint intrusion detection [7] system (IDS) method rely on top of cloudlet lattice, so as to might efficiently avoid the disaster healthcare big information cloud from assaults.

In the paper a Secure and Privacy Preserving Opportunistic Computing Framework for Mobile Health Care Emergency[4] proposed in wireless body sensor networks (WBAN), mobile Healthcare (m-Healthcare), which spread the process of Healthcare issue into a pervasive surroundings intended for enhanced physical condition monitor. They advise a secure and privacy-retaining opportunistic computing framework, referred to as SPOC, for Healthcare emergency. The SPOC, clever telephone wealth along with computing power may be opportunistically gather to method the computing extensive private Emer records (PHI) for the duration of Healthcare emergency with minimum privacy disclosure. In an well-organized consumer centric confidentiality obtain access to handle in SPOC

framework, which be initially base resting on an attribute-base completely acquire right of entry to manage new privacy-retain scalar creation calculation (PPSPC) technique. Follow a technical one to come up to a choice who be able to participate inside the opportunistic computing to assist within hand not during his overwhelming PHI facts. I have additionally verified the proposed SPDC framework can stability the highly depth PHI procedure and transmission maintaining the PHI primary disclosure in m-Healthcare emergency.

In the paper A Privacy Enhanced Search Approach for Cloud-Based Medical Data-sharing [5] this paper proposes a privacy stronger search approach intended for cloud-primarily base technical information sharing. The proposed manner apparatus a hybrid search method, in which the quest process is carried out throughout plaintext and cipher text. The stepped forward obtain entrance in the direction of handle can make sure the confidentiality protection of cloud information. The statistics recipient utilizes the proposed approach to recognize the report-level clinical data obtain permission to access, to find out individual or else a team of concerned EMRs inside the collective scientific dataset. As symmetric encryption algorithms be larger well-organized than algorithms, within my execution, a combination of every individual use. The in sequence is encrypted using competent symmetric key cryptography. This key within turn over encrypted by means of the recipient public-key, consequently to it is capable to for the most part efficient be used by the authorized user throughout the records owner. This way the advantages of both algorithms can be used.

3. FRAMEWORK

A. Overview of Proposed System



Fig1. System Architecture

From the fig1, I describe about the proposed framework. The client's physiological data are first collect through wearable procedure such as smart clothing. In the proposed system, the body data gathered by means of wearable plans be transmit to the Cloud by cloudlet. These statistics be with in accumulation added to the far cloud where doctors can get commands to for disease analysis. According to records release sequence, we divide the confidentiality safety into 3 stages. In the primary stage, person's crucial signs collected by means of wearable gadgets be deliver in the direction of a closest entry of cloudlet. Through this level, records privacy is the principle subject. In the second level, person's records might be similarly delivered closer to far-off cloud via cloudlet. A cloudlet is produced by way of a positive quantity of mobile gadgets whose owners may also require and/or share some particular records contacts. Thus, both privacy safety & statistics sharing are considered on this degree. Especially, I use consider version to assess trust stage among users to decide sharing statistics or new not. Considering the customer's scientific facts are stored in faraway cloud, I classify these medical statistics into specific types take the corresponding security policy. In addition to above three tiers based totally information privacy-protection, I additionally keep in mind collaborative IDS based totally on cloudlet mesh to guard the cloud environment.

B. Consent Sharing & Privacy Protection

First, I introduce the encryption system for user's privacy statistics, which prevents the leakage or malicious use of customer's non-public data for the duration of transmissions. Next, I present the identification management of customers who want to get right of entry to the health facility's healthcare statistics. Then, I can assign one of a kind customers with exceptional ranges of permissions for information get right of entry to, at the same time as avoiding statistics get right of entry to beyond their permission degree. Finally, we give an estimate of the use of customer's non-public data, that's beneficial to both users and doctors. Based at the healthcare big data stored inside the far-flung cloud, a disease predictive model is constructed based on choice-tee. The predictions will be suggested to the users and medical doctors on call for.

C. Collaborative Intrusion Detection

In order to defend medical records, I also increase an intrusion [5][9] detection device on this paper. This paper presents a singular scheme to construct a collaborative IDS machine to discourage intruders. In the subsequent, I first remember what occur but the gauge be besieged through amazing attacks. What detection expenses intended for quality IDS variety by means of the cloudlet servers.

D. Bloom Filter

Bloom Filters have a robust area benefit over additional systems for representing sets [11], consisting of self-balancing binary search trees, hash tables, or simple arrays or linked lists of the entries. It is a space-efficient based totally data form- this is probabilistic without environment. Initially, this technique changed into used when the amount of facts for use was impractically big.

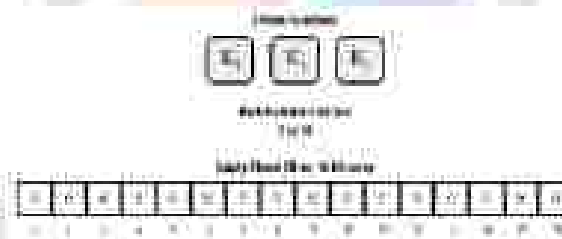


Fig2. Bloom filter example

Bloom clear set is a probabilistic records shape which tells us that the given query key-word is both genuinely now not inside the set or can be in the set. The base data structure of a Bloom filter is a Bit vector[11]. Each empty mobile in that desk represents a chunk and the quantity under it its index. To add a word to the Bloom filter, we without a doubt hash it some instances and set the bits within the bit vector at the index of those hashes to one. When a question keyword is fired through the person we actually hash the string with the same hash function see if those values are set within the bit vector. If those bits aren't set I can sincerely say that element aren't inside the set.

4. EXPERIMENTAL RESULTS

In my experiment, I have to add some patients in the application by using registration process. After adding the users, I have to run the cloudlet simulation [2].

In this simulation I will get that many patients as I add at the remote cloud server. When I start the simulation, then sensor starts sending data to nearest cloudlet& can stop sending data to cloud let if it required.

Next, after sending data to the sensor, I can view the similar diseases patients and also can view the doctor shared data. But, here the data displayed in the form of encryption.

Here, the patients can login and they can access their data and these patient's data will be saved in the database of the proposed application. In the data base also data will be encrypted.



I can see the different operations done by the remote cloud server.



I observed that the user reputation graph to generate graph of total no of patients versus no of patients with similar disease.

5. CONCLUSION

In this paper, I evolved a device which does no longer permit users to transmit information to the far off cloud in attention of secure collection of facts, as well as low communication cost. However, it does permit customers to transmit records to a cloudlet, which triggers the facts sharing problem in the cloudlet. Firstly, we will utilize wearable gadgets to acquire user's statistics. Secondly, for the reason of sharing records inside the cloudlet, I use believe model to measure customer's consider level to choose whether to share personal information or not. Thirdly, for privacy-maintaining of far off cloud records, I partition the records stored within the faraway cloud & encrypt the statistics in one of a kind methods. If I want to note just make sure facts protection but additionally accustoms the efficiency of transmission and to increase the efficiency we also generating a Bloom filter hash code. Finally, I advocate collaborative IDS based on cloudlet mesh to defend the complete system.

REFERENCES:

- [1] Min Chen, Yongfang Qian, Jing Chen, Kai Huang, Shiwu Mao&Long Ha. "Privacy Protection&Intuitive Avoidance for Cloud-based Medical Data Sharing", DOI 10.1109/TCO.2016.1611932, IEEE Transactions on Cloud Computing
- [2] K. Hong, Y. Zhang, and B. Tui, "Wearable medical devices for tele-home healthcare," in Engineering in Medicine and Biology Society, 2004 IEMBS'04. 26th Annual International Conference of the IEEE, vol. 2 IEEE, 2004, pp. 5384-5387.
- [3] NingDuoCang Wang, , Ming Li, KaiRen,&Wenjing Liu." Privacy-Preserving Multi Keyword Ranked Search over Encrypted Cloud Data", IEEE transactions on parallel&distributed systems, vol. 25, no. 1, January 2014.
- [4] Rongqing Lu, Xiaodong Lin and Xuejun (Sherman) Shen, "SPOC: A Secure&Privacy-preserving Opportunistic Computing Framework for Mobile-Healthcare Emergency", IEEE transactions on parallel&distributed systems, vol. xx, 2012.
- [5] Lu Liu, Jingchao Sun, Jianqiang Li, Feog Li, Jun Li, Xi Meng, Huiyang Li&Jingqiang Yang." A Privacy Enhanced Search Approach for Cloud-Based Medical Data Sharing", Research Institute of Information Technology, 2015 IEEE International Conference on Smart City-SocialCom-SustainCom together with DataCom 2015.
- [6] M. ShamimRovida, "Cloud-Supported Cyber-Physical Localization Framework for Patients Monitoring", Article in IEEE Systems Journal - September 2015.
- [7] H. Mahamed, I. Awi, T. Saada,&M. Hicham, "A collaborative intrusion detection&prevention system in cloud computing," in AFRICON, 2013 IEEE, 2013, pp. 1-5.
- [8] Y. Shi, S. Akhliash,&K. Huang, "Cloudlet mesh for securing mobile clouds from intrusion&network attacks," in The Third IEEE International Conference on Mobile Cloud Computing, Services &Engineering (Mobile Cloud 2015), IEEE, 2015.
- [9] E. Venilomaneikala, S. Karuppiah, M. Mahalingam, &M. Fischer, "Taxonomy&survey of collaborative intrusion detection," ACM Computing Surveys (CSUR), vol. 47, no. 4, p. 55, 2015.
- [10] P.K.Rajendran, B. Muthukumar &O. Nagarajan, "Hybrid intrusion detection system for private cloud: a systematic approach," Procedia Computer Science, vol. 48, pp. 315-329, 2015.
- [11] One-hashing bloom filter, 2015 IEEE 13th International Symposium on Quality of Service (IWQoS).

Biography:

M. Bharani currently working as Assistant professor in information Technology at Gannarayanana institute of technology and science. She has 9 years of experience. She has pursued B.TECH from jayamukhi institute of technology and science in 2006 and M.Tech from Jntu School of information and technology in 2010.

Chaitra Spandana was born in telangana, India in the year 1994. She is pursuing her M.Tech in computer networks and information security from Gannarayanana institute of technology and science for women, Hyderabad, India. She had completed B.Tech in 2017 in sirubudra institute of engineering and technology, Hyderabad, India.

Efficient Computation and Communication Overhead Reduction of IoT using Edge Server

M.Ramitha Chrysalis

M. Tech, CNIS

G. Narayanaamma Institute of Technology
and Science, Hyderabad

M.Deepthi

Assistant Professor

G. Narayanaamma Institute of Technology
and Science, Hyderabad

ABSTRACT— When the IoT smart gadgets quantity increase sequence through additional devices, potential security troubles stand up such as information leakage, modification, integrity, and unauthorized admittance. Therefore, it's necessary for collective information to ensure privacy, reliability, moreover obtain accurate access to influence distribution at the threshold. Intended for increase in sequence security, the significant security leaning dispensation that include encryption, decryption, which acquire admittance towards control mechanism can be treated through resources from the person's gadget. Here IoT, the aid-contained smart devices can't hold individual operating of extensive calculations for the reason where the safety-oriented operations will multiply the intense computational burden. We support a light-weight cryptographic method that IoT smart gadgets be able to proportion in sequence through others at the threshold of cloud-assisted IoT. Where every safety-oriented operation can be off-load to nearby aspect servers. Moreover, even though to start on through its acknowledging on information-sharing safety, we also ensure an information-looking method to look for desired information/shared information by using legal ways as storage where all statistics are in encrypted appearance.

Keywords: Cloud Computing, IoT, Integrity, Encryption, light weight cryptographic scheme, Edge server

1. INTRODUCTION

Internet of Things (IoT) is an extensive worldwide where evolution is quick along the manufacturing done within the regime of cutting-edge distant media discussion. IoT is a universal association that unites community, proceeding, events which occur in the direction of accumulate network associations which are relevant and helpful than forever being.



Fig1. Example of Edge Cloud Computing Complimentary Role in IoT Environment

Edge Computing is ahead standing on this per'pective because of information IoT is retaining keep due to usual dispensation proceedings resting on the edge of network. Given the intention of information without turning it formed at the edge of network, commence with this in sequence at the edge of the network would be efficient.

Several techniques, together by means of cloudlet, fog computing, along with mobile environment computing (MEC), present promising solution in the direction of cloud computing in the direction of reduce facts dispersion at the association stem. Here continue, edge computing be a preferred phrase that represent fog computing, MEC, cloudlets, as well as micro clouds. Storage space, compute, more power seem to be on the edge of network on the way to boost availability, decrease latency, furthermore in the concluding overcome cloud computing difficulty. Edge compute enable the dispersion of delay sensitive along with bandwidth-hungry in order to provide application close up. The cutting-edge generation of IoT massive information program combine additional than one balanced facts analysis fashion, unique facts repositories in addition to real-time statistics stream which can be credible to be accessible all over physically allotted datacenter. For example, in a clever supply chain management IoT application, advanced analytics affords the next frontier of supply chain innovation.

Recently, IoT idea has captured imaginations inside authorities and trade, as a technology is able to cause vast boom. However, structures aiming at this wider vision are of their infancy. Sensor-actuator-based system has been sophisticated in parallel of the IoT visualization of open facts distribution. It will be critical for the security, time slice as well as confidential protection danger arise after to get permission to proceedings, precedent-structures, evaluate as well as address. IoT almost certainly cover a enormous diversity of application, collectively among elegant residence structure, smart avenue lights equipment, with novel overcrowding discovery to deal with, noise monitor, city-sensitive waste managing, real time autonomous network plus intelligent transportation structures. At the entity stage, non-public strength is added where existence track is individually incorporated through normal healthcare services. Such application scenarios have a tendency to be sensor-actuator-based are evolved. In difference, the IoT attitude be the wide-scale incorporation of potential production, correspondence, servers, so forth, advance to sensors-actuators. The data that is a collection of dissimilar source requires various

capacity applications that evolves with broad deployment moreover enormous accessibility within the littler.

1. RELATED WORK

Najmul Haseen et Al investigated, highlighted, and pronounced latest most appropriate advances in the aspect of compute technology with admiration towards measure of consequence on IoT. After that, the confidential farms compute text through dense classification, which turns out to be used to discover the top class function that may be helpful to the IoT prototype. They outline a small number of key requirements intended for consumption of partial computation in IoT with necessary eventualities of surface computing. In addition, various releases study challenges to the winning operation of side computing in IoT, to be documented and finally discussed.

Saurabh Singh, Pradyip Kumar Sharma, Seo Yeon Moon and Jung Hyuk Park contain excess of disappeared constraint light-weight cryptographic algorithms. Many helpful strategies take out successful computation within an IoT environment. These gadgets are controlled by means of orientation to reminiscence, series existence, electrical energy ingestion, plus computation. IoT campaign countenance the difficult situation of defence and confidentiality at the same time as well as the complexity of how to maintain trust among IoT customers. Furthermore, They summarize one of type of lightweight cryptographic designs which is smooth to utilize intended for hardware along with software program implementations. Various cryptographic algorithms are liable to a small number of attacks. It is essential to develop additionally bonded light-weight encryption algorithms which contain a less significant key size, rapid dispersion, and require much less computational strength. They proposed a scheme that may be carried out in the smart home surroundings. They also mentioned open troubles in term of cipher shape, implementation, block length, key size, new attacks, and protection metrics.

L. Wang and P. Ranjan projected the Edge-Fog cloud, a decentralized cloud description intended to cope through calculations for the most part, high amounts of

distributable facts collectively by means of generated IoT. This version is built resting on the current Edge with Fog cloud approach affordable statistics possibility that keep a central processing. They also complete an exclusive responsibility allocation mechanism for Edge-Fog cloud which noticeably reduce the use of occasion with no sacrifice connected charge to be compared to a related strategy. Additionally, they talk to various questions which may affect the real-world accomplishment of Edge-Fog cloud.

3. FRAMEWORK

A. Overview of the Proposed System

Initial, we suggest a protected data distribution method on the edging of cloud associated IoT elegant gadget as to create make use of together security key encrypted along with public key encryption. In this system, all safety operation be off-load by secure servers, in that way, considerably plummeting the dissemination load of elegant gadget.

Next, we propose a search plan towards the look preferred in order steadily through approach of authorized consumers within encrypted, save, collective facts within side cloud with no look keyword, top secret key, as well as data, thus lower together working out in the clouds at a few stage in look for plus data recovery. After that, we exhibit the authentication scheme of the collective facts along with facts re-possession subsequent to look. Hence, our planned systems attain the reliability of collective information as well as consequential sequence look.

B. Working Procedure of Proposed System

Our planned system consists of four part:

- 1) Key formation
- 2) Data in addition to key-words uploading
- 3) Data sharing along with downloading
- 4) Data searching as well as retrieval

Key Generation

Within the planned scheme, the edge servers produce two types of secret keys like the following:

- 1) 256 bit keys be at random generate
- 2) Two types of keys, Sec Key as well as E Sec Key

And these two (Sec Key and E Sec Key) keys are assigned that are used for data-sharing and -searching purposes, correspondingly. Through the record uploaded via the information proprietor elegant gadget, the edging server together generate top secret key in a different way as well as exclusively.

Data and Keywords Uploading

The information owner primarily put the username as well as code word on the key to login keys on a user facet server as an elegant tool. Later accumulate the order of the objective structure, the proceedings transfer the elegant tool in a secure direction through vicinity servers. With adding up, the information proprietor sends a few associated keywords of the information that organize several certified consumers be able to look for the report in addition to an arbitrary receiver of user which be legal to get admittance towards the facts. Before import we sequence a part of server to storage space, for data with its associated keywords are encrypted. Eventually, to assert documents reliability as well as encrypted information is signed.

Data Sharing & Downloading

When an authorized user needs to access the data, it requests the nearby edge server after the login using the username & password.

Data Searching & Retrieval

To search the required data on an encrypted data on cloud, the authorized user forwards the keyword to the edge server after login.

C. Cryptographic Mechanisms

Secret Key Encryption

In secret key encryption, the consumer devices first generate an arbitrary key. After that the proceedings are encrypted by means of the key as well as send the receiver towards machine. They make use of the identical key, the receiver mechanism will be able to pick up the proceedings of encrypted structure of documents through decrypting the same of the matching key. To protect the process ambiguity, the secret collective with communicate gadget make use of safe communique principal.

One-Way Hash Algorithms

After communicating, it's vital to affirm the information wasn't modified in any manner between the sender and receiver. This verification is called integrity checking. Generally, the integrity checking is executed via a hash characteristic. If a publicly recognised hash characteristic is applied to the information within a specific period, then the outcome is known as hash file of the information. However, this process is simplest one-way manner, corresponding data cannot get better from the hash price. The sender sends the records with its corresponding hash value. After receiving the data, the receiver examine the records integrity the same way, applying the hash feature to the obtained records. If both hash values are the identical, then the data shown is genuine.

4. EXPERIMENTAL RESULTS

Within this experimentation we encompass four elements named Cloud Server, Edge Server, Key generator as well as Smart Device. Through the elegant device application, users can register and they can login into the system. After login as registered user, he can upload the files into the cloud server and share the files.



The uploaded file will be stored in the cloud server and the keys will be generated by the key generator. Next, user can search the file on the cloud throughout the elegant device application.



The query related documents of the user may be available in the cloud server, after that its firmness of purpose shows the available documents to the client. The display consequences, consumer is able to download his preferred information. Lastly, we will be able to observe the time of encryption in the file encryption chart.

5. CONCLUSION

As a final point, we planned a data-sharing along with search method to commit along with look for sequence strongly through IoT smart devices on the edge about cloud-assisted IoT. We will be able to readily explore the information which capable of downloading the documents. Ultimately, we will be able to state that our planned structure achieved the instance effectiveness in file encryption which is prove within the experiment.

REFERENCES

Saurabh Singh, Pradip Kumar Sharma, Seo Yeon Moon and Jung Hyuk Park, "Advanced lightweight encryption

algorithms for IoT devices: survey, challenges and solutions", 2018.

L. Wang and E. Rangan, "Processing Distributed Internet of Things Data in Clouds," *IEEE Cloud Computing*, vol. 2, no. 1, 2013, pp. 78-80.

Najm Al-Hassan, Saad Gilani, Ezz Ahmed, Huzefa Yaqoob and Mohammad Imran, "The role of edge computing in Internet of Things", May 2018.

M. Sumanarajana, P. Brooker, Y. Xiao, P. Pillai, Z. Chen, X. He, "Edge Analytics in the IoT," *IEEE Pervasive Computing*, vol. 14, 2015, pp. 14-31.

S. Yi, Z. Han, Z. Qin, and Q. Li, "Fog Computing Platform and Applications," 2015 3rd IEEE Workshop for Topics Web Systems and Technologies (WebWeb), 2015, pp. 73-78.

J. Singh, T. Pasquin, J. Benoit, H. Ko, and D. Eyeris, "Twenty Security Considerations for CloudSupported IoT," *IEEE Internet of Things J.*, vol. 3, no. 3, 2016, pp. 289-294.

M. Ali, R. Dhamotharan, E. Kham, S. U. Khan, A.V. Vasilakos, K. Li, et al., "SeD&SC: Secure Data Sharing in Clouds," *IEEE Systems J.*, vol. 99, 2015, pp. 1-10.

S.-H. Seo, M. Nabeel, X. Ding, and S. Bertino, "An Efficient Certificateless Encryption for Secure Data Sharing in Public Clouds," *IEEE Trans. Knowledge and Data Engineering*, vol. 26, no. 9, 2014, pp. 2107-2119.

H. Kumara, I. Khalil, A. Alshabani, Z. Tari, and X. Yi, "Secure Data Analytics for CloudIntegrated Internet of Things Applications," *IEEE Cloud Computing*, vol. 3, no. 2, 2018, pp. 46-58.

J.B. Barmade, J.L.H. Patna, and A.P.S. Ghose, "TACIoT: Multidimensional Trust-Aware Access Control System for the IoT," *Soft Computing*, vol. 20, no. 5, 2016, pp. 1763-1779.

F. Li, Y. Renukumaran, M. Chen, and M. Fajaryan, "Robust Access Control Framework for Mobile Cloud

Computing Network," *Computer Communications*, vol. 89, 2015, pp. 61-72.

BIOGRAPHY

Rinita Chitrathi was born in AndhraPradesh India in the year 1996. She is pursuing her M.Tech in the department of Computer Network and Information Technology from G Narayanaswami Institute of Technology and Science for women, Hyderabad,India. She finished her bachelors from Sri Venkateswara College of Engineering Tirupati,India.

M. Deepthi currently working as an Assistant Professor in the department of Information Technology at G Narayanaswami Institute of Technology and Science for women. She pursued her B.Tech from SVS college of engineering in 2004. She finished her M.Tech in the year 2005 from JNTUH. She has got ten years of teaching experience.

A Framework for Securing User's Location in CRN's by developing LPDB and LPDBQS

Neha Nazmeen

M Tech, CNS

G. Narayanamma Institute of Technology
and Science, Hyderabad.

M. Sridevi

Assistant Professor

G. Narayanamma Institute of Technology
and Science, Hyderabad.

ABSTRACT— Cognitive radio networks (CRNs) become a promising answer for overcoming the lack along with ineffective make use of bandwidth sources by means of permitting secondary user (SUs) to get right of entry to the primary users' (PUs) channels so long as they do not intervene with them. Despite its significance, the location-privateness trouble in CRN's simplest recently won interest from the research network. Some works centered on addressing this difficulty in the context of collaborative spectrum sensing while others targeted on addressing it inside the context of dynamic spectrum auction. However, those works did no longer focused on the place privacy of the customers. within term paper, we suggest location-privateness-preserving schemes for database-pushed CRNs. The first scheme, location-privateness in database-driven CRNs (LPDB), provides finest place privateness to SUs within DB's coverage place by means of leveraging set club statistics structures (used to test whether or not an detail is a member of a hard and fast) to construct a compact version of DB. The second scheme, LPDB with servers (LPDBQS),

minimizes the overhead at SU's side at the fee of deploying an extra the network.

— Networking, Cognitive Radio Networks, Database, Data Structure

1. INTRODUCTION

Over the last decade, the ever growing spectrum demand for emerging wireless programs has inspired the concept of cognitive radio (CR) that is anticipated to improve the usage of the precious natural resource, radio spectrum. Different from the traditional spectrum control paradigms in which maximum of the spectrum is allocated to number one customers (PU) for distinctive use, a CR system lets in secondary customers (SU) or decrease-priority customers to make the most the unoccupied spectrum opportunistically. By reusing the waste spectrum of a few number one spectrum holders, CR might partially deal with the spectrum scarcity difficulty. A promising and incentive approach to re-distribute spectrum assets among PUs and SUs in CR network is dynamic spectrum public sale. Through auction, SUs could gain spectrum

admittance within a cost-powerful manner even as PUs would receive compensation from SUs as the praise of contributing their spectrum sources to others. Unlike different traditional auction schemes, dynamic spectrum public sale lets in the nicely-separated bidders to utilize the same channel simultaneously, denoted as spectrum reusability.



Fig1. Example Cognitive Radio Network

Within a distinctive cognitive radio operation, SU's expense on the way to PU depends on SU's complete procedure details, such as at what time as well as how extensive the certified scale have be utilize. PU desires this practice in order to compute otherwise validate the expense, other than comprehensive procedure in sequence be responsive toward SU as well as the discovery of this data might concession SU's confidentiality. So, defending PU's benefit in addition to preserve SU's confidentiality at the same time become extremely demanding in the direction of the finest of our awareness, not any of the existing effort have address this difficulty into cognitive radio communication. Within this term paper, we suggest a novel privacy-preserving mechanism designed for cognitive radio transactions. This mechanism not no more than preserves SU's privacy however as well protect PU's interests.

Within this method, PU simply know a small section of SU's responsive data during a bill phase by means of the consequence that SU's privacy be preserved. On the identical time, PU know the whole expense intended for a billing period along with, is certain that the expense be properly planned as well as PU's wellbeing be confined. This system employ assurance scheme along with zero-knowledge verification, by the conclusion of a billing period, SU commit all comprehensive procedure data in addition to the compensation intended for every consumption instance, as well as provide a zero-knowledge verification meant for every consumption occurrence that the payment be properly considered. These commitment along with proof, all along by means of the entirety charge, be send toward PU.

Due toward the defeat possessions of the planned method, the commitment achieve but not expose several facts concerning the exhaustive procedure in order. Suitable in the direction of the required possessions of the assurance system, SU cannot refuse the value that is use to make the commitment. Furthermore, by verify the zero-knowledge proof provide by SU, PU is able to verify that the payment for each operation occurrence be accurate. To avoid SU as of commit scheme, such as choose not to suggest all consumption instance or else submit fake consumption instance, we establish a random-checking monitor that can provide some ground-truth information on the spectrum utilization status. PU can opportunistically query the monitor to ask for a few pieces of ground-truth

information, and use this information to challenge SU. Once SU is challenged, it has to provide proof to match the random-checking in sequence.

1. RELATED WORK

The region dataleakage trouble within the CRN context has lately began to advantage attention from the research network because of its significance, and numerous studies efforts had been made to address it. However, to the satisfactory of our data, none of those works have tried to perceive the vulnerabilities which are behind this trouble or discuss the techniques that could be deployed to save you it. M. Grasa, B. Hamdaoui, and A. A. Yavuz tried to fill this hole via presenting a comprehensive survey that investigates the various area privacy dangers and threats which could rise up from the unique components of this CRN technology, and explores the distinct privateness assaults and countermeasure solutions that have been proposed inside the literature to cope with this region privacy trouble. They additionally discuss a few open studies troubles, associated with this trouble, that need to be triumph over by using the studies network to take gain of the advantages of this key CRN generation without having to sacrifice the customers' privateness.

B. Khalif, M. B. Ghorbel, B. Hamdaoui, and M. Guizani proposed a useful resource allocation scheme for a smart grid-enabled cognitive radio consumer. The clever grid allows the consumer to achieve actual time power pricing policy. This data is exploited by means of the user to decrease its power intake fee thru wise strength allocation.

Analytic expressions of the allocated strength are advanced for exceptional value functions and low-fee algorithms are offered for the strength allocation. Simulation effects showed the gain that the cognitive device finished by way of cashing in on the dynamic electricity pricing thru the proposed strength allocation scheme.

M. Grasa, A. A. Yavuz, and B. Hamdaoui designed a region privacy maintaining scheme for CRNs that achieves high sensing accuracy. Their scheme has several key features, making it greater practical, at ease, and reliable for big-scale CRNs. When compared to current procedures, LPOS executed superior sensing performances with excessive region privateness while being sturdy against network dynamism.

3. FRAMEWORK

A. Overview of Proposed Framework

We keep in mind a normal cognitive radio network, which consists of a number primary user (PU) and a couple of secondary users (SUs). The PU has a few non-utilized spectrums to sell to SUs. In a cognitive radio transaction, PU publicizes the pricing policy for the non-utilized spectrum, normally a price feature depending on frequency, bandwidth, time, and many others. SU utilizes a few spectrum sources and pays PU consistent with the pricing coverage at the give up of a billing duration, which includes a day or a month.

In this paper, we recommend location/privateness-preserving schemes for database-driven CRNs with exceptional overall performance and

architectural blessings. The first scheme, location privacy in database-driven CRNs (LPDB), provides most suitable vicinity privateness to SU inside DB's coverage region by way of leveraging set membership statistics systems (used to check whether an element is a member of a fixed) to construct a compact version of DB. The second scheme, LPDB with servers (LPDBQS), minimizes the overhead at SU's facet on the price of deploying an extra entity inside the community. The price overall performance tradeoff offers extra alternatives to gadget designers to decide which topology and which method is greater appropriate to their specific necessities. Both processes exploit two critical facts: (i) Spectrum databases are essentially dependent, and (ii) SU's queries comprise continually the identical device-specific traits.

B. System Model

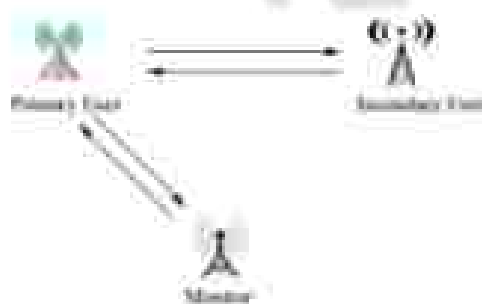


Fig2. Structure of the proposed system

The system model comprises 3 components, Primary User (PU), Secondary User (SU), and Monitor (M), as proven within the fig2. PU pronounces pricing coverage to SU that is within the shape of segments, with each phase representing the unit fee for a positive channel in a period of time. SU calculates a subfee for every

utilization instance based on the pricing coverage if he utilizes a positive channel for a time frame. At the end of a billing period, SU sums up all of the subfees to reap a total rate and ship it to PU, collectively with the commitments of values in every usage instance. PU simplest obtains the data of the overall fee from SU, however it does no longer recognize while and the way lengthy SU has now not utilized a channel, nor does it recognize which channel SU has applied. In this manner, SU's privateness is preserved. To take a look at whether or not SU commits fraud, PU can ask for a few observations from the monitor M, and require SU to expose the corresponding commitments. If the observations and commitments are matched, then SU is considered sincere; in any other case, an excessive penalty could be imposed.

The first scheme, LPDB, is simple as it involves most effective two events, SU's and DB, and offers unconditional area privateness to SU's inside the insurance location of DB. The 2d scheme, LPDBQS, gives computational privateness with a extensively reduced overhead on SU's aspect as compared to LPDB, however on the cost of introducing an additional architectural entity. Since we're not able to get right of entry to the actual spectrum database, we trusted two sources to have an estimate of this structure. First, we've relied on the advice of the PAWS (Protocol to Access WhiteSpace) fashionable, which defines the interaction among SU's and DB and what information they should trade. Second, we used graphical web interfaces supplied to the general public with the aid of

white space database operators. These web interfaces comply with PAWS advice and permit an interested person to specify a region of interest and learn spectrum availability in that vicinity to emulate the interaction among a SU and DB in global.

C. Database-Driven CRN Model

We first take into account a CRN that consists of a set of SUs and a geo-location database (DB). SUs are assumed to be enabled with GPS and spectrum sensing talents, and to have get admission to DB to reap spectrum availability information inside its operation place. To study spectrum availability, a SU queries DB through consisting of its area and its device characteristics. DB responds with a listing of to be had channels at the specified place and a fixed of parameters for transmission over the ones channels. SU then selects and uses one of the returned channels. While the usage of the channel, SU wishes to recheck its availability on every day basis or whenever it modifications its region by using one hundred meters as mandated. We then look into incorporating a 3rd entity to the community along with DB and SUs. This entity, known as query server (QS), has a devoted high throughput hyperlink with DB. Query Server used to assure computational location privateness at the same time as reducing the computational and conversation overhead specifically on SUs' side.

Finally, Making sure that the user location privacy information of SU s is protected has incredible advantages. First and most

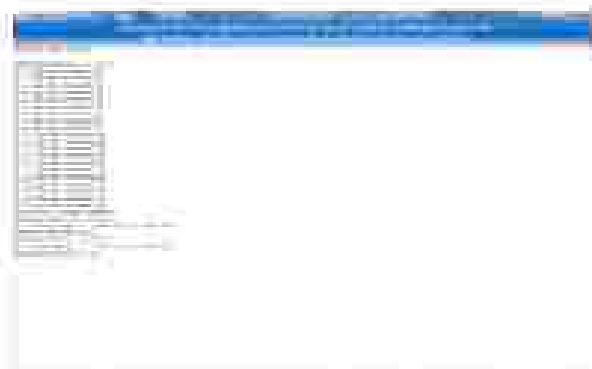
significantly, it promotes dynamic and opportunistic sharing of spectrum assets, thereby increasing spectrum usage performance. Knowing that their vicinity privacy is covered so that they do not must fear approximately their whereabouts being tracked and their privateness being compromised, SU s can be encouraged to participate in the cooperative spectrum sensing method, and to query spectrum databases for spectrum availability. Ensuring location privateness protection also can be beneficial to PU s. For instance, being involved that their region privacy records may be leaked to spectrum databases, SU s may attempt to use PU channels without registering and querying spectrum databases for spectrum availability, thereby inflicting dangerous interference to PU s.

4. EXPERIMENTAL RESULTS

In this experiment, we took DB server, Query server and two types of users such as PU and SU. Here, the secondary users (SU) must register into the DB server. The DB server can store registered details securely.

SU LPDB Query:

Here, the SU node will send a simple query to the server instead of its location, and then the server will sends all the spectrum locations in encrypted format by using cuckoo filters concept. Here it shows all the spectrum locations in cuckoo's filter format and the nearest one will true and other are false.



region database to both SU and QS, in order that SU can question it to check whether a selected channel is available in its location.

SU LPDBQS

Here it uses a query server to perform the required computations. With this the burden on to the SU will be removed.

Next we can observe the query server and DB server status.



Finally, we can view the cost computation graph for the proposed algorithm.

5. CONCLUSION

We conclude that in this paper we've proposed location privateness-preserving schemes, known as LPDB and LPDBQS that goal to keep the region privacy of SUs in database-pushed CRNs. They each use set membership facts structures to transmit a compact representation of the geo-

REFERENCES

- [1] B. Khalfi, M. B. Ghorbel, B. Hamdaoui, and M. Guizani, "Optimal power allocation for smart-grid powered point-to-point cognitive radio system," in *ComComAp, 2014 IEEE*, pp. 316-320.
- [2] M. Grissa, A. A. Yavuz, and B. Hamdaoui, "Lps: Location privacy for optimal sensing in cognitive radio networks," in *Global Communications Conference (GLOBECOM), 2015 IEEE*.
- [3] S. Liu, H. Zhu, R. Du, C. Chen, and X. Guan, "Location privacy preserving dynamic spectrum auction in cognitive radio network," in *Distributed Computing Systems (ICDCS), 2015 IEEE 33rd International Conference on IEEE, 2013*, pp. 256-265.
- [4] M. Grissa, B. Hamdaoui, and A. A. Yavuz, "Location privacy in cognitive radio networks: A survey," *IEEE Communications Surveys & Tutorials*, 2017.
- [5] B. Fan, D. G. Andersen, M. Kaminsky, and M. D. Mitzenmacher, "Cuckoo filter: Practically better than bloom," in *Proc. of the 10th ACM Int'l Conference on emerging Networking Experiments and Technologies*, 2014, pp. 75-88.

- [6] N. Adem and B. Hamdaoui, "Delay performance modeling and analysis in clustered cognitive radio networks," in *Global Communications Conference (GLOBECOM), 2014 IEEE*. IEEE, 2014, pp. 193–198.
- [7] W. Wang and Q. Zhang, *Location Privacy Preservation in Cognitive Radio Networks*. Springer, 2014.
- [8] L. Zhu, V. Chen, J. Malyar, S. Daa, and P. McCann, "Protocol to access white-space (paws) databases," 2015.
- [9] S. B. Wicker, "The loss of location privacy in the cellular age," *Communications of the ACM*, vol. 55, no. 1, pp. 60–68, 2012.
- [10] "Efficient location privacy for moving clients in database-driven dynamic spectrum access," in *2015 24th International Conference on Computer Communication and Networks (ICCCN)*. IEEE, 2015.

Biography:

Neha Nazmeen was born in telangana, India in the year 1996. She is pursuing her M.Tech in Computer Network and Information Technology from G.Narayanamma Institute of Technology and Science for women's, Hyderabad, India. She had completed B.Tech Degree in 2017 in Lakshya Institute of Technology and Science, Khammam, India.

MSridevi currently working as Associate professor in Information Technology at G. Narayanamma Institute of Technology and Science. She has 10 Years of teaching experience. She has pursued B.Tech in MVSR College in 2006 and M.Tech from Osmania University in the Year of 2009.

Evaluating the Performance of Spice Framework Using Trace-Driven Emulations on Smartphone's

R. Menata

M. Tech, CSE

G. Narayanamma Institute of Technology
and Science, Hyderabad.

M. Sridevi

Associate Professor

G. Narayanamma Institute of Technology
and Science, Hyderabad.

ABSTRACT— portable online social networks (OSNs) be rising because the famous conventional policy intended for data as well as contented distribution amongst populace without arrange toward grant the first-time of knowledge guide for cell OSN extrema. on this term paper, we suggest a socially-driven learning-primarily based structure, specifically Spice, intended for the media content material prefetching toward decrease the get right of entry to postpone as well as improve cellular consumer's pride. Throughout a huge scale facts-pushed evaluation in excess of real-life mobile Twitter streams from over 17,000 customers throughout a phase of 3 months, we display that the social friendship have a high-quality trust on consumer's medium material click on conduct. Toward improve this aspect, we behavior the social friendship cluster in excess of the position of consumer's associates, after that expand a cluster-bess completely dominant Bias form for socially driven getting to knowledge base prefetching forecast. We afterward plan a practice adaptive prefetching setting up method by using capturing keen on report that one of kind users might additionally acquire various patterns within the mobile OSN app utilization. We expansively estimate the overall performance of Spice structure use trace determined emulations going on smart phones. Assessment outcomes support that the Spice be able to acquire greater overall performance, attaining a mean 30.6% get admission to put off reduction at the less value of mobile records as well as power expenditure. In addition,

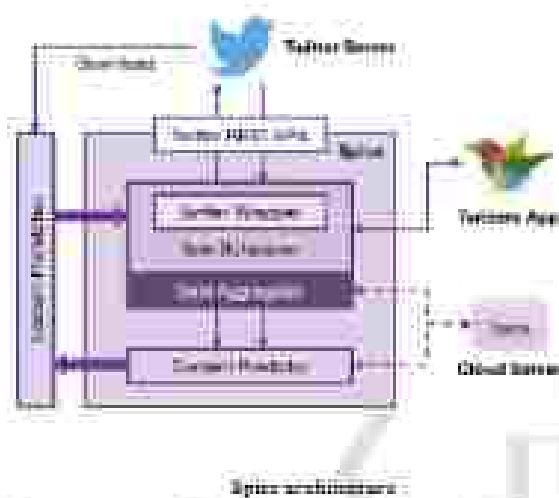
by means of enabling customers to dump their device gaining knowledge of procedures to a cloud server, our layout is able to gain as much as an aspect of a thousand velocity-up over the local facts tracing execution on smart phones.

Keywords: Mobile Computing, Online Social Networks, Quality of Experience, Spice Structure

1. INTRODUCTION

The past decade has witnessed the extensive penetration of on-line social networks (OSNs) which includes Facebook and Twitter into our everyday lives. With the pervasively and recognition of wi-fi verbal exchange which include WiFi and LTE, greater and greater users are accessing OSN services on cellular devices via wireless connection. It is said that nowadays sixty eight% of the OSN carrier consumption arise on cell devices, and on common a cellular consumer spends 3 hours and 15 minutes Per day for usage of OSN offerings, accounting for greater than 20% of the overall cellular site visitors. Besides serving as the platform for social interplay, OSN is rising as the mainstream channel for information and content material sharing. A enormous part of the shared content carrier media documents, such as photos and motion pictures, which normally have much larger information length than

that of the textual content in customers' posts. The growing reputation and ubiquity of such media content in OSNs requires a mobile-friendly design if you want to offer QoE assist for mobile devices.



A key aspect of degrading the cell consumer's pride in consuming wealthy OSN media content material, the get admission to delay (provider latency). On one hand, limited network bandwidth, excessive wi-fi connection establishment latency and lengthy roundtrip time of facts transmission (varying from three seconds to 10 seconds or greater) might impact the real-time responsiveness of users' each day social media usage, specially while customers attempt to access media files in social posts/tweets. On the opposite hand, time-varying community excellent and sporadic community availability reason fluctuating connection and intermittent get entry to. This might additionally incur excessive latency overhead for their social interplay engagement in OSNs. To deal with this problem, an interesting and promising technique is to leverage prefetching, i.e., to download the media content previous to user's intake every time feasible. A key assignment to take advantage of the gain of prefetching is the right prediction of media content material download conduct. Achieving accurate content prediction can assist to prefetch the minimum applicable content items which will be set up via the person inside the close to destiny with excessive possibility. This is beneficial to considerably lessen the get entry to put off and in the meantime saving both energy and data via visitors intake through heading off immediate content material prefetching. To raise the prediction accuracy of media content prefetching in OSNs

on mobile gadgets, a totally current take a look-at in proposed a framework of Early Bird. The key concept is, by using mining the person's OSN usage sample, to integrate tweet scheduling capabilities (e.g., photo embedded or now not, the desired recipient) into the linear regression version for prediction. A key drawback of the proposed technique in [7] is that it does not offer sufficient consideration for social have an effect on most of the customers (i.e., social interplay patterns), which plays a critical function in media content material intake in OSNs. Intuitively, if a tweet with an image is sent from her close buddy instead of some Acquaintance with rare touch, then she could click the image with a excessive chance (see Table II). Motivated by using this perception, in this paper we suggest a singular framework of Spite, which utilizes the precise characteristics of social interactions among customers in OSNs for cell media prefetching. To this give up, we leverage the gear of socially driven records mining and cluster-based totally system getting to know, to reduce user's ability hobby in media content intake primarily based on her records content utilization sample and social friendship choice. Moreover, we integrate each inference, app utilization sample, and network environment, to ultimately execute the aware prefetching decision and scheduling procedure. Specifically, we gather user logs from Twitter as Android Twitter app which has over 100,000 downloads on Google Play and over 17,000 users consented to report utilization records to us. This permits us to conduct a records-pushed evaluation and design, and a sensible hard-pushed performance assessment (see Section VI). First of all, via the large-scale records evaluation, we monitor that the social friendship (i.e., the social interaction strength amongst users in OSN) has a essential impact on the user's tweet click conduct. Based on this remark, we then construct the social friendship clustering to classify a user's social pals into unique organizations with distinctive levels of significance. Accordingly, we subsequent expand a cluster-based Latent Bias Model (LBM) to estimate her likelihood of media content clicking. In order to manual the media tweet prefetching in an strength and cellular statistics given way, we judiciously design an adaptive scheduling scheme, accounting for the reality that excessive customers might also display notably extraordinary behavior styles in

the cellular OSN app utilization. In addition, our layout also permits Spice users to offload their facts training duties for machine studying to a cloud server, so as to combat the excessive strength consumption and lengthy processing latency while executing these tasks domestically on the smart phones. We summarize the foremost contributions of this paper as follows:

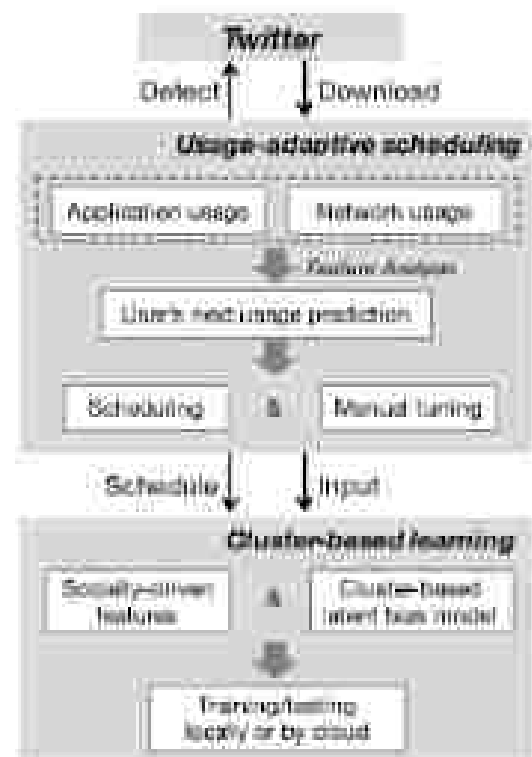
- We accumulate a large set of real-life mobile Twitter traces from over 17,000 Twitter customers for the duration of a period of five months, and monitor the outstanding effect of social friendship on their media content click on conduct through information-driven analysis.
- We conduct social friendship clustering over the set of person's friends, after which hence increase the cluster-based LSI technique for socially-pushed prefetching prediction. Trace-driven simulation indicates that our proposed technique achieves an average prediction accuracy of 84.3%, which extensively outperforms the linear regression technique using tweet scheduling capabilities simplest.
- We develop a usage-adaptive prefetching scheduling scheme to account for heterogeneous users' cell app utilization sample. In unique, we partition the horizon of the entire minutes of day into several period zones and assign specific prefetching frequencies for one-of-a-kind zones adaptively.
- We comprehensively compare the performance of the Spice framework the use of hint-pushed emulators on smart phones. Evaluation effects display that an average Spice User can reduce her get admission to put off via 80.6% on the low fee of cellular facts and electricity consumption, which is a giant development over the benchmark techniques. Moreover, through permitting customers to offload device gaining knowledge of methods to a cloud server, we are able to obtain a speedup of a component of 1000 over the nearby execution on smart phones.

2. METHODOLOGY

We establish the gadget architecture of Spice for media contented prefetching in mobile OSNs, because illustrate. Spice workings within a person-carrier way, and collects

lines about all tweets at the person's feed when having access to Twitter with the Twitter app. These lines have been retrieve the usage of the Twitter REST API, located within the Twitter wrapping, which be forbidden through the Task Scheduler factor to periodically query updated for new tweets on her certified.

Subsequently the retrieve tweets along with consumer data are passed to the Data Aggregator thing. To make certain the person privateness, text content material in tweets aren't recorded as well as the anonymization of all non-public information-related fields will executed similar than without delay storing the statistics at the mobile.



Logical workflow of the Spice mobile media prefetching system

Afterward, the regionally store report are uploaded to the cloud server hostiest for in addition evaluation while the cellular tool is charge along with concerning with WI-FI. The Data Aggregator also passes the acquired information to the Content Predictor issue, in which the learning based content prediction model is trained for predicting the probability whether or not she would click the media in a brand new tweet. Specifically, this predictor could take the user's new tweets and the relevant features of these tweets as an input to advice studying version, with the attention to discover the applicable media content material (e.g., photo

files) contained in these tweets as the preferred candidates. These media files are then to be perfected through the Content Prefetcher issue. Note that, to hurry up the entire technique, we offload the system getting to know procedure to a cloud server. When such a cloud server is not available, we are able to deliver it out on the mobile tool locally.

3. RESULTS ALONG WITH DISCUSSION

Spice is a primary step closer to finding social media prefetching trouble by means of predicting actual usage along a line of social friendship effect. Our set of rules overall performance demonstrates that Spice is promising when integrates the key capabilities of network and social interactions.

Generate cluster

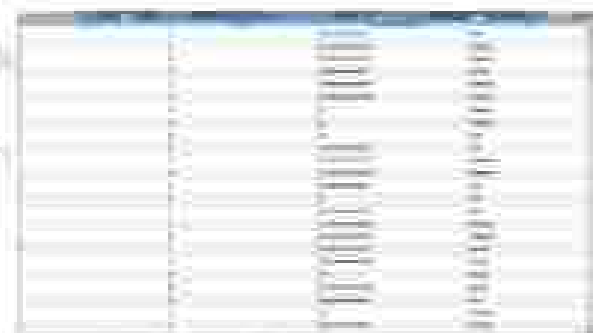


Here we are generating the number of tweets for every user in between 0 to 50 if no. of tweets >20, in class friend, if 10 to 20 familiar friend else the user is unfamiliar.

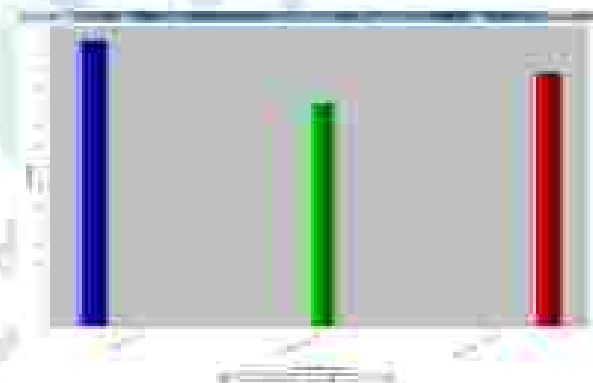
Content prediction



View the prediction result



Cluster graph



In our graph x-axis represents type of friends and y-axis represents count

4. CONCLUSION

Aim at design a wise mobile prefetching method, on this term paper we first diagnosed the specific capabilities of user's social conduct in OSN, as well as then planned a novel structure of Spice base totally on the Cluster-primarily base LBM studying method for prefetching forecast. We also advanced an adaptive prefetching setting up plan by means of mining user's mobile OSN app utilization sample.

We similarly evaluate the presentation of Spice from side to side hint-pushed emulation on mobiles. Estimation consequences confirm that the planned Spice method can obtain advanced overall performance with a stable get entry to delay reduction at the low value of cellular information as well as electricity intake. In addition, our layout permits user to direct their system learning tactics in the direction of a cloud server, as well as achieve a pace-up of up to a thousand over the neighborhood execution on mobiles.

Make a note of us as to through this term paper we advocate the Spice Framework through use Twitter as a case learning. Even so, the planned strategies can be carried out to other OSNs as properly. Intended for example, by means of integrate the Spice prefetching method, Spice might want to advantage the Moment module of We Chat, a popular cellular OSN service with 600 million energetic customers. Furthermore, we are able to consider a comprehensive design to integrate the prefetching strategies enabled by Spice at the cellular facet with cloud computing strategies at the content server side in a synergistic approach.

5. REFERENCES

- [1] B. D. Higgins et al., "Informed mobile prefetching," in *Proc. 12th Int. Conf. Mobile Syst. Appl. Serv.*, 2012, pp. 155–163.
- [2] K. Maticc, *Twitter API: Up and Running: Learn How to Build Applications with the Twitter API*. Sebastopol, CA, USA: O'Reilly Media, 2009.
- [3] M. E. J. Newman, "Modularity and community structure in networks," *Proc. Nat. Acad. Sci. USA*, vol. 103, no. 23, pp. 8571–8572, 2006.
- [4] A. J. Nicholson and B. D. Noble, "Breadcrumb: Forecasting mobile connectivity," in *Proc. 14th ACM Int. Conf. Mobile Comput. Netw.*, 2008, pp. 46–57.
- [5] L. Bottou, "Stochastic gradient descent tricks," in *Neural Networks: Tricks of the Trade*. Berlin, Germany: Springer, 2012, pp. 421–436.
- [6] D. Sharma, L. Kennedy, and E. Qurthul, "Tweepie: Can the Twitter timeline reveal the structure of broadcast events," *CoRR*, 2010.
- [7] J. Mirra and J. Grubb, "Prefetching content based on a mobile user profile," U.S. Patent 2006 0 277 271, Dec. 7, 2006.
- [8] L. Ramasubramani, S. Agrawal, J. Padhye, and C. Roderer, "Give in to procrastination and stop prefetching," in *Proc. 12th ACM Workshop Hot Topics Netw.*, 2012, p. 7.

Biography :

Repala Manasa was born in Khammam, Telangana, India in 1996. She is pursuing her M.Tech in Computer Networks and Information Security from G.Narayanaswami Institute of Technology and sciences, Hyderabad, India. She had completed B.Tech degree in 2017 at Laqshya Institutions of Technology and Sciences, Khammam, India.

C.Sudhakar Raddu pursuing Ph.D from INTUH Hyderabad currently working as Associate professor in Information Technology at G.Narayanaswami Institute of technology. He has over 15 Years of Experience. He has pursued B.Tech in CSE in 1997 and M.Tech from JNTU college of Engineering in the year 2004.

GPS-GSM Predicated Vehicle Tracking and Monitoring System using a Mobile App based on Google Map

A.Mounika¹, Dr. Anitha Chepuru²

¹Student, Department of information technology, GNITE, Telangana, India

²Associate professor, Department of information technology, GNITS, Telangana, India

Abstract: Vehicle tracking is one of the important application of IoT which comprises of a GPS and GSM modules that tracks the location of the vehicle and sends the location of the vehicle on a Google map and helps the user to navigate. The system is developed keeping in mind the trouble of finding one's vehicle when lost. The main objective is to implement real time vehicle monitoring to continuously tracking of a vehicle's position and to give the security. The system keeps in touch with the owner through GSM modem. An Imitation key is used for theft detection. GPS module is protected by using RFID technology.

Keywords: Arduino, GPS Module, GSM Modem, IoT, RFID.

1. INTRODUCTION

The essential part of the system is tracking and monitoring the lost vehicle. This system is designed to develop Anti-theft system. A GPS based vehicle tracking system is proposed to find the location of the lost vehicle and to notify the location to the automobile owner through the GSM modem. RFID technology is used to protect the GPS module before it gets unaltered. The location of the vehicle can be known by sending a Short message alerts to user and also whenever vehicle is hit with theft the user will get to know the status and the user can control the vehicle by using mobile app.

The process of working consists of two sections. They are vehicle section and monitor section. In the vehicle section, the equipment is placed inside a vehicle which is not visible to others. Here we have GPS (Global Positioning System) module by which we can get the graphical location of the vehicle using satellite signals and these location values are displayed on the LCD (Liquid Crystal Display). Three satellite signals are necessary to locate the receiver in 3D space and fourth satellite is used for time accuracy. GSM is used to monitor the vehicle by receiving messages by the automobile user. RFID technology is used to protect the GPS and GSM module when the vehicle is lost. By this way user will get to know the exact location of the vehicle and will be also intimated in tracking conditions.

The system consists of three technologies GPS, GSM and RFID Technologies. RFID Technology consists of two sections, one is RFID tags which are used to trace

the object and the other is RFID reader used to generate the signals from the satellite and convert them into geographical locations. Global Positioning System is used for tracking the locations of the automobile vehicle by calculating the longitudinal and latitudinal values. Global System for Mobile Communication is used to transfer the information from the interfacing device microcontroller to the automobile owner by sending short messages.

2. RELATED WORK

There are many other technologies which are used for tracking the lost vehicle. Few of the vehicle anti-theft systems are like password security systems, RFID systems, face detection systems etc. All the above systems are used to know the information about the vehicle when lost.

All of these technologies are used to find the location of the lost vehicle and for controlling the vehicle when lost. They can only monitor the vehicle remotely but controlling cannot be done by these technologies. To overcome these problems a system is designed which is used to track the location of the vehicle which is lost and for controlling the vehicle remotely by using GPS, GSM for tracking and mobile app for controlling.

3. PROPOSED SYSTEM

The commonly used vehicle tracking system works with the radio signals. After a vehicle has stolen the owner can report it to the police officer to get the vehicle back. The locations are reported to the police officer. This process is time consuming and expensive. Thief can remove the GPS modem from the vehicle so that location cannot find. To overcome these limitations of existing system, we propose this anti-theft system by providing security to the GPS module.

The proposed system consists of GPS module for tracking the locations of the vehicle by generating the signals [3]. The locations are shared to the automobile owner by sending the messages through GSM modem. The locations are transferred from GPS receiver to the GSM modem through the Microcontroller. The microcontroller used in this system is Atmega which is of AVR family.

The system includes RFID module to protect the GPS module before it gets damaged [9]. GPS continuously tracks the location of the vehicle and vehicle's engine can be controlled either by sending message or through the mobile app [10]. Once the vehicle's engine is turned off or stopped through the mobile app the vehicle will stop permanently until and unless it is switched on by the owner through the mobile app by sending the message. When the ignition key is in ON condition the automobile owner gets the message along with the location and buzzer will be in ON condition. Vehicle tracking and monitoring system is as shown in figure1.

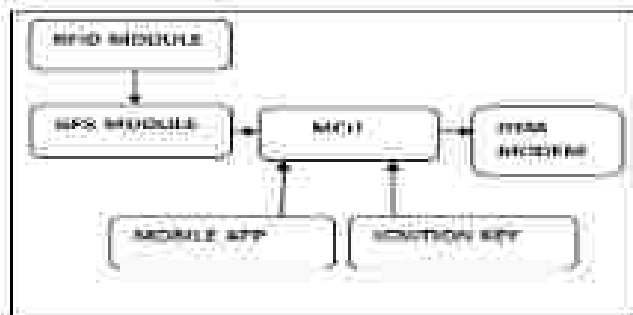


Figure 1. Vehicle tracking and monitoring system

3.1 interfaces:

3.1.1 MCU

One of the most popular and generally used microcontrollers is ATMEGA328. A microcontroller is a circuit board which has a chip on it, can be programmed to do many things such as reading data from the sensors, actuators etc. Arduino Uno board is manufactured by an ITALY company by the name Arduino. The largest chip on the Arduino board is ATMEGA328 which is a 8bit AVR RISC based controller with 32KB flash memory, 2KB SRAM. This controller operates at a voltage of 5v and with clock frequency of 16MHz.

It contains ICSP (In Circuit Serial Programmer) connector which is used to connect an external hardware devices. The unique thing about the Arduino board is it has the preloaded software known as bootloader program that allows to use more simple programming language to program the modules. It has a polyfuse which is used to protect the UART ports from overcurrent or shorts.



3.1.2 GSM Module:

GSM (Global System for Mobile Communication) is a communication module which was developed at bell laboratories in 1970. It is a digital cellular technology which was used for providing data and voice oriented services by using time division multiple access technique for communication purpose. It has a capacity to carry 64kops to 120Mbps of data rates.

GSM modem is a device which can be either a mobile phone or any modem which is used for communication between two different devices over any network. It works with a frequency of 1300 KHz and operating voltage is 5v. After initializing the GSM modem some attenuation commands are used to set the modem into text mode and for storing the messages. It will allow communication from anywhere, anytime and with anyone.

3.1.3 GPS Module:

GPS (Global positioning system) was developed by the United States development of defense. This is used for tracking the geographical locations of any object. The GPS modem generates the signals from the satellites and converts them into the digital signals and sends them to the GPS receiver. Many satellites are placed around the point in different directions.

To find the location of the object three different satellites are considered to find the position in three dimensions - east, north and altitude by calculating the distance from each satellite. The distance is calculated by finding the difference between the time at which signal transmitted and the time at which signal received. The calculated longitudinal and latitude values are then sent to the microcontroller to display it on the LCD.

3.1.4 RFID Technology:

RFID (Radio Frequency Identification) is used to provide security for GPS modem from an unauthorized user. It consists of two parts one is RFID tags and the other is RFID receiver. RFID tags are made up of magnetic material which is used to sense the signals. Generally barcodes identify the objects with line-of sight but RFID identifies the objects without line-of sight. RFID Reader is placed inside a vehicle and tags are given to the owner. The automobile owner's information is stored in the tags and only the authorized users can use it.

There are two types of RFID. They are active RFID and passive RFID. Depending upon the application and distance to be covered those are selected. Generally for shorter distances passive RFID is selected which is less

expensive and for longer distances where RFID is chosen which is bit expensive.

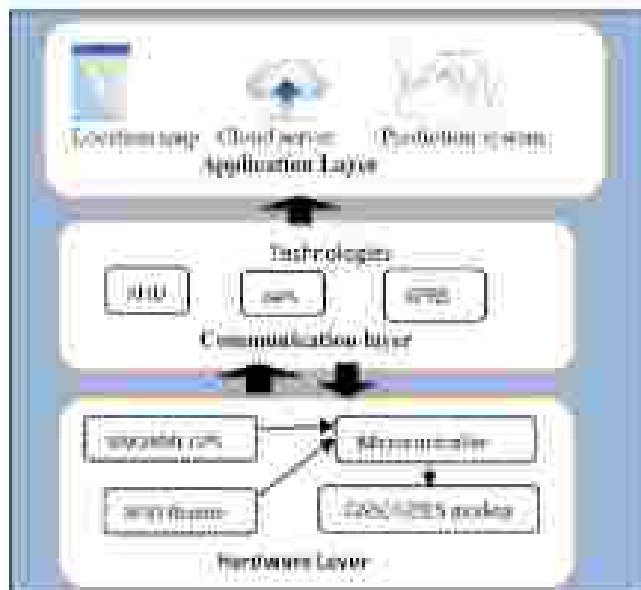


4. METHODOLOGY:

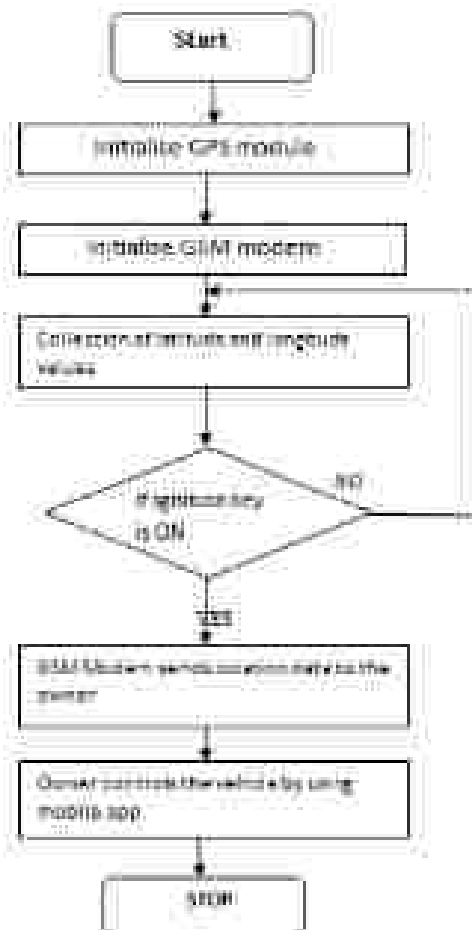
GPS, GSM and RFID modems are placed inside the vehicle to track the location and to send that information to the owner by sending the messages through GSM modem. GPS is protected by using RFID technology. When the vehicle is driven by the owner in normal conditions just the locations are displayed on the LCD.

If the vehicle is driven by an unauthorized person by using ignition key the locations are sent to the owner who can then control the vehicle by using a mobile App.

The vehicle is stopped permanently so that the unauthorized cannot go ahead normally. The layered approach of the vehicle tracking and monitoring system is shown below Figure.



The flow chart of the vehicle tracking system and monitoring system is as shown in below fig.



5. CONCLUSION

The very essential part in today's everyone life is security. The article GPS-GSM predicated vehicle tracking and monitoring system using mobile App based on Google Map is proposed to track and monitor the vehicle using GSM and GPS modules. Ignition key is used as the anti-theft system to find the vehicle when it is stolen and the data can be received through messages by using GSM modem by the owner. Security for the GPS is provided by using RFID technology.

6. REFERENCES

[1] H. Song, S. Zhu, and C. Cao, "Smart: A sensor-network-based vehicle anti-theft system," IEEE INFOCOM 2008, pp.1128-1136, April 2008.

[2] Zahab A. Hameed, عثمان Khalifa, et al. "Car Monitoring, Alerting and Tracking Model Enhancement with Mobility and Database Facilities," International Conference on Computer and Communication Engineering [ICCCCE2019], pp.1-8, May 2019.

[3] AK. Srivastava, C. Kumar, N. Mangla, "Analysis of Diabetic Dataset and Developing Prediction Model by using Rive and R", Indian Journal of Science and Technology, 2017.

[4] H. D. Pham, M. Dreiberg and C. C. Nguyen, "Development of vehicle tracking system using GPS and GSM modem," in IEEE Conference on Open Systems (ICOS), Kuching, 2013.

[5] M. Ahmad Fuzat and M. Dreiberg, "Remote vehicle tracking system using GSM Modem and Google map," in IEEE Conference on Sustainable Utilization and Development in Engineering and Technology (CSUDET), Selangor, 2013.

[6] M. Parves, K. Ahmed, Q. Maifur and M. Rahman, "A theoretical model of GSM network based vehicle tracking system," in International Conference on Electrical and Computer Engineering (ICEEE), Dhaka, 2010.

[7] A.Ramam, S.Valarmathy, D. N.Sothasubirelvarantha, S.Sethuraju and M.Thiruppathi,R.Thangam, "Vehicle Tracking and Locking System Based on GSM and GPS" IJ Intelligent Systems and Applications, vol. 09, pp. 89- 93, August 2013.

[8] F. F. Wrecknade and P. S. Dahad, "Real Time Vehicle Locking and Tracking System using GSM and GPS Technology-An Anti-theft System," International Journal of Technology And Engineering System(IJTES), vol. 2, no. 3, 2011.

[9] P. Verma and J. Bhatia, "Design and Development of GPS/GSM based Tracking System with Googlemap based Monitoring," International Journal of Computer Science, Engineering and Applications (IJCS EA), vol. 3, no. 2, June 2013.

[10] N. Mangla, K. Sushma, L. Kumble, "FB-Implementation of Parallel Mining for Big Data", Indian Journal of Science and Technology, 2016.

[11] T. Le-Tien and V. Phung-The, "Routing and Tracking System for Mobile Vehicles in Large Area," Fifth IEEE International Symposium on Electronic Design, Test and Application, pp. 297-300, January 2010.

[12] P. Fleischer, A. Neisze, B. Sowah and A. Bremang, "Design and development of GPS/GSM based vehicle tracking and alert system for commercial inter-city buses," IEEE 4th International Conference on Adaptive Science & Technology (ICAST), October 2012.

[13] Meha Mangla Tripti Mehta, "A Survey Paper on Big Data Analytics using Map Reduce and HIVE on Hadoop Framework", International Journal of Recent Advances in Engineering & Technology (IJRAET) 2016.

[14] M. N. Famaan, M. A. Al-Knecher and S. A. Al-Khader, "Intelligent Anti-Theft and Tracking System for Automobiles" International Journal of Machine Learning and Computing vol. 2, no. 1, February 2012.

[15] D. A. Brown, "A Low Cost Vehicle Location and Tracking System," NAVSYS Corporation, pp. 516-523, 1990.

ARCHIVES

Intrusion Detection System Using Multilayer Neural Networks

✉ Maheshwar Reddy Vancha, Ravi Prakash Reddy and K. Adinarayana Reddy

Abstract

Intrusion Detection System plays an important role in protecting the security of the information and by identifying the various attacks accurately in the network. In this proposal, we explore and build intrusion detection system using deep neural network. We study the performance of the model on binary classification, multiclass classification and number of neurons and the impact of learning rate on the performance. We compared it with the existing machine learning approaches proposed by researchers on the benchmark datasets KDD-Cup 99 and NSL-KDD. The results show that the DNN IDS accuracy is higher than the other machine learning based algorithms.

📄 Volume 11 | Issue 5

📄 Pages: 353-362

📄 Download PDF

← [Back to Archives \(archives.php\)](#)

[Login \(login.php\)](#)

JARDCS

Journal of Advanced Research in Dynamical and Control Systems presents peer-reviewed survey and original research articles.

Quick Links

[Scope of JARDCS \(scope.php\)](#)

Hosting NLP based Chatbot on AWS Cloud using Docker

Deeba Unnisa¹, Sesha Bhargavi Velagaleti²

¹Mtech Student, Dept. of Information Technology, GNITS, Hyderabad

²Assistant Professor, Dept. of Information Technology, GNITS, Hyderabad

Abstract - Cloud computing is growing every day in the technology world and almost all the companies are trying to migrate their existing applications to cloud and focusing on developing cloud native applications. As cloud provider scalability, availability, improved performance and it mainly reduces the manageability from the companies and so they do not have to manage and maintain the resources to support their applications as it is taken care by the cloud vendors. One such famous cloud vendor is Amazon that provides amazon web services (AWS) which include multiple services for compute, storage, networks, database, machine learning, artificial intelligence, content delivery, management tools, analytics, internet of things, security and identity, etc.

This paper focuses on developing an NLP based chatbot that queries from users and provide them relevant answers and or perform the required actions. later hosting the chatbot on AWS cloud using Elastic container service by dockerizing the application.

Key Words: AWS ECS, cloud computing, chatbot, docker, natural language processing.

1. INTRODUCTION

Any company would like to delight their customers or maintain a better relationship with them as customers play a major role in keeping the business running. So organizations try to incorporate better technologies which can enhance the user experience and adds value to their product. In this paper we will be considering a scenario of legacy application which stores files in multiple binders and folders, so if a user has to search for a file they have to either remember where each file is present, or they have to navigate through multiple folders to get that file, which is a time consuming and tedious task.

1.1 Proposed system

The proposed solution for this problem is to use an NLP based chatbot that takes queries from users and gives them the relevant answer and or perform actions. The entire data from different files will be indexed in Elasticsearch as it is suitable to perform fast and efficient full text search on large volumes of data.

Then we create a web API that connects with the chatbot UI designed using Angular version 6, this API acts as a search API and mediator between the data layer that is

Elasticsearch and the chatbot user interface. The API is responsible for taking natural language query from the chatbot and processing it then searching for data in Elasticsearch index. Once data is found the API returns data to the UI which then displays the data to user in a specific format to enhance user experience. Once the chatbot is working fine and is giving us the desired results, we will be containerizing it using Docker to provide cross platform compatibility. After the containerization process is completed the entire Application will be hosted on an AWS ECS cluster to enhance the availability and decrease response time to end users.

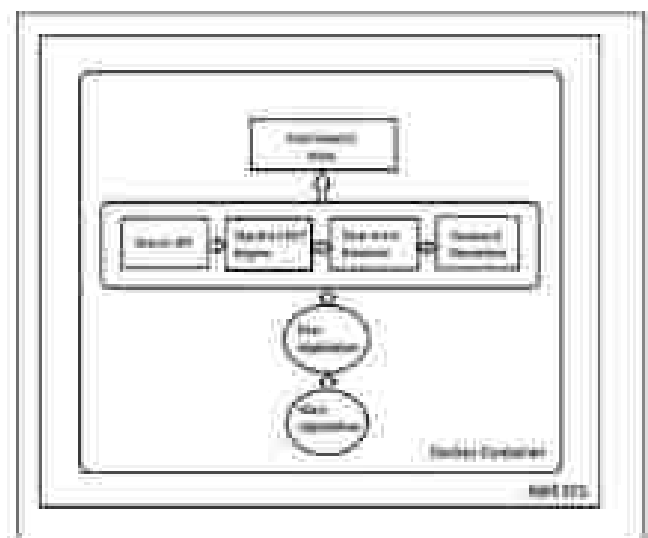


Fig-1. Proposed system

2. METHODOLOGY

There are mainly two stages that this paper covers, the first one is designing an NLP based chatbot and the second is to containerize it and host it on AWS cloud. For designing the chatbot we use techniques like Natural Language Processing (NLP), Application Programmable Interface (API), User Interface (UI) and for deploying the chatbot we use Docker and Amazon Web Services (AWS) which are discussed in detail in the following section.

2.1 Natural Language Processing (NLP)

NLP is a branch of artificial intelligence which studies how humans can interact with the computer in their natural language and how the computer understands and interprets human language. For this scenario we will be

using Stanford core NLP, it provides multiple modules to perform NLP related tasks such as lexical analysis, syntactic analysis, semantic analysis, discourse integration and pragmatic analysis which also includes multiple sub-tasks. For the chatbot we will be focusing mainly on parts of speech tagging and stop word removal as the users will be passing natural language queries and we need to process the queries based on each word and its parts of speech like noun, verb, preposition, etc.

2.2 Elastic search

Elastic search is famous for full text search, it can be used to index an entire document and then traverse through the document to look for particular words. It stores data in the form of documents and each document looks like a JSON (JavaScript Object Notation) we can say that it is a document-oriented database which is designed to store, retrieve, and manage semi-structured data. Elasticsearch behind the scene uses Lucene's Standard Analyzer to index documents with precision. Elasticsearch will act as a database and data access layer between the Chatbot and the search API, all the application data will be present on Elasticsearch in Metadata index, where every word in each document will be indexed and stored in an inverted matrix. Here we will be using Bulk API to index the documents in Elasticsearch and Search API to search for the documents, for viewing the documents in Kibana we will be using Get API. We have around 4 lakhs of JSON files which contain application related data. Kibana is an analytics and visualization platform which allows to view data stored on the Elasticsearch clusters. We can search, view and interact with the data using the features provided by Kibana. It also provides different ways to view data in the form of graphs, pie diagram, charts, bar diagram, etc., which helps in data analysis.

2.3 Search API

To make our chatbot work we need to have a mechanism which acts as a bridge between the user interface and the data, for this we use ASP .NET to build a web API to perform search operation on the data stored in Elasticsearch. Here our aim is to take the query from user through UI, send it to the search API where we can utilize the tools provided by Stanford Core NLP to perform stop word removal, once the stop words are eliminated and we have the required keywords, the keywords will be searched against the Elasticsearch data based on the priority values set for each field in JSON in the config file. Once the keywords match Elasticsearch sends the documents back to search API which formats the documents for simplicity and sends them to the UI where they are displayed to the user.

2.4 User Interface

The aim is to design a simple chatbot which takes input from user and gives them the desired results, to achieve this we use Angular 6 and Bootstrap to develop the UI. The users can enter their queries either in text format or use the text to speech feature provided by mic, once the query is entered the chatbot sends this query to the API where it is processed and the results are fetched, these results are displayed to the user in text format where the exact value of result is highlighted using an underline, the user can just click on the underlined text which is a hyperlink which takes users to the exact location inside the index from where this value was fetched, this mechanism is called as "Deep Linking". Deep linking is performed by utilizing the fields received from the search API in the form of result and forming a hyperlink by constructing a meaningful URL from the fields. Chatbot also takes feedback from the users to improve its performance in the future and provide more interactive experience to the users.

2.5 Docker Containerization

Containerization allows us to create containers for applications, where each container acts as an individual computer system with all the dependencies for application like java, python, etc. pre-installed in it. In this case the user/developer does not have to worry about cross platform compatibility. Docker and Kubernetes are one of the tools that facilitates containerization of various applications. Containerized applications can also be hosted on different cloud environments making it ten times more convenient and cost effective.

Once we are satisfied with the functionality of our chatbot it is time to dockerize it which will allow us to test the application on a Linux container and host the application on a registry. We have four different services which help us to run the chatbot successfully: Elasticsearch, Kibana, Search API, User Interface. Therefore, we require 4 docker images one for each service. A Docker file is script that gives out steps that a Docker should take to build a new image. For the index data in Elasticsearch we use docker volumes. Volumes are independent of the containers they are created separately and are utilized by the container while it is running, when the container is destroyed the volume and data inside volume is intact hence they provide persistent data storage.

To run all the images in one go we use Docker compose, it is a tool which is used to run multi-container applications. To configure the services Docker compose uses a YAML file, using which with one command we can spin up all the containers at the same time. This is suitable for all types of environments such as developing, testing, staging and production. Steps to use Docker compose are as follows:

1. Create Docker file for all the services that your application requires or utilizes the images provided by Docker hub for licensed software.
2. Define all the services in "docker-compose" file so that they can be run together and also specify any volumes or networks if required within this file.
3. To run the entire application at a time run "docker-compose-up" which will get all your services up and running in Docker containers.

2.6 Hosting the chatbot on AWS

It is easy to host containerized applications on AWS cloud rather than directly hosting the application, this can be done using AWS ECS (Elastic Container Service) and AWS ECR (Elastic Container Registry). Prerequisites for doing this is to set up a VPC, security groups, routing etc. on AWS.

Elastic Container Service (ECS) - It allows us to host Docker containers using orchestration service and it is highly scalable. ECS takes care of managing and scaling the cluster of virtual machines so we do not have to do it manually. Using API calls we can query the applications running on Docker inside ECS i.e. launch or stop the containers. This is how an AWS ECS works. AWS provides ECR (Elastic Container Registry) service which will be responsible for building and storing images; it is similar to Docker hub. These images are then utilized by ECS while defining the application requirements. Then it is our choice to either use EC2 containers to launch our application on Windows or Linux or to go for AWS Fargate which is more of a serverless option. Once the containers are running on ECS it takes care of managing the services and scaling resources when needed.

3. RESULTS AND DISCUSSION

This paper provides a way to remove latency and give better user experience by minimizing the efforts required by a user to find result, the chatbot will give user answers and perform required actions on the fly, so that users do not have to remember the location where each file is placed, and they do not have to manually navigate to that location to access the file. User can simply ask a question to the chatbot and it will find the file and give it to user.

After creating the chatbot it is deployed on the AWS cloud using docker, docker allows us to run applications inside a container, which means developers do not have to worry about the application not working on a system with different configuration. As docker will make sure that all the dependencies of our application are packaged in the form of a docker (image which runs inside a Windows or Linux container).

The advantage of hosting docker image on AWS is it is cost effective, it allows us to scale up and scale down the resources based on the work load, it is suitable for easy access moreover we do not have to manage the containers and images once they are deployed, AWS will take care of this automatically.



Fig. 2 NLP based Chatbot

4. CONCLUSION

To make the chatbot more intelligent and efficient we can have block chain mechanism where any changes to the index will be approved by block chaining and also the feedback provided by user will help us to build more intelligent chatbot which exactly depicts the purpose of "Deep Learning". Block Chaining can also be used to feed the user specified feedback based on accuracy of answers provided by chatbot, in such case for a feedback to be valid it needs to be approved by at least 3 blocks in our case users. Which means if only one user is unsatisfied by a certain response then it won't hold much value to the chatbot when compared to the case where ten users specify the same feedback.

Another enhancement that can be done as a part of future scope for it to use Machine Learning services provided by AWS like "Amazon Lex" which is used to build chatbot. Amazon's "Alexa" also uses Lex service in a way we can say that Lex is the brain of Alexa.

REFERENCES

- [1] A Method to Extract Essential Keywords from a Tweet using NLP tools (by Tharindu Weerasinghe, Nandana Perera and S.R. Liyanage, 2016 Sinterath International Conference on Advances in ICT for Emerging Regions (ICTE))
- [2] An overview of Artificial Intelligence based chatbots and an example chatbot application (by Naz Alhayerak, AyGeniz Godecim and Ergin Zeydan, 2018 26th Signal Processing and Communications Applications Conference (SPICA))
- [3] <https://vip.stanford.edu/>

- (i) https://d1.awsstatic.com/whitepapers/Deep_Learning_on_AWS.pdf?tid=wp_card&trk=wp_card
- (ii) https://d1.awsstatic.com/whitepapers/docker-on-aws.pdf?tid=wp_card

A Covering Design for All Over Finest Multipath Direction-Finding

Suthari Rajitha,¹ C Sodhakarreddy²

¹M.Tech Student, Computer Networks & Information Technology, G.Narasayana Institute of Technology & Science, Shaikpet Road, Ambadikar Nagar, Shaikpet, Hyderabad, Telangana

²Associate Professor, Department of Information Technology, G.Narasayana Institute of Technology & Science, Shaikpet Road, Ambadikar Nagar, Shaikpet, Hyderabad, Telangana

Abstract—Legacy networks are frequently designed to perform with simple single-course routing, like shortest-path, which is understood to be throughput suboptimal. On the opportunity hand, previously proposed throughput pinnacle of the road limit (i.E., backpressure) require every tool within the community to make dynamic routing picks. In that network, we test overlay structure for dynamic routing such that high-quality a subset of devices (overlay nodes) need to make dynamic routing alternatives. We decide the important series of nodes that want to bifurcate internet page on-line internet website on line traffic for accomplishing the most multicommodity network throughput. We follow our pinnacle-possible node placement set of rules to numerous graphs and the effects show that a small fraction of overlay nodes is enough for achieving maximum throughput. Finally, we suggest a heuristic coverage (OBP), which dynamically controls traffic bifurcations at overlay nodes. In all calculated reproduction situation, OBP not handiest achieve absolute throughput, however furthermore reduce remove in assessment to the throughput the majority high-excellence backpressure routing.

1. INTRODUCTION

We take a look at optimal routing in networks whereas a few legacy nodes are changed with overlay nodes. While the legacy nodes carry out handiest forwarding on pre-specified paths, the overlay nodes are able to dynamically course packets. Dynamic backpressure is known to be an most reliable routing policy, but it normally calls for a homogeneous community, where all nodes take part on top of things selectively. Instead, we expect that only a subset of the nodes is controllable; these nodes shape a community overlay inside the legacy network. The desire of the overlay nodes is shown to determine the throughput regions of the community. A first finding is that ring networks require precisely 3 controllable (overlay) nodes to allow the same throughput vicinity as when all nodes are controllable, impartial of the overall number of nodes inside the community. Motivated with the end of this, we develop an algorithm for choosing the maximum number of controllable nodes required to enable the entire throughput vicinity. We examine our set of rules on several classes of regular and random graphs. In the case of

random networks with a energy-regulation diploma distribution, which is a not unusual version for the Internet, we find that fewer than 30 out of one thousand nodes are required to be controllable to permit the total throughput location.

Since general backpressure routing cannot be directly applied to the overlay putting, we increase a heuristic extension to backpressure routing that determines the way to path packets between overlay nodes. Simulation consequences verify that most throughputs may be obtained with our coverage in numerous situations, while handiest a segment of legacy nodes are changed through controllable nodes. Moreover, we study reduced put-off relative to the case in which all nodes are controllable and operate underneath backpressure routing.

II. RELATED WORK

Backpressure (BP) routing, first proposed it is a throughput optimum routing coverage that has been studied for decades. Its energy lies in discovering multipath routes and using them optimally with out know-how of the community parameters, including arrival fees, link capacities, mobility, fading, and so forth. Nevertheless, the adoption of this routing policy has now not been embraced for trendy use on the Internet. This is due, in element, to an incapacity of backpressure routing to coexist with legacy routing protocols. With few exceptions, backpressure routing has been studied in homogeneous networks, where all nodes are dynamically controllable and put into effect the backpressure policy throughout all nodes uniformly. As may be shown, backpressure routing algorithm as proposed is suboptimal while carried out simplest to a subset of nodes within the community.



Fig. 1. Example of a community overlay. The backside aircraft suggest the total community graph, at the same time as the top plane shows a subset of network nodes and their conceptual overlay connectivity. In these pointings we take a

look at community throughput under the idea that overlay nodes enforce dynamic routing schemes and underlay nodes ahead packets the usage of pre-determined paths.

Techniques to offer throughput-top of the line multipath routing had been explored in diverse contexts. The paintings in considers the problem of setting hyperlink weights supplied to the Open Shortest Path First (OSPF) routing protocol such that, while coupled with bifurcating visitors further amongst shortest paths, the network achieves throughput identical to the maximum applicable multicommodity with. The author of the construction of an entropy minimization structure to boost a product new throughput-superior hyperlink nation direction-finding protocol wherein each router intelligently bifurcates site visitors for every and among its outgoing links. These strategies all require centralized manage common adoption by way of all network nodes, or both, consequently none of those techniques have to offer incremental deployment of throughput most beneficial routing to Wi-Fi networks. Moreover, those strategies cannot be used in conjunction with throughput most advantageous dynamic control schemes, together with backpressure.

III. FRAMEWORK

We model the network as a directed graph $G = (N, E)$, where N is the set of nodes in the network and E is the set of edges. We assume that the underlay network provides a fixed realization for shortest-path routes between all pairs of nodes, and that uncontrollable nodes will forward traffic only along the given shortest-path routes. Further, we assume that only one path is provided between each pair of nodes. Let $P^{a,b}$ be the shortest path from a to b , and let $P^{a,c} = (P^{a,b}, c)$, for all pairs $a, b, c \in N$, be the set of all shortest paths provided by the underlay network. If (i, j) is a link in G , then we assume that the single hop path is available, i.e. $P^{i,j} \in \mathcal{P}^{SP}$. Whenever a packet enters a forwarding node, the node inspects the corresponding routing table and sends the packet towards the pre-specified path. Therefore, the performance of the system depends on the available set of paths \mathcal{P}^{SP} . Optimal substructure is assumed for shortest-paths, such that if shortest-path P^{SP} from node a to c includes node b , then path $P^{a,b}$ includes shortest paths $P^{a,c}$, from a to b , and $P^{b,c}$, from b to c . This optimal substructure is consistent with shortest-paths in OSPF, a widely used routing protocol based on Dijkstra's shortest path algorithm, where OSPF allows for the use of lowest next-hop router ID as a method for choosing between multiple paths of equal length.

Overlay Node Placement

We design an algorithm to choose the placement of overlay nodes $V \subseteq N$ on a given graph $G = (N, E)$ such that the choice of overlay nodes is sufficient to satisfy the entire throughput vicinity of the community, i.e. $AG(V) = AG(N)$. At the cease

of this section we are able to show that the proposed set of nodes optimally solves P3. Consider the following binary program to place the minimum variety of overlay nodes to meet Lemma 2 for all nodes on all paths:

Overlay Node Placement Algorithm:

Phase 1: Recursively remove all degree-1 nodes N_1, \dots associated edges e from graph G , until no degree-1 nodes remain. The remaining graph is $G' = (N', E')$, where $N' = N \setminus N_1$, and $E' = E \setminus e$. This removes all attached trees from G .

Phase 2: Consider the destination tree D_b is less than the degree of b on G' that prunes destination tree D_b at node b by removing all edges to children of node b on D_b , and remove any nodes and edges that become disconnected from a . The remaining sub-graph is the pruned tree D_b' .

Phase 3: Solve P_1 , and place an overlay node at each node a where the solution to P_1 has $V_a = 1$.

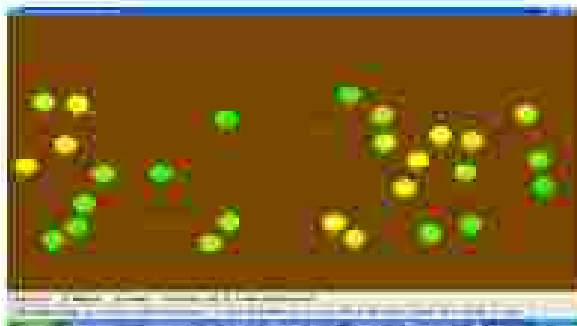
Next, we consider the subset of nodes $V \subseteq N$, called overlay or controllable nodes, which can bifurcate traffic throughput different routes. Intuitively, those nodes can improve throughput performance by generating new paths and enabling multipath routing. The remaining uncontrollable nodes $u \in N \setminus V$ provide only shortest-path forwarding in the underlay network, with an exception that any uncontrollable node u can bifurcate all traffic that originates at u ; this may occur, for example, in the source applications or uncontrollable nodes, or in a shim-layer between the network layer and application-layer. Without such an exception, all sources may be required to be controllable nodes.

Let E represent the set of edges in the overlay network. We propose the following policy, both dynamic and distributed, to account for packets-in-flight: **Overlay Backpressure (OBP)**. We show simulation results from three regulations: OSP, BP at all nodes, and BP with shortest-course bias (BP-SP) from. Although the latter are both throughput finest policies, they yield worse put off than OBP. The reason is threefold: (i) the quadratic network queue length of BP is proportional to the quantity of controllable nodes used (on this state of affairs, OBP makes use of hundred five overlay nodes), (ii) no packets are dispatched to attached timber in case of OSP, and (iii) beneath mild site visitors, packets underneath BP perform random walks. While our OBP coverage seems to perform well in simulations, we do now not believe that it is most efficient in general settings. A promising future direction of studies is to identify a maximally solid dynamic routing policy for our overlay structure. Intuitively, this policy takes into account both the packet accumulation at the neighbor overlay node v , as well as any packet-in-flight on the path in the form of negative pressure. Through simulation we observe the following properties of the algorithm: (i) OBP maximizes throughput in all examined scenarios, including the case of the algorithm; (ii) OBP outperforms BP applied only at overlay nodes, and (iii) OBP has good delay properties, outperforming BP even when the latter is applied at all nodes.

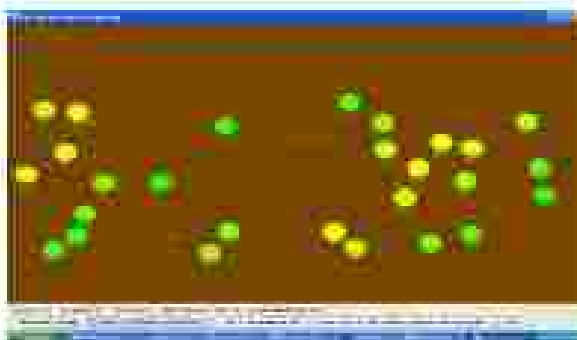
IV. EXPERIMENTAL RESULTS

In this section describing concept to generate optimal throughput (network response time or speed) by using overlay (subset or small set of nodes in a network) nodes to calculate routing table (finding neighbors of each node in a path from source to destination). By using few overlay nodes for routing mechanism we can reduce network burden which can result in high throughput. In earlier technique all nodes participate in finding their own routing table which put burden on network and result in fewer throughputs. Overlay nodes are place in network which can discover routing tables for all nodes in a network. To implement this concept I design a network simulation.

Double-click on 'run.bat' file to get below screen, on first enter the network size & click on Run simulation button.



Now click on 'Overlay Route Discovery' button to allow overlay nodes to discover routing table for all nodes. Empty color nodes are overlay nodes and filled color nodes are normal nodes.



Node ID	Routing Metric
000	0.000
001	0.000
002	0.000
003	0.000
004	0.000
005	0.000
006	0.000
007	0.000
008	0.000
009	0.000
010	0.000
011	0.000
012	0.000
013	0.000
014	0.000
015	0.000
016	0.000
017	0.000
018	0.000
019	0.000
020	0.000
021	0.000
022	0.000
023	0.000
024	0.000
025	0.000
026	0.000
027	0.000
028	0.000
029	0.000
030	0.000
031	0.000
032	0.000
033	0.000
034	0.000
035	0.000
036	0.000
037	0.000
038	0.000
039	0.000
040	0.000
041	0.000
042	0.000
043	0.000
044	0.000
045	0.000
046	0.000
047	0.000
048	0.000
049	0.000
050	0.000
051	0.000
052	0.000
053	0.000
054	0.000
055	0.000
056	0.000
057	0.000
058	0.000
059	0.000
060	0.000
061	0.000
062	0.000
063	0.000
064	0.000
065	0.000
066	0.000
067	0.000
068	0.000
069	0.000
070	0.000
071	0.000
072	0.000
073	0.000
074	0.000
075	0.000
076	0.000
077	0.000
078	0.000
079	0.000
080	0.000
081	0.000
082	0.000
083	0.000
084	0.000
085	0.000
086	0.000
087	0.000
088	0.000
089	0.000
090	0.000
091	0.000
092	0.000
093	0.000
094	0.000
095	0.000
096	0.000
097	0.000
098	0.000
099	0.000
100	0.000

Now click on 'Overlay & all Nodes Size Graph' button to identify use of nodes and queue size.



V. CONCLUSION

We observe choicest routing in legacy networks whereas handful a subset of nodes can make dynamic routing choices, even as the legacy nodes can forward packets handiest on precise shortest-paths. This variation captures evolving heterogeneous networks in which intelligence is added at a fraction of nodes. We endorse a necessary and sufficient situation for the overlay node placement to allow the overall multicommodity throughput vicinity. Based in this condition, we devise an set of rules for premiere controllable node placement. We run the algorithm on huge random graphs to expose that very often a small range of smart nodes suffices for complete throughput. Finally, we propose a dynamic routing policy to be applied in a community overlay, that demonstrates superior overall performance in phrases of both throughput and delay.

VI. REFERENCES

- [1] B. Andersen, H. Balakrishnan, F. Kaashoek, and R. Morris, Fastest routing schemes. In *Proc. ACM SIGMETR*, Oct. 2001.
- [2] L. Bai, K. Vaidar, and A. Sidiq, Novel architecture and algorithm for delay reduction in local internet scheduling and routing. In *Proc. IEEE INFOCOM*, April 2009.
- [3] D. Fetta and M. Handaj, internet traffic engineering by optimizing ecmp weights. In *Proc. SIGMETR*, 2005.
- [4] J. Tang, D. Wason, and F. Schuster, Topology aware routing networks. In *Proc. IEEE INFOCOM*, March 2005.
- [5] W. Khan, I. H. Ez, and S. Moutilo, Autonomous routing algorithm for networks with wide-area failures. In *Proc. IEEE MILCOM*, Oct. 2005.
- [6] M. J. Napp, Z. Molnar, and C. E. Riles, Dynamic power allocation and routing for time varying wireless networks. In *Proc. IEEE INFOCOM*, April 2003.
- [7] M. H. J. Neuman, *Networks An Introduction*. Oxford University Press, Inc., New York, NY, USA, 2010.
- [8] L. L. Peterson and H. S. Davie, *Computer Networks: A Systems Approach*. Morgan Kaufmann Publishers Inc., San Francisco, CA, USA, 4th edition, 2007.
- [9] J. Yin, C. Ying, and S. Shakkottai, Back-pressure routing for heterogeneously connected networks. In *Proc. IEEE INFOCOM*, March 2010. C.S. 1.4.5.8.7.1.9.10.11.12.13.14.15.16.17.18.19.20.21.22.23.24.25.26.27.28.29.30.31.32.33.141. Network. IJCECE Vol. 6 I. 3. 208-209. 800. 900. 1000 p. **offered load average network queue size** for HP, HP+SP, OHP. (a) Simulation Results Figure 9: Comparing OHP with HP on a random graph (a) Simulation with non symmetric traffic demands. (b) Average queue size for HP, HP+SP, and OHP.
- [10] L. Lamdas and X. Lytharides, Stability properties of constrained queuing systems and scheduling policies for maximum throughput in multi-hop radio networks. *IEEE Trans. Auto. Control*, pages 1910-1924, Dec. 1992.
- [11] D. Dai, M. Chiang, and J. Kurihal, Low-rate routing with hop-by-hop forwarding via adaptive spatial traffic engineering. *IEEE/ACM Transactions on Networking*, 19(6):1317-1330, 2011.
- [12] J. Yin, S. Shakkottai, and A. Kabbaj, On combining shortest path and back-pressure routing over multi-hop wireless networks. In *Proc. IEEE INFOCOM*, April 2009.

Collectively-obsessed know-how-base perfecting in transportable online shared network

Innadi Bhargavi¹ & D.Vandana²

¹U.Tech Student, Computer Networks & Information Security, G.Narasayamma Institute of Technology and Science, Shaikpet Road, Ambedkar Nagar, Shaikpet, Hyderabad, Telangana-500104.

²Assistant Professor, Information Technology, G.Narasayamma Institute of Technology and Science, Shaikpet Road, Ambedkar Nagar, Shaikpet, Hyderabad, Telangana-500104.

Received: May 14, 2018

Accepted: June 10, 2018

ABSTRACT

Mobile on-line social networks (OSNs) are rising because the famous mainstream platform for statistics and content sharing amongst human beings. In order to offer the ease of *avail in aid* for mobile OSN offerings, in this paper, we recommend a socially-pushed paging to know-based framework, namely *Spica*, for the media content material Prefetching to reduce the access postpone and enhance cellular user's delight. Through a huge-scale facts-pushed analysis over real-life cellular Twitter data from over 17,000 customers throughout a duration of five months, we reveal that the social-friendship has a massive impact on person's media content material click on behavior. To assess this impact, we analyze the social-friendship clustering over the set of person's pals, and then expand a cluster-based content Base Model for socially-pushed pointing knowledge of-based media Prefetching prediction. We then suggest a usage-adaptive Prefetching scheduling schema via taking into account that non-OSN-based users can also own heterogeneous patterns inside the cellular OSN app usage. It's comparatively compares the overall performance of *Spica* framework using fact-driven analysis on smart phone. Evaluation outcomes corroborate that the *Spica* can reach advanced overall performance, with an average eighty-4% access postpone distinct to the low fee of mobile information and energy costs. Furthermore, by using awake-up users or sleep their device mastering techniques on a cloud server, our design can reduce as much as a factor of 100% suboptimal over the neighborhood facts-trailing situation on smart phones.

Keywords:

INTRODUCTION

The past decade has witnessed the huge penetration of on-line social networks (OSNs) which includes Face book and Twitter into our daily lives. With the pervasive and recognition of wireless communication including Wi-Fi and LTE, greater and more users is getting access to OSN offerings on cellular devices through a wireless connection. It is said that nowadays sixty-eight% of the OSN provider consumptions arise on mobile devices, and on average a cell user spends 2 hours and 15 minutes Consistent with day using OSN offerings, accounting for more than 20% of the general mobile minutes. Besides serving as the platform for social interaction, OSN is rising because the mainstream channel for records and content sharing. For example, over fifty-two% and 47% of the users get information from Twitter and Face book, respectively. Moreover, a considerable part of the shared content contains media files together with pics and videos, which commonly have a whole lot larger statistics length than that of the textual content in customers' posts. The increasing recognition and ubiquity of such media content material in OSN requires a mobile-pleasant layout so that you can provide QoS help for mobile gadgets. A key component of degrading the cellular person's pride in eating wealthy OSN media content the get right of entry to postpone (carrier latency). On one hand, confined network bandwidth, excessive wireless connection-establishment latency and lengthy roundtrip time of data transmission (various from three seconds to ten seconds or greater) could impair the actual-time responsiveness of customers' daily social media usages, mainly while customers try to access media files in social posts/tweets. On the alternative hand, time-varying community best and sporadic network availability motive fluctuating connection and intermittent get admission to. This would also incur excessive latency overhead for his or her social interaction engagement in OSNs. To address this difficulty, an intriguing and promising approach is to leverage Prefetching, i.e., to down load the media content material prior to user's intake each time viable. A key venture to take advantage of the gain of Prefetching is the proper prediction of media content down load conduct. Achieving accurate content material prediction can assist to prefetch the most applicable content objects in an effort to be consumed via the consumer within the close to future with high possibility. This is useful to significantly lessen the get right of entry to put off and in the meantime, saving both electricity and facts traffic consumption via sending off excessive content material Prefetching.

2. RELATED WORK

Transportable Prefetching

For the cellular Prefetching, affords the Informed Mobile Prefetching (IMP) framework as a Prefetching scheduling a library that a mobile app is capable of link to govern the electricity and mobile facts intake. In IMP, a strong the belief is that the whole manner works on the basis that call apps offer specific prediction data via mining users' content material utilization sample. Ravindranath et al. illustrate that inappropriate Prefetching may be nugatory to mobile customers. They adopt Procrastinator to decide whether Prefetching responsibilities must be invoked by means of thinking about exceptional constraints, which include the community environment (on Wi-Fi or cell), the user's statistics plan, and battery life. Note many associated works in the literature target at designing mobile Prefetching mechanisms of usual purpose, which can be used for exceptional sorts of cell apps. Similar to our work, a recent study in [10] considers the media content material Prefetching in cellular GSM offerings, which undertake the linear regression model for prediction with the aid of utilizing the tweet scheduling features through mining the user's GSM utilization pattern. Along a unique line encouraged by way of the insight that social friendship plays a important role on customers' media tweet click on behavior, in this paper we suggest a singular socially-driven mastering-based Prefetching prediction based on the generalized cluster-based Latent Bias Model.

Transportable Online Shared Network Analysis

For the socially-driven network evaluation, pick out the social graphical shape as a key have an impact on the interactions of users with social ties the use of Flickr dataset. A quantity of latest papers addresses the hassle of computing have an effect on in Twitter-like networks and finding chief customers whose tweets are influential. Come across the influential customers by way of making use of the Page Rank ranking set of rules primarily based on the range of retweets among users, and utilizes the person attributes including the wide variety of buddies, number of followers and past affect of seed customers. Reference proposes a variant of Page Rank algorithm, accounting for topic-specific ranking to measure the influence. Our work does not goal at locating users who're influential without delay. Instead, we contain the feature that the special social friends make a totally exclusive impact on a user's probability behaviors on media tweet consumption. A tree-based totally algorithm to mine person-pal graphs to find out sturdy buddies of a person. In evaluation to our work, recollect how to utilize the social friendship structure to facilitate the information and content sharing amongst users in unique beneath the wealthy media content material.

3. FRAMEWORK

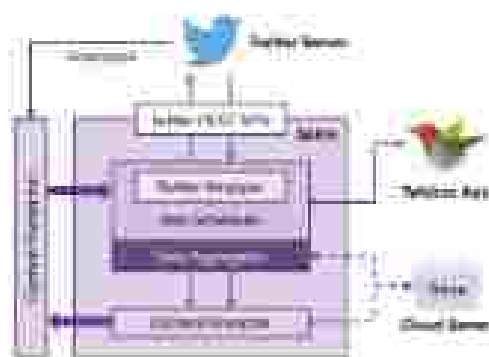


Fig.1 Spice Architecture

We now introduce the device structure of Spice for media content prefetching in mobile OSNs. As illustrated in Fig. 1, Spice works in a consumer-centric way (i.e., carried out on a user's cell tool), and collects traces about all tweets on the user's feed when having access to Twitter with the Twidare app. These traces had been retrieved the usage of the Twitter REST API, positioned within the Twitter Wrapper, which is managed by the Task Scheduler issue to periodically question for brand spanking new tweets on her newfeed (see Section V). Then the retrieved tweets and person records are exceeded in the Data Aggregator aspect. To make sure the user privateness, text content material in tweets are not recorded and the anonymization of all personal statistics-associated fields will perform earlier than directly storing the information on the cellular device. Later, the regionally stored facts is uploaded to the cloud server most effective for similarly analysis when the mobile device is recharging and connecting with Wi-Fi. The Data Aggregator additionally passes the obtained facts to the Content Predictor thing wherein the gaining knowledge of-based totally content material prediction version is skilled for predicting the probability

whether or not the might click the media in a brand new tweet. Specifically, this predictor might take the consumer's new tweets and the applicable capabilities of these tweets as an input to a system getting to know version, so as to pick out the relevant media content material (e.g., photograph documents) contained in those tweets because the prefetch applicants. These media files are then to be prefetched via the Content Prefetcher aspect. Note that, to speed up the whole method, we offload the machine gaining knowledge of technique to a cloud server. When one of these cloud servers is not to be had, we will bring it out at the mobile device regionally.

Logical Workflow

We then show the Logic workflow of Spice framework in Fig 2 to demonstrate how Spice works in access information when sparking media contents are going to be prefetched. As what we described above, Spice works in a user-centric way and is carried out at person side to function a middleware smart library between the content material content and user's prefetching necessities. A mobile app of OSNs, e.G., Twitter, Face book, or We Chat and so on can have interaction with Spice with unnamed third-birthday party API (judiciously rank social media documents primarily based at the end result of completely learning with one person's network utilities, app usage convergent, and context- or social-based totally preferences. Specifically, the Logic workflow of Spice includes the following two additives, i.E., usage-adaptive scheduling and cluster-based gaining knowledge of. The aim here is to judiciously determine while have to the Prefetching machine be invoked, and then intelligently use a mastering-based mechanism to manual what social media files must be prefetched.



Fig. 2. Logical workflow of the Spice framework prefetching media.

4. EXPERIMENTAL RESULTS

In this experiment, when we run the run batch file it will opens the Home screen, on that we have to upload the dataset. (in dataset, we just have user id and their friends details but their tweets data we are randomly generating)



After that generate the cluster. (Here we are generating the number of tweets for every user in between 0 to 30 if no. of tweets > 20, its close friend; if 10 to 20 familiar friend (as the user is unfamiliar)



5. CONCLUSION

Aiming at designing a clever cellular Prefetching mechanism, on this paper, we first identified the correct features of person's social behavior in OSM, after which proposed a completely unique framework of Spice based at the cluster-based totally definitely LBM) studying mechanism for Prefetching prediction. We also superior an adaptive Prefetching scheduling scheme via mining customer's cell OSM app usage sample. We in addition evaluated the ordinary overall performance of Spice through trace-driven emulation on smart phones. Evaluation effects corroborate that the proposed Spice the method can advantage advanced performance with a vast get entry to postpone cut price at the low charge of cell information and power intake. Moreover, our format permits customers to offload their device marring methods to a cloud server, and achieves a velocity-up of as much as a thousand over the community execution on smart phones. Note that in this paper we suggest the Spice framework with the resource of using Twitter as a case examine. Nevertheless, the proposed strategies can be performed to specific OSMs as well. For instance, through integrating the Spice Prefetching mechanism, Spice need to benefit the Moment module (which includes healthy media content fabric for data sharing among buddies) of WeChat, a well-known mobile OSM service with six hundred million energetic clients. Moreover, we are able to keep in mind a complete layout to combine the Prefetching techniques enabled thru Spice at the mobile the aspect with cloud computing strategies on the content material server side in a synergetic way.

REFERENCES

- [1] E. Wu et al., "Spice: Socially-driven learning-based mobile media prefetching," in Proc. 25th Annu. IEEE Int. Conf. Comput. Commun. (IEEE INFOCOM), Apr. 2016, pp. 1-9.
- [2] A. Sella, A. Ligaman, and K. Dreier, "5G: Digital Future in Focus," accessed on Apr. 2014. [Online]. Available: <http://www.comscore.com/Insights/Presentations-and-Webinars.aspx?ID=2014/2014-05-Digital-Future-in-Focus>.
- [3] S. Karmy Digital, Social & Mobile Worldwide in 2015, accessed on Jan. 2015. [Online]. Available: <http://www.researchandmarkets.com/2015/01/digital-social-mobile-worldwide-2015>.
- [4] J. Holcomb, J. Gottried, and A. Mitchell, "News Use across Social Media Platforms," accessed on Nov. 2012. [Online]. Available: <http://www.journalism.org/2012/11/14/news-use-across-social-media-platforms/>.
- [5] D. Chu, A. Kassar, J. Liu, and P. Elias, "Mobile apps: It's time to move up to Cloud OS," in Proc. 33rd IEEE Int. Conf. Mobile Syst. Syst., 2011, p. 18.
- [6] B. D. Huggins et al., "Informal mobile prefetching," in Proc. 12th Int. Conf. Mobile Syst., Appl., Services, 2011, pp. 159-166.
- [7] Y. Wang, X. Liu, D. Chu, and Y. Liu, "EarlyBird: Mobile prefetching of social network feeds via content preference mining and usage pattern analysis," in Proc. 38th ACM Int. Symp. Mobile ASIS, Mobile ASIS, Comput., 2013, pp. 67-78.

- [8] B. Bouat, K. Benchiara, D. Fraa, Hoo-Piatre, and T. Eddin, "Where's my ally? A classification approach to geolocating users based on their social ties," in *Proc. 14th ACM Conf. Hypercent Social Media*, 2013, pp. 11-20.
- [9] K. Makou, *Twitter API: Up and Running: Learn How to Build Applications with the Twitter API*. Sebastopol, CA, USA: O'Reilly Media, 2009.
- [10] E. McCreadie, J. Scheroff, J. Lu, C. Macdonald, J. Gurne, and D. McAfeeagh, "On building a reusable Twitter corpus," in *Proc. 33rd Int. ACM SIGIR Conf. Res. Develop. Inf. Retr.*, 2012, pp. 2113-2114.
- [11] H. E. J. Hellman, "Modularity and community structure in networks," *Proc. Nat. Acad. Sci. USA*, vol. 103(iss. 23), pp. 8577-8582, 2006.
- [12] F. H. Wright, "Integrating research on gender differences in friendship: A case for moderation and a plea for caution," *J. Social Pers. Relationships*, vol. 5, no. 3, pp. 367-373, 1988.
- [13] A. Ahmed and L. Dry, "A k-mean clustering algorithm for mixed numeric and categorical data," *Data Knowl. Eng.*, vol. 53, no. 2, pp. 308-327, 2007.
- [14] A. J. Nicholson and B. C. Davis, "BreadCrumbs: Forecasting mobile connectivity," in *Proc. 14th ACM Int. Conf. Mobile Comput. Netw.*, 2008, pp. 46-57.
- [15] L. Wang, A. Bakkerman, J. Adler, and B. D. Davison, "Learning to rank social update streams," in *Proc. 33rd Int. ACM SIGIR Conf. Res. Develop. Inf. Retr.*, 2012, pp. 651-660.

INTERNATIONAL JOURNAL OF COMPUTER ENGINEERING TECHNOLOGY (IJ CET)

VOLUME 9, ISSUE 1, JULY - AUG 2018, PP. 166 - 175, ARTICLE IJ CET/JA/V9/I01

AVAILABLE ONLINE AT WWW.IAEME.COM/IJ CET/ISSUE-ASP/JTYPL/IJ CET&TYPE=WRITYPE=4

JOURNAL IMPACT FACTOR (2018) : 0.69 (CALCULATED BY GIST) WWW.IJ FACTOR.COM

ISSN PRINT : 0976 - 0067 AND ISSN ONLINE : 09760075

©IAEME PUBLICATION

V-BIBE: A New Identity Based Encryption Scheme

Ch. Ramesh

Asst Professor, Dept of IT

Gannarayana Institute of Technology and Science, Hyderabad, Telangana, India

K Venugopal Rao

Professor, Dept of CSE

Gannarayana Institute of Technology and Science, Hyderabad, Telangana, India

D. Vasunathi

Professor, Dept of CSE

JNTU(H.R) Hyderabad, Telangana, India

ABSTRACT

This paper proposes an Identity Based Encryption (IBE) scheme that has numerous advantages over previous such systems. Particularly in terms of computational performance and storage public parameters. The main advantage of the proposed scheme is that it is padding free. The construction is remarkably simple and the scheme is efficient in terms of both time and space.

KEYWORDS

Identity Based Encryption (IBE), QN Assumption and Identity Based Authentication Key agreement (IDAK) protocol

Cite this Article: Shree K George and Jagathy Raj V P, Novel Summary Generation Framework Based On Ontology and Natural Language Processing Techniques, International Journal of Computer Engineering & Technology, 9(1), 2018, pp. 166, <http://www.iaeme.com/IJ CET/ISSUE-ASP/JTYPL/IJ CET&TYPE=WRITYPE=4>

1. Introduction

In 1984 Shamir [1] presented the idea of Identity Based Encryption (IBE). IBE is more efficient than all public key crypto systems. The first practical IBE scheme was pro-

posed by Boneh and Franklin[2] in 2001. Their model is based on the concept of pairing over elliptic curves with security reduction in a random oracle. After Boneh and Franklin, many other proposed Identity-Based Authentication Key agreement (ID-AK) protocols which are based on the concept of pairings[2,3]. The ID-AK protocol based on Weil pairings was proposed by SMART[4] in 2002. There are few ID-AK protocols proposed by Chen and Kuo[5] by enhancing SMART's protocol. After this many other authors proposed many identification based protocols without or with key recovery. But most of the authors used the concept of pairings, which is time consuming as well as high priced.

The basic idea of IBE is that the sender can pick an arbitrary string E , an email ID, Phone Number, Another No., PAN No. or birth, as their public key and the corresponding private key is generated with by binding the identification of the user with a master key of a trust on authority, called personal key generator (PKG). Boneh and Franklin [2] in 2001 came up with a full functional IBE, which makes use of bilinear pairing over the elliptic curve.

The other alternatives to design the IBEs were to make use of Quadratic Residuosity(QR) assumption. Cocks[6] is the first one to design an IBE which is based on QR. This satisfies IND-ID-CPA security requirements in the random oracle model. This particular system is time-efficient as compared to IBEs which are based on pairings, but it in results in larger ciphertext of two elements in Z_N for every bit in the plaintext.

DFBIHE/BIHE and AnonIBHE/ABHE are two space-efficient IBE systems developed by Boneh, Gentry and Hamburg [7]. In these systems the ciphertext size is reduced from 2 elements to most effective one element in Z_N . Security of BIHE is basically depends on QR assumption inside the random oracle model as that as Cocks' IBE. BIHE is pretty space-efficient, but it is not time-efficient. To encrypt an l -bit plain text, it solves $l+1$ equations which are of the form $Rx^2 + Sy^2 = 1(\text{mod}N)$ for randomized values of R, S and N . To solve equations of that form needs a certificate and to have such one need to have a solver which generate primes [10]. Such certificates makes the process of solving equations of the form $Rx^2 + Sy^2 = 1(\text{mod}N)$ easy with the use of algorithm proposed by Cremona and Brodie[11]. The main bottleneck in DFBI system is generation of primes which is time consuming process. Further, the decryption key is 1 factor in Z_N due to the fact the identity ID is hashed to a distinct value to encrypt every message bit. Under Interactive Quadratic Residuosity (QR) assumption ABHE is secure under ABHE IND-ID-CPA. Further, the ciphertext length is reduced to almost one element in Z_N plus $l+1$ bits.

Hareem and Burns [12] proposed a scheme which reduces the non-public key length however still increase the ciphertext size by making some massive observations on the DFBI system. They found out that on knowing the values of $S \pmod N$, you will find a random solution to the equation $Rx^2 + Sy^2 = 1(\text{mod}N)$ with the usage of simplest one inversion in Z_N . The sender solves only $2\sqrt{l}$ equations in the form $Rx^2 + Sy^2 = 1(\text{mod}N)$ with the usage of simplest $2\sqrt{l}$ inverses in Z_N , so prime generation is not required. This reduces the encryption/decryption pace dramatically. The secret key is most effective one element in Z_N . But, this system produces a huge ciphertext of two $2\sqrt{l}$ factors in Z_N .

In our contribution, first we will have some definitions and later we will review BIHE. Then this paper explains BIHE in 2 steps. In First step the paper proves that hashing the identity ID to a specific value to encrypt every bit is more secure than hashing the identity ID once to encrypt the whole message and therefore, the secret key length is reduced to one element in Z_N . Later, in the second step this paper presents a

Table 1. Comparison between existing IBEs and the proposed IBEs

	Exponential Mechanismal Operations	Ciphertext Length
Cocks	0	$2 \log N$
The HIBE	$1 + 1/p$	$1 \log N + 2$
The AHBE	$(2 + 1/p)$	$3 \log N + 1 + 1$
V-HIBE	$2/p$	$1 \log N + 2$
Boneh-Boyen	$e + 3n$	$G_T + 2G$
Boneh-Franklin	e	$G + 1$

variant of HIBE (V-HIBE) which is efficient in terms of both time and space. Further, this paper shows that V-HIBE is more efficient than HIBE. Thus the V-HIBE has the identical ciphertext length as HIBE, but it solves only two equations of the given form $Rx^2 + Sy^2 = 1 \pmod{N}$ irrespective of plaintext size. This paper additionally presents another variant of V-HIBE with a time-space cheap-off. For V-HIBE, with less the value of n , extra detail in \mathbb{Z}_N , the sender can find a method to find a solution to equations of the form $Rx^2 + Sy^2 = 1 \pmod{N}$ with the use of almost one inversion in \mathbb{Z}_N and the preimage does not need to solve any of those equations. The proposed variant is efficient both in terms of time and space in comparison to different HIBE schemes. It no longer uses (heavy-computational operations like pairing as proposed by Boneh-Boyen or Boneh-Franklin IBEs [4, 2]) or even a trap modular exponentiation such as RSA. Table 1 compares all IBE schemes in this paper. In the given table, n stands for prime modular exponentiation and e for pairing operation and p for prime generation. l indicates the plaintext size. The symbols G and G_T represents an element in two groups G and G_T such that $e : G \times G \rightarrow G_T$.

2. Definitions

a. IND-ID-CPA

The IBE security model (IND-ID-CPA) is described as a case study in the form of a Task among an adversary A and a challenger C [12, 6]. This case study is as follows:

Setup: \mathcal{P} (Public Parameters (PP)) are generated by C , and those will be sent to A by C . Keeping the master secret key (MSK).

Query phase: A sends secret key queries to C for arbitrary IDs of his choice. Those queries are adaptive primarily based on previous queries.

Task: After satisfied with secret key queries, A sends to C two messages m_0 and m_1 for an identity ID^* . C tosses a coin $b \in \{0, 1\}$ randomly and encrypts m_b by the use of ID^* . Observe that ID^* have to not be queried in the query section.

Game: A outputs $b' \in \{0, 1\}$. A wins the task if $b' = b$. The advantage of A to attack a system and win this task is

$$\text{Adv}_{A,C}^{\text{IND-ID-CPA}}(\mathcal{E}) = |Pr[b' = b] - \frac{1}{2}|$$

The Task is referred as ANON-IND-ID-CPA safety version if A submits two pairs of (ID_0, m_0) and (ID_1, m_1) in the task phase. The benefit of the adversary triumphing this task is the same as above.

b. QR assumption and Jacobi symbol

For a positive integer N , let us define the following set $J(N) = \{x \in \mathbb{Z}_N^* : \frac{x^2-1}{N} \in \mathbb{Z}\}$

Where $\frac{x^2-1}{N}$ is the Jacobi symbol of $x \pmod{N}$. The Quadratic Residue set $QR(N)$ is described as follows

$QR(N) = \{x \in \mathbb{Z}_N^* : \exists y \in \mathbb{Z}_N^* \text{ s.t. } y^2 \equiv x \pmod{N}\}$ (modular quadratic residues)

Definition 1 Quadratic Residuosity Assumption Assume $RSA_{p,q}(N)$. \mathcal{P} is probabilistic polynomial time (PPT) algorithm. This algorithm generates prime size primes p, q . The QR assumption holds $RSA_{p,q}(N)$ if it cannot distinguish among the following distributions for all PPT algorithms A [1].

$$P_{QR}(N) : (N, V) \leftarrow RSA_{p,q}(N),$$

$$N \leftarrow p, q, V \leftarrow QR(N),$$

$$P_{QR}(N) : (N, V) \leftarrow RSA_{p,q}(N), N \leftarrow p, q, V \leftarrow J(N) \setminus QR(N)$$

In other words, the benefit of A towards QR assumption

$$|Pr\{(N, V) \leftarrow P_{QR}(N) : A(N, V) = 1\}|$$

$$= |Pr\{(N, V) \leftarrow P_{QR}(N) : A(N, V) = 1\}|$$

is negligible, i.e. A can not distinguish among elements in $J(N) \setminus QR(N)$ and elements in $QR(N)$.

B. Review of the HIBE Scheme

An l -bit message m with the use of a square $s \equiv s^2 \pmod{N}$ where $s \in \mathbb{Z}_N^*$, the person's identity ID and a pair of Jacobi symbols for every bit is encrypted by HIBE. ID will be hashed to one of a kind values in the first phase $H(ID, i) = s^i R_i = r_i^2$ where $i \in \{0, 1\}$, $s \in J(N) \setminus QR(N)$, and i is the bit index. Then it solves the equations $R_i r_i^2 + S_i z_i^2 \equiv 1 \pmod{N}$ and $s R_i z_i^2 + S_i z_i^2 \equiv 1 \pmod{N}$ to get (r_i, s, R_i, S_i) . The ciphertext is (S, c, β) where $r = (r_1, r_2, \dots, r_l)$, $s = s, \beta = (z_1^2, z_2^2, \dots, z_l^2)$ and $c = (c_1, c_2, \dots, c_l)$, $c_i = r_i^2 + S_i z_i^2 \pmod{N}$. To decrypt, one needs to know the square root of R_i or sR_i . If $R_i = r_i^2$, the message is $m_i = c_i - \frac{1}{r_i^2} z_i^2 \pmod{N}$ and if $sR_i = r_i^2$, the message is $m_i = c_i - \frac{1}{s r_i^2} z_i^2 \pmod{N}$.

4. Optimization of HIBE

4.1. Optimization of the private key length

As shown the previous section the HIBE scheme hashes the identification ID to one of a kind values $H(ID, i) = s^i R_i = r_i^2, i \in \{0, 1\}$. This results a negative impact on the scheme. First, the secret key size is more than the message through a element of \mathbb{Z}_N^* which consumes both bandwidth as well as memory. Second, the PKG has to generate a private keys of l factors in \mathbb{Z}_N^* , where l is the quantity of customers handle the entire system. This overloads the PKG, third, this not suitable for encrypting variable length messages.

This section deals with the point that hashing the identification ID to specific values $R_i = H(ID, i)$ does not have a high-quality impact on the security of HIBE. Solving the equations $R_i r_i^2 + S_i z_i^2 \equiv 1 \pmod{N}$ is exactly equal to solving the equations $R_i x^2 + S_i y^2 \equiv 1 \pmod{N}$. Therefore, there is no need for producing a product of non prime key of l factors in \mathbb{Z}_N^* .

Theorem 1 Hashing the identity ID to a extraordinary value to encrypt every bit is as efficient as hashing the identification issue to encrypt the entire message.

Proof: Lagrange and Hurwitz [11] confirmed that there's $N-4$ solutions for the equation $Rx^2 + Sy^2 = 1 \pmod{N}$ if $S \in R = QR(N)$. The answer (x, y) for this equation is within the form as follows $\pm \frac{a}{m} \pm \frac{b}{n} \pmod{N}$ for some $t \in \mathbb{Z}_N^*$ such that $R + S t^2 \in \mathbb{Z}_N^*$.

$(Rx^2 + Sy^2) \pmod{N} = (R_1x^2 + S_1y^2) \pmod{N}$ where $R_1 \equiv R^2$ and $S_1 \equiv S^2 \pmod{N}$. Assume C is random in \mathbb{Z}_N , W seems mathematically random exactly w.r.t. $\mathbb{H}(D, N)$.

4.2. V-BIBE

In this section we will explain how to implement V-BIBE (which is both time and space efficient). Like some other BIBE schemes, V-BIBE consists of 4 algorithms: Setup(), KeyGen(), Encrypt() and Decrypt().

Setup() (λ): using RS-Setup(λ), generate (p, q) , calculate the modulus $N = pq$, select $u \in \mathbb{J}(N) \setminus \{QR(N)\}$, and choose a hash function $H : ID \rightarrow \mathbb{J}(N)$. The general public parameters PP are $\{N, u, H\}$. The MSK parameters are p, q and a secret key for a permutation function $F_K : ID \rightarrow \{1, 2, 3\}$.

KeyGen(MSK, ID, λ): Calculate $H = H(ID) \in \mathbb{J}(N)$ and $w \leftarrow F_K(ID) \in \{1, 2, 3\}$ such that $w^2 H \in QR(N)$. Let $\{z_1, z_2, z_3\}$ be the 3 rectangular roots of w , $R \in \mathbb{Z}_N$, then $r = z_1$.

Encrypt(m, id): To encrypt a message $m \in \{-1, 1\}^l$, V-BIBE calculates $\{x_i, y_i, z_i, u_i\}_{i=1}^l \in \mathbb{H}(N)$ such that these variables fulfill the subsequent equations: $\{x_i, y_i\} \Rightarrow Rx_i^2 + Sy_i^2 \equiv 1 \pmod{N}$, $\{z_i, u_i\} \Rightarrow uz_i^2 + Su_i^2 \equiv 1 \pmod{N}$.

We use algebraic number $j = 2 + \sqrt{-3}$. To solve these equations, we use a product formulae given by Branch, Gentry and Hamburg [15].

Lemma 1. For $i = 1, 2$ allow (x_i, y_i) be an answer to $Rx_i^2 + Sy_i^2 \equiv 1 \pmod{N}$. Then (z_i, u_i) is an answer to $Rz_i^2 + Su_i^2 \equiv 1 \pmod{N}$

in which $z_i = \frac{y_i + jx_i}{y_i - jx_i}$ and $u_i = \frac{y_i + jx_i}{y_i - jx_i}$.

Proof: by substituting the values of z_i and u_i in the equation $Rz_i^2 + Su_i^2 \equiv 1 \pmod{N}$. Blum and Durfee [16] offered a variation of Lemma 1 to put in force their scheme. This lemma states that:

Lemma 2: For $i = 1, 2$ allow (x_i, y_i) be a solution to $Rx_i^2 + Sy_i^2 \equiv 1 \pmod{N}$. Then (z_i, u_i) is a solution to $Rz_i^2 + Su_i^2 \equiv 1 \pmod{N}$ in which $z_i = \frac{y_i + jx_i}{y_i - jx_i}$ and $u_i = \frac{y_i + jx_i}{y_i - jx_i}$.

Proof: Identical to Lemma 1. To find a solution to these equations, BIBE calculates $\{x_i, y_i\}$ after which uses Lemma 2 to find $\{z_i, u_i\}$ as follows:

$$z = \frac{y + jx}{y - jx} = \frac{y^2 + j^2x^2}{y^2 - j^2x^2} = \frac{y^2 - x^2}{y^2 + x^2} = \frac{y^2 - x^2}{Ry^2 + Sx^2}$$
 Where $\{x, y\}$ is a solution to $Rx^2 + Sy^2 \equiv 1 \pmod{N}$. In addition, $\{z, u\}$ are generated as shown above. The message $m = \{m_1, m_2, \dots, m_l\}$ is encrypted with the usage of following method: $c_i = m_i \cdot \frac{z_i + j u_i}{z_i - j u_i} \pmod{N}$. The ciphertext is $C = (N, r, C)$.

Decrypt(C, λ): The message can be decrypted from the ciphertext as follows: $m_i = c_i \cdot \frac{z_i - j u_i}{z_i + j u_i} \pmod{N}$ if $r^2 \in R$ and $m_i = c_i \cdot \frac{z_i + j u_i}{z_i - j u_i} \pmod{N}$ if $r^2 \in uR$. Correctness is a simple to show that:

$$\begin{aligned} (z^2 + 1) \cdot \frac{z - ju}{z + ju} &= \frac{z^2 - 2zju + 2u^2}{z^2 + 2zju + 2u^2} = \frac{z^2 - 2zju + 2u^2}{Rz^2 + Su^2} = \frac{z^2 - 2zju + 2u^2}{1} \\ &= \frac{z^2 - 2zju + 2u^2}{1} = \frac{z^2 - 2zju + 2u^2}{1} \end{aligned}$$

4.3. V-BIBE Security

Theorem 2 : Assume that the QR assumption holds for RSAgen and F is a secure PRF. If H is modeled as a random oracle in QR assumption, then the V-BIBE is IND-ID-CPA secure. Specifically, suppose A is an effective IND-ID-CPA adversary, then there exist better algorithms H_1, H_2 whose execution time is the same as that of A such that: $IBEAdv_{A, \mathcal{E}, \mathcal{D}, \text{Gen}, \text{Enc}, \text{Dec}, \text{Prv}, \text{Pub}} \leq \mathcal{O}(IBAdv_{H_1, \text{Enc}, \text{Dec}, \text{Prv}, \text{Pub}}) + PRFAdv_{A, \mathcal{E}, \mathcal{D}, \text{Gen}}$. We first introduce Lemma 3 [2].

Lemma 3: Assume $N=pq$ be an RSA modulus $S, R \in J(N)$, then

1) when $R \in J(N) \setminus QR(N), S \in QR(N)$, the Jacobi symbols $\frac{\pm x}{y} \pmod N$ for any function x are uniformly distributed in ± 1 , where x_i is a random variable uniformly chosen among the four square roots of S modulo N and $y \in \{s, -s, iR \in QR(N)\}$ for all the four values of s .

2) When $S, i \in J(N) \setminus QR(N), R \in QR(N)$, the Jacobi symbols $\frac{\pm 1}{y} \pmod N$ for any function 1 are uniformly distributed in ± 1 , where r is a random variable uniformly chosen among the four square roots of R modulo N and $1 \in \{1, -1, S \in QR(N)\}$ for all four values of r .

3) when $S, R \in QR(N)$, the Jacobi symbols $\frac{\pm x}{y} \pmod N$ and $\frac{\pm 1}{y} \pmod N$ are constant, i.e., the same for all four values of r and all s .

Proof: allow s_1, s_2 be the 4 square roots of $S \in QR(N)$ such that $s_1 = s \pmod N$ and $s_2 = -s \pmod N$, then the four square roots of s_1 are $\{\pm s_1, \pm s_2\}$. We are able to expect the same for $R \in QR(N)$ and the 4 square roots are $\{\pm r_1, \pm r_2\}$, wherein $r = r \pmod N$ and $r = -r \pmod N$.

CASE-1:

$$\frac{\pm s_1 \pm s_2}{r_1} \pmod N = \frac{\pm s_1 \pm s_2}{r_2} \pmod N = \frac{\pm s_1 \pm s_2}{-r_1} \pmod N = 1$$

$$\frac{\pm s_1}{r_1} \pmod N = \frac{\pm s_1}{r_2} \pmod N = -1$$

$$\frac{\pm s_1 \pm s_2}{-r_1} \pmod N = \frac{\pm s_1 \pm s_2}{r_2} \pmod N = -1$$

$$\frac{\pm s_1}{-r_1} \pmod N = -\frac{\pm s_1}{r_1} \pmod N \text{ and } \frac{\pm s_2}{-r_1} \pmod N = -\frac{\pm s_2}{r_1} \pmod N$$

$$\frac{\pm s_1}{r_1} \pmod N = \frac{\pm s_1}{-r_1} \pmod N$$

$$\frac{\pm s_2}{r_1} \pmod N = \frac{\pm s_2}{-r_1} \pmod N$$

$$\frac{\pm s_1}{r_2} \pmod N = \frac{\pm s_1}{-r_2} \pmod N \text{ and } \frac{\pm s_2}{r_2} \pmod N = \frac{\pm s_2}{-r_2} \pmod N$$

$$\frac{\pm s_1}{r_2} \pmod N = \frac{\pm s_1}{-r_2} \pmod N \text{ and } \frac{\pm s_2}{r_2} \pmod N = \frac{\pm s_2}{-r_2} \pmod N$$

$\frac{\pm s_1}{r_1} \pmod N = \frac{\pm s_1}{r_2} \pmod N, \frac{\pm s_1}{-r_1} \pmod N = \frac{\pm s_1}{-r_2} \pmod N, \frac{\pm s_2}{r_1} \pmod N = \frac{\pm s_2}{r_2} \pmod N$ and $\frac{\pm s_2}{-r_1} \pmod N = \frac{\pm s_2}{-r_2} \pmod N$. That means that, among the

four Jacobi symbols $\frac{\pm s_1}{r_1} \pmod N, \frac{\pm s_1}{r_2} \pmod N, \frac{\pm s_1}{-r_1} \pmod N, \frac{\pm s_1}{-r_2} \pmod N$ two are $+1$ and two are -1 . Case 2 and Case 3 can be proven similarly to Case 1.

Security proof: We define a chain of tasks and assume W_i represents the winning of the i th task by the adversary A , these tasks are defined as follows.

- Task 0: This Task is the standard adversary task.
- Task 1: This Task replaces the PRF F with a simply random function.
- Task 2: This Task explains how to simulate the hash characteristic H .
- Task 3: This Task sets $s \in QR(N)$.
- Task 4: This Task explains how to reply to an encryption question from A .
- Task 5: This Task sets $R \in J(N) \setminus QR(N)$.

Task-0: This Task substitutes $S = s^2$ for each bit.

Task-1 replaces the message m with a random wide message z .

Task-1b: For defining the IND-ID-CPA security of HE problems, this is the standard Adversarial task. The challenger chooses the random oracle $H : ID \rightarrow J(N)$ at random from the set of all such functions inside the Setup algorithm and lets A to query H at arbitrary factors. Therefore, we've got

$$|P_0[W_1] - P_1[W_1]| = \text{PRFAdv}_{A, \mathcal{E}, \mathcal{D}}(\mathcal{H}, \mathcal{N}, \mathcal{N})$$

Task-1: This is the same as Task-0, with the subsequent trade off. In Setup algorithm, in place of using a PRF F to respond to A 's private key queries, we use a genuinely random function $f : ID \rightarrow \{0, 1, 2, 3\}$. If F is a good PRF, A will no longer observe the distinction among Task-0 and Task-1. Particularly, there exists an algorithm $B1$ (whose execution time is not the same as that of A) such that $|P_0[W_1] - P_1[W_1]| = \text{PRFAdv}_{A, \mathcal{E}, \mathcal{D}}(\mathcal{H}, \mathcal{N})$

Task-2: (N, n, H) are the public parameters PP which are given to A in the previous Task wherein n is uniform in $J(N) \setminus QR(N)$ and the random oracle H is a random function $H : ID \rightarrow J(N)$. In this Task the following change is made to the random oracle H . The challenger responds to a question to $H(ID)$ by using selecting $u \in_p \{0, 1\}$ and $v \in_p \mathcal{Z}_n$ and setting $H(ID) = u^2 v^2$. For that reason the challenger implements a random characteristic $H : ID \rightarrow J(N)$ as within the previous Task. The challenger responds to a secret key question as follows. Assume $R = H(ID) = u^2 v^2$ for some $u \in_p \{0, 1\}$ and $v \in_p \mathcal{Z}_n$. The challenger responds to a secret key query for ID by way of putting both $R^2 = u^4$ (when $u = 0$) or $uR^2 = uv^2$ (when $u = 1$). When you consider v is uniform in \mathcal{Z}_n , will produce a square root of R or uR which is also uniform among the 4 square roots, as in the previous Task. Consequently, A 's perspectives in Task-1 and Task-2 are equal and therefore, $|P_0[W_1] - P_1[W_2]|$

Task-3: In this Task, the challenger chooses n uniformly in $QR(N)$ as a substitute of $J(N) \setminus QR(N)$. Given that that is the hardest trade among Task-2 and Task-3, A will no longer notice the difference assuming that the QR assumption holds for RSAgen. Mainly, there exists an algorithm $B2$ (whose execution time is about the same as that of A) such that:

$$|P_0[W_1] - P_1[W_2]| = \text{QRAdv}_{A, \mathcal{E}, \mathcal{D}}(\mathcal{H}, \mathcal{N}, \mathcal{N})$$

Task-4: We describe below how in this Task, the challenger responds to an encryption question from A , spacing:

- He chooses $R \in QR(N)$ and sets $H(ID) = R \cdot v$
- He chooses $r \in_p \mathcal{Z}_n$ and computes $S^1 = r^2$ for a possible value r .
- He sets $c = \text{Encrypt}(PP, ID, m)$.
- He sends (S, c) to A .

Task-5: In this Task, we make a change in the assignment phase. We update the $Task^4$ in Task-4 with the subsequent: He chooses $R \in J(N) \setminus QR(N)$ and sets $H(ID) = R$. Note the most effective difference between Task-5 and Task-4 is that $R \in J(N) \setminus QR(N)$ in Task-5 rather than $R \in QR(N)$ in Task-4. A will no longer observe the distinction assuming that the QR assumption holds for RSAgen. Specifically, there exists an algorithm $B2$ (whose execution time is not similar to that of A) such that: $|P_0[W_1] - P_1[W_4]| = \text{QRAdv}_{A, \mathcal{E}, \mathcal{D}}(\mathcal{H}, \mathcal{N}, \mathcal{N})$

Task-6: In this Task, we encrypt the message via selecting $s_1 \in_p \mathcal{Z}_n$ independently and randomly for every bit. In other phrases, the direct approach $\mathbb{Z}^{\mathbb{Z}_n^2} \subseteq \mathbb{Z}^{\mathbb{Z}_n^2}$ and $\mathbb{Z}^{\mathbb{Z}_n^2} \subseteq \mathbb{Z}^{\mathbb{Z}_n^2}$ are replaced with the inverse approach $\mathbb{Z}^{\mathbb{Z}_n^2} \subseteq \mathbb{Z}^{\mathbb{Z}_n^2}$ and $\mathbb{Z}^{\mathbb{Z}_n^2} \subseteq \mathbb{Z}^{\mathbb{Z}_n^2}$ respectively. Let $e_1 = m_1 \cdot \mathbb{Z}^{\mathbb{Z}_n^2} \subseteq \mathbb{Z}^{\mathbb{Z}_n^2}$, $e_2 = m_2 \cdot \mathbb{Z}^{\mathbb{Z}_n^2} \subseteq \mathbb{Z}^{\mathbb{Z}_n^2}$ to show that Task-6 is indistinguishable

able from Task A, we propose the following Theorem.

Theorem 3: The distribution of the Jacobi symbols $\frac{\pm 2y_1x+2}{x}$ is indistinguishable from the distribution the Jacobi symbols $\frac{\pm 2y_2x+2}{x}$. The proof is based on the work of Davenport [17]. He proved that the Jacobi residues are indistinguishable from random, i.e. if an adversary is aware of $(\frac{x}{N})$, then it is impossible to learn $(\frac{a+x}{x})$ for an unknown value of a . Then a and $a+1$ are highly correlated and dependent, but it does not suggest that their Jacobi symbols are correlated. We now give a formal evidence for the above theorem.

Proof: Davenport proved that the subsequent is a difficult Problem [19]. **Lemma 4:** Let J be the Jacobi series modulo N with a start point a and length $P(k)$, for a protection parameter k and polynomial P . Given J , need to find $(\frac{a+x}{x})$. Which implicitly says that, knowing $(\frac{x}{N})(\frac{a+x}{x}) | (\frac{a}{x}), \dots, (\frac{a+x}{x}) | (\frac{a}{x}), \dots, (\frac{a+x}{x}) | (\frac{a}{x})$ is as hard problem to find $(\frac{a+x}{x})$. We first choose a and P such that $a+P+1 = 2y_1x+2$, then we will write the above collection in two different notations: $(\frac{x}{N})(\frac{a+x}{x}) | (\frac{a}{x}), \dots, (\frac{a+x}{x}) | (\frac{a}{x})$

$\implies \frac{\pm 2y_1x+2}{x} | (\frac{a}{x}), \dots, (\frac{a+x}{x}) | (\frac{a}{x})$ (where $a_1 = 2y_1x+2 \implies a_1 = 2y_1x+2 \implies a_1 < 2x < 2y_1x+2$)
 $(\frac{x}{N})(\frac{a}{x}) | (\frac{a+x}{x}), \dots, (\frac{a+x}{x}) | (\frac{a}{x}) \implies \frac{\pm 2y_2x+2}{x} | (\frac{a}{x}), \dots, (\frac{a+x}{x}) | (\frac{a}{x})$ (where $a_2 = 2y_2x+2 \implies a_2 = 2y_2x+2 \implies a_2 < 2x < 2y_2x+2$). It is clear that Z_N is an additive group, the values of a_1, a_2 and P exist in each sequence for any value y or x this means that that both sequences represent the Davenport Hard problem. Moreover, guessing the Jacobi symbol $\frac{\pm 2y_1x+2}{x}$ from the sequence $\frac{\pm 2y_1x+2}{x} | (\frac{a}{x}), \dots, (\frac{a+x}{x}) | (\frac{a}{x})$ is as hard as guessing the same Jacobi symbol from the sequence $\frac{\pm 2y_2x+2}{x} | (\frac{a}{x}), \dots, (\frac{a+x}{x}) | (\frac{a}{x})$. The same holds for $\frac{\pm 2y_1x+2}{x} | (\frac{a}{x}), \dots, (\frac{a+x}{x}) | (\frac{a}{x})$.

Considering Theorem 3, A will not not be able to distinguish between Task A and Task B, i.e. $\{Pr[W_A] = Pr[W_B]\}$.

Task B: In this Task, we update the message m^1 through a random string $s \in \{-1, 1\}^l$, i.e. $r_1 = s | \frac{\pm 2y_1x+2}{x}$ and $r_2 = s | \frac{\pm 2y_2x+2}{x}$. We first show that $\{2y_1x+2 | (-2y_1x+2)R \in QR(N)\}$.

Proof: let $g(x) = (2y_1x+2)$, then we have
 $g(x)g(-x)R = (2y_1x+2)(-2y_1x+2)R$
 $g(x)g(-x)R = 4x^2 = (2x)^2$
 $g(x)g(-x)R = 4(Rx^2)R = (2Rx)^2 \in QR(N)$ In addition, we are able to prove that $\{2y_2x+2 | (-2y_2x+2)R \in QR(N)\}$.

Since $x \in QR(N), R \in Z(N) \setminus QR(N)$ $(2y_1x+2) | (-2y_1x+2)R \notin QR(N)$ And $(2y_2x+2) | (-2y_2x+2)R \in QR(N)$ then Case 1 in lemma 3 may be implemented and, the distribution of the Jacobi symbols $\frac{\pm 2y_1x+2}{x}$ and $\frac{\pm 2y_2x+2}{x}$ are random in \pm . For that reason, A will no longer have the ability to distinguish between Task B and Task C, i.e. $\{Pr[W_C] = Pr[W_B]\}$ (clearly in Task C we have $\{Pr[W_C] = \frac{1}{2}\}$) Combining all of the previous equations proves Theorem.

5. Space-Time alternate

In this we present a change-off among the time and the ciphertext size of the proposed systems, for VIIIIE, rather than sending S in conjunction with c and r in the full

encrypted C , the sender sends $C' = (r_2, r_3, r_1, r_4)$. Accordingly, he can solve $Rx^2 + Sy^2 \equiv A \pmod{N}$ using only one iteration in \mathcal{Z}_N . This results in enhanced speed of encryption. At decryption, the receiver does not need to solve any equations and he can generate r_1 or r_2 (based on $d, r^2 = \text{Frob}(r)$) with the use of Lemma 2. Thus, of course, comes at the price of sending one greater element in \mathcal{Z}_N .

6. Conclusion

In this paper we have presented a new encryption scheme called V-IBE which is a variant of Boneh IBE scheme without pairings. The proposed scheme is more efficient than preceding IBE schemes in terms of computation time. We additionally proved that the proposed scheme has the identical security features as that of BIBE. Moreover, the proposed schemes have simplest and direct inside the \mathcal{Z}_N private key in place of 2 elements in \mathcal{Z}_N as in BIBE. Finally, we have presented a scheme which is efficient in terms of both time and space.

7. The References Section

References

- [1] A. Shamir, Identity-based cryptographic and signature schemes, *Advances in Cryptology – Proceedings of CRYPTO 84, Lecture Notes in Computer Science*, 196 (1985), 47–54.
- [2] D. Boneh and M. Franklin, Identity-based encryption from the Weil pairing, *Advances in Cryptology, CRYPTO 2001, Lecture Notes in Computer Science*, 2139 (2001), 213–220. Full version, *SIAM Journal on Computing*, 32 (2003), 590–615.
- [3] K. Paterson and G. Pyne, A comparison between traditional public key infrastructures and identity-based cryptography, *Information Security Technical Report*, 5(2) (2003), 337–3.
- [4] W. Ma, *Modern Cryptography – Theory and practice*, Prentice Hall, 2004.
- [5] A. Joux, A one round proof of the tripartite Diffie-Hellman, in W. Burmester, editor, *Algorithmic Number Theory, IV-Symposium (ANTS-IV)*, LNCS 1820, pages 385–394, Springer-Verlag, 2000.
- [6] A. J. Menezes, T. Okamoto, and S. A. Vanstone, Reducing elliptic curve logarithms to a finite field, in *IEEE Trans. Info. Theory*, number 39, pages 1601–1609, 1992.
- [7] L. Adleman and M. Huang, Function field sieve method for elliptic logarithms over finite fields, *Information and Computation*, 151 (1999), 310.
- [8] H. Kohda, R. Ohgishi, and M. Kamada, Cryptosystems based on pairing, in *Proceedings on Cryptography and Information Security*, Okinawa, Japan, January 2006.
- [9] O. Alomari, D. Hastenpeter and A. Hess, Software implementation of elliptic b-PHE, *International Workshop on Arithmetic of Finite Fields (WAIFI 2007)*, *Lecture Notes in Computer Science* 4547 (2007), 57–62.
- [10] ANSI X9.62, *Public Key Cryptography for the Financial Services Industry: The Digital Signature Algorithm (DSA)*, American National Standards Institute, 1996.
- [11] A. Atkin and F. Morain, Elliptic curves and primality proving, *Mathematics of Computer*, 61 (1993), 2869.
- [12] R. Barbostjanian and N. Kobitz, The impossibility that an elliptic curve has unique potential discrete log problems under the Mazur-Olivero-Vincent algorithm, *Journal of Cryptology*, 11 (1998), 141–145.
- [13] V. Barina, S. Gurbuzov, C. O. Omeroguzalp, and M. Sene, Efficient pairing computation on supersingular abelian varieties, *Designs, Codes and Cryptography*, 42 (2007), 211–221.

- [14] P. Barreto, H. Kim, H. Lyne and M. Scott, Efficient algorithms for pairing-based cryptography, *Advances in Cryptology - CRYPTO 2002, Lecture Notes in Computer Science*, 2442 (2002), 354-368.
- [15] P. Barreto, H. Lyne and M. Scott, Efficient implementation of pairing-based cryptography, *Journal of Cryptology*, 17 (2004), 371-384.
- [16] P. Barreto and M. Scott, Pairing-friendly elliptic curves of prime order, *Notes and Annals in Cryptography - SAC 2005, Lecture Notes in Computer Science*, 2957 (2005), 310-331.
- [17] H. de la Harpe, Efficient algorithms for computing discrete log for certain groups, *Advances in Cryptology - CRYPTO 98, Lecture Notes in Computer Science*, 441 (1998), 500-520.
- [18] A. Boldyreva, Efficient threshold signatures, multisignatures and blind signatures based on the gap-DHDDH-Hellman group signature scheme, *Public Key Cryptography - PKC 2001, Lecture Notes in Computer Science*, 2567 (2001), 31-46.
- [19] B. Boneh, A. Boyen and H. Shacham, Short group signatures, *Advances in Cryptology - CRYPTO 2004, Lecture Notes in Computer Science*, 3152 (2004), 41-55.
- [20] D. Boneh, G. H. Creighton, H. Ostrovsky and G. Nevenko, Public key encryption with keyword search, *Advances in Cryptology - EUROCRYPT 2004, Lecture Notes in Computer Science*, 3027 (2004), 536-522.
- [21] D. Boneh and M. Franklin, Identity-based encryption from the Weil pairing, *Advances in Cryptology - CRYPTO 2001, Lecture Notes in Computer Science*, 2139 (2001), 213-220. Full version: *SIAM Journal on Computing*, 30 (2001), 590-615.



GLOBAL JOURNAL OF ENGINEERING SCIENCE AND RESEARCHES ENHANCING SECURITY AND EFFICIENCY OF KEY MANAGEMENT IN CLOUD DATA SHARING SYSTEM

Priyanka¹ & Ch.Ramesh²

¹M. Tech Student, Department of CSE, G. Narayana Institute of Technology and Science (GNITS),
Shaikpet, Hyderabad, India

²Assistant Professor, Department of CSE, G. Narayana Institute of Technology and Science
(GNITS), Shaikpet, Hyderabad, India

ABSTRACT

The safe data sharing in cloud, cipher text policy attribute based encryption is promising as data owner having full control over access policy of shared data. Together with the growth of mobile applications, mobile cloud services have been introduced as a potential trend in cloud computing. Existing research work hardly notices that mobile front-end devices, such as smart phones, are far more vulnerable than servers with respect to privacy protection. Thus, the vulnerability in private key protection may easily lead to the exposure of keys to unauthorized users. In addition, current ABE key management schemes also require much bilinear pairing calculation, exponentiation and multiplication, especially in the decryption step. The resulting run time may be horribly unacceptable. In this paper, we propose a novel collaborative key management protocol in ciphertext policy attribute-based encryption (CP-ABE) aiming to enhance security and efficiency of key management in cloud data sharing system.

Keywords: Cloud, Key management, Encryption and decryption, Bilinear Pairing

1. INTRODUCTION

Cloud safety is one of the main problems every day with the boom in today's generation. Cloud service vendors deliver us the power in one of the 3 bureaucracy SaaS, PaaS, IaaS. Every provider supplied by way of cloud has its very own advantages. One of the critical aspects focusing inside the cloud computing are the price of facts sharing but at the same time protection warranty is also the essential purpose to be completed. Clouds carry out a vast range of benefits along with computing resources, commercial financial savings, Flexibility. However, privateness and safety issues are uncovered to be its primary issue.

Therefore, facts protection and privateness are the most vital concern in cloud computing. Cryptography inside the cloud offers encryption techniques to confirm records in an effort to be used or stored inside the cloud. It lets its customers too conveniently and securely access shared cloud services, as any statistics this is saved in cloud garage is included with encryption. Cryptography techniques in the cloud computing protect trockly records with out delaying data trade. In security enforcement of records machine, an access manipulate is one of numerous typically used approach. Access manipulate is a coverage that allows, rejects or confines get entry to the assets in a computing environment. It additionally video display units and facts-all attempts made to get right of entry to a gadget. It is a mechanism which is very tons essential for protection in computer protection. Accordingly, how to effectively and securely share consumer facts is one of the hardest challenges inside the scenario of cloud computing. This proposed work revised on Attribute-Based Encryption techniques which have been advanced thus far for attaining confidentiality information sharing in cloud computing.

Cloud computing is an alternative to records technology due to its useful resource-sharing and occasional-maintenance characteristics. With the recent adoption and diffusion of the facts sharing paradigm in allotted structures inclusive of on-line social networks or cloud computing, there were increasing needs and concerns for diversified information security. As people enjoy the advantages of these new technology and offerings, their



concerns approximately facts security and get entry to manipulate also stand up. People would like to make their sensitive or non-public information simplest reachable to the authorized people with credentials they designated. There are diverse different issues inclusive of risks of privacy publicity, scalability in key control, flexible access, and green person revocation. To obtain excellent graded and scalable information get admission to manage for any records saved in semi-trusted servers, leverage attribute based encryption (ABE) strategies is a promising cryptographic method to encrypt document. ABE is anticipated as a crucial tool for addressing the trouble of secure and first-class-graded information sharing and access control. In an ABE system, a consumer is diagnosed with the aid of a fixed set of attributes.

CP-ABE has end up to be a crucial encryption generation to address the venture of secure data sharing. In a CP-ABE, person's secret key is defined by means of an attribute set, and ciphertext is associated with an get admission to shape. Data Owner (DO) is allowed to determine get entry to shape over the universe of attributes. A person can capable of decrypt a given encrypted text whenever if his/her attribute collection set with the get entry to coverage over the ciphertext. Employing a CP-ABE gadget at once into a cloud utility which could yield some open issues, firstly, all secret keys of users need to be issued with the aid of an entirely relied on key authority (KA). This remains a protection threat this is referred to as key escrow trouble. By knowing the name of the game key of a consumer, the KA can able to decrypt the complete user's cipher texts which is in total in opposition to the will of the consumer; secondly, the expressiveness of attribute set is any other difficulty. The present CP-ABE schemes can handiest outline binary state over characteristic, as an instance, 1 for pleasing and 0 for no longer-gratifying, but now not dealing with the arbitrary-numeric attribute.

II. RELATED WORK

Key trade conventions rely upon a by and large trusted key age focus (KGC) to pick session keys and dispatching session keys to all correspondence elements fortitively. Regularly, KGC encodes session keys under another secret key imputed to every element all through enrollment. S. Rafiei, & D. Hinchison have optimized dynamic multicast key distribution schemes with MDPC codes the usage of PPMH tree. The computation complexity of key distribution is substantially decreased by way of employing error-correcting of MDPC codes rather than extra high priced encryption and decryption computations. The MDPC codes was combined with PPMH bushes and overall performance of distribution time and key restoration time turned into evaluated, this scheme offers much decrease computation complexity at the same time as keeping low and balanced communication complexity and garage complexity for dynamic group key distribution. This scheme is thus sensible for plenty packages in diverse broadcast capable networks which include Internet and wi-fi networks.

C. Wang, S. S. M. Chow, Q. Wang, K. Ren, and W. Lou proposed a privacy-keeping public auditing system for statistics storage safety in Cloud Computing. They used the homomorphic direct authentication and streamer covering to ensure that the TPA won't look into any learning roughly the data content put away on the cloud server all through the great reviewing system, which no longer least complex expenses with the weight of cloud-client from the motivations and most likely strongest examining challenge; however also reduces the clients' areas in their outsourced records spillage. Considering TPA may additionally simultaneously take care of multiple audit sessions from special users for his or her outsourced facts files, they in addition simplify their privacy-preserving public auditing protocol into a multi-person placing, where the TPA can perform more than one auditing obligations in a batch way for better performance. Extensive analysis indicates that their schemes are provably secure and incredibly green.

H. Hong, Z. Sun aimed the benefit of key-insulation mechanism with ABE and proposed a extensive efficient key-insulated ABE algorithm without pairings (KI-ABE-WF). During the going for walks of algorithms in our scheme, (pairs and AA needs) run any bilinear pairing operations. The high performance and proved safety make their scheme greater appropriate for records sharing in community structures, especially people with limited computing potential which includes wireless sensor networks, cellular verbal exchange system, and many others.



Q. Lin, G. Wang, and J. Wu addressed an essential issue of comfortable statistics sharing on untrusted storage. Toward offering a fulfilled cryptographic basis for secure records sharing on untrusted storage, they proposed 5 protection-enhancing solutions for ABE. The first enhancement they made is to offer granular revocation in ABE. In this thesis, they especially had taken into consideration practical utility scenarios wherein semi-trustable proxy servers are available. With this assumption they uniquely linked the proxy re-encryption technique with ABE and enabled the authority to delegate maximum extracting duties to proxy servers. Such an enhancement places minimum load on authority while revoking customers. Their proposed scheme is provably secure in opposition to selected cipher textual content assault. In their second enhancement to ABE, they addressed key abuse attacks and proposed an abuse-free KP-ABE (AFP-ABE) scheme.

III. FRAMEWORK

A. Overview of Proposed System

The proposed model includes 5 implementation modules:

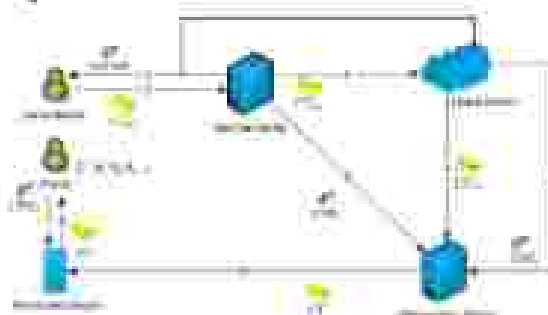


Fig 1. Proposed CKM-CP-ABE model

Client:

A Client (CL) is a consumer who intends to get right of entry to information in cloud storage from front-end devices. With the capability trend of mobile cloud services, mobile devices are most people of front-end devices. If the CL's characteristic set satisfies an access coverage related to upstream, the CL might be allowed to collect plaintext. We count on that numerous mobile devices are overall performance-constrained, so CLs may be in hazard of struggling key publicity.

Key Authority:

The key authority (KA) is a important issue in the machine. The KA is answerable for most calculating duties, including key technology, key update, and so on. We anticipate that the KA is semi-trusted in our system, meaning it is curious about the price of plaintext however has no purpose of tampering with it.

Cloud Server:

A cloud server (CS) is responsible for cloud garage control. All the records to be shared are in the control of the CS. We expect that any CS is semi-dependent on.

Decryption Server:

The decryption server (DS) has powerful computing skills. It undertakes and isolates the most, however no longer all project of decryption. We assume that the DS is semi-trusted and the DS get right of entry to channel is insecure, due to the fact it is enough for CKM-CP-ABE to assure statistics protection.

Data Owner:

An information owner (DO) is an authorized user inside the machine that possesses information to be uploaded. DOs outline their own explicit access policies so that only applicable CLs are granted permission to obtain plaintext.

B. Working of Proposed System

In the working, all the implementation modules are concerned in information sharing does now not collide with each other to get admission to data illegally, in any other case the scheme could be unavailable and meaningless. In our model, attributes are authenticated with the aid of the KA. All granted attributes are represented through a set of random elements blanketed in public parameters, which is generated with the aid of the KA in collaboration with a CS. Let $param$ be public parameters. When a DO intends to share data, it encrypts the records the usage of $param$ sent to stage the preliminary ciphertext CT_{pre} and uploads it to the KA. The KA re-encrypts the initial ciphertext to form the ultimate ciphertext CT_{ult} , which is sent to and stored in a CS. According to the CL's attribute set $S = (\theta_1, \theta_2, \theta_3, \dots)$, the key management protocol helps to simultaneously and secretly generate three different components of the private key, namely, CPK_1 , CPK_2 , and CPK_3 , each of which is kept by use of KA, CS or CL. Once asked for data stored in the cloud, the DS receives CPK_1 and CPK_2 to transform CT_{ult} to CT' . Eventually, the CL extracts the plaintext M from CT' by its CPK_3 .

IV. CONCLUSION

In this paper, we suggest a novel collaborative key management protocol to beautify each safety and performance of key control in ciphertext-policy attribute-based encryption for cloud-storage sharing system. Distributed key technology, difficulty and storage of private keys are found out without including any extra bodily infrastructure. We introduce attribute compaction to construct a private key update set of rules for plaintext-granted and instantaneous attribute revocation. The proposed collaborative mechanism flawlessly addresses not hinders key security trouble but additionally a worse hassle referred to as key exposure that previous research hardly noticed. Meanwhile it helps to optimize clients' consumer level in view that most effective a small amount of duty is taken with the aid of them for decryption.

REFERENCES

1. Guofeng Lou, Hanchu Hong, and Zhenrui Sun, "A Collaborative Key Management Protocol in Ciphertext-Policy Attribute-Based Encryption for Cloud Data Sharing", DOI:10.1109/ACCESS.2017.2707126, IEEE Access
2. J. R. Rappaport and D. Harkins, "A survey of key management for secure group communication," *ACM Computing Survey*, vol. 15, no. 3, pp. 309-339, 2001.
3. C. Wang, S. S. M. Chow, Q. Wang, K. Ren, and W. Lou, "Privacy-preserving public auditing for secure cloud storage," *IEEE Trans. Comput.*, vol. 62, no. 2, pp. 562-573, 2013.
4. H. Hong, E. Sun, "High efficient key-optimized attribute based encryption scheme without bilinear pairing operation," *SpringerPlus*, vol. 5, no. 1, pp. 131, 2016.
5. Q. Liu, G. Wang, and J. Wu, "Trust-based proxy re-encryption scheme for secure data sharing in cloud environment," *Information Science*, vol. 334, pp. 353-370, 2014.
6. C. Wang, S. S. M. Chow, Q. Wang, K. Ren, and W. Lou, "Privacy-preserving public auditing for secure cloud storage," *IEEE Trans. Comput.*, vol. 62, no. 2, pp. 562-573, 2013.
7. Q. Wu, "A generic construction of ciphertext-policy attribute-based encryption supporting attribute revocation," *China Commun.*, vol. 11, no. 12, pp. 93-100, 2014.
8. E. Waters, "Ciphertext-policy attribute-based encryption: an expressive, efficient and provably secure realization," in *Proc. Public Key Cryptography, PKC*, pp. 13-26.
9. M. Green, J. Hohenberger, and E. Waters, "Outsourcing the decryption of ABE ciphertexts," in *Proc. USENIX Secur. Symp.*, 2011, pp. 24.
10. D. Piesse, S. Sedghi, M. Neesinghe, and M. Pedersen, "Secure distributed key generation in attribute-based encryption schemes," in *Proc. ICITST*, 2013, pp. 103-10.



Improving Key Generation Performance on Public Cloud Storage Along with User Legitimacy Verification

POOJA SHUKLA

Dr. Pooja Shukla, Department of Computer Science and Information Security, Government Institute of Technology, Indore, India, 472001, India, Email: shukla.pooja@nitii.ac.in

Dr. RAJESH

Dr. Rajesh, Department of Computer Science and Information Security, Government Institute of Technology, Indore, India, 472001, India, Email: rajesh@nitii.ac.in

Keywords: Cloud Computing, Cloud Storage, CP-ABE, Keying.

Abstract

In the cloud storage systems, data management is very difficult to the clients provided user access policies. To manage the cloud data, we used Certificateless Proxy Key-Gen Based Encryption (CP-ABE) & it has been followed by a novel and efficient method to solve the issue. The proposed & secure access policy efficiently accommodate the cloud storage with hierarchical-based cloud services. However, inside the current CP-ABE whereby the single authority authority might not avoid the time-consuming operation (keygen, encryption and partial key distribution) and therefore the user is a single user. Even performance comparison when a CP-ABE scheme is applied in a public cloud storage service. In this paper, we recommend a novel hierarchical framework to deal with the problem of single-user performance bottleneck and offer an efficient delivery to manage the scheme with an existing mechanism. The proposed scheme can effectively enhance the end-point performance compared to other one to present a robust, high-efficient & secure access control for public cloud storage.

0 min

2 completed min

2 Abstract

Full Text

PDF View

View Article

Shukla, P & Rajesh, R (2024) Improving Key Generation Performance on Public Cloud Storage Along with User Legitimacy Verification. International Journal of Technical Innovation in Modern Engineering & Science, 10(10), 150-158. Available from: <https://www.ijtes.in/index.php/ijtes/article/view/2123>

View

View Article | View Content | View Full Text | Download Article

Full Text

PDF View

Similar Articles

- 1. P. S. Shukla, R. Rajesh, "Improving Key Generation Performance on Public Cloud Storage Along with User Legitimacy Verification", *International Journal of Technical Innovation in Modern Engineering & Science*, vol. 10, no. 10, pp. 150-158, 2024, doi: 10.30659/ijtes.2123

September 2023

Do my assigned or assigned articles meet for the scope?

[Home](#) > [Home](#)

DOWNLOADS

[Paper Template](#)

[Copyright Form](#)

IMPORTANT LINKS

[Call for Paper](#)

[Publication Guideline](#)

[Peer Review Process](#)

[Publication Ethics](#)

[Privacy Policy](#)

[Terms & Conditions](#)

[Refund Policy](#)

[Indexing](#)

[Archive](#)

[Contact Us](#)

CURRENT ISSUE

[Volume 101](#)

[Issue 101](#)

[Issue 102](#)

INFORMATION

[For Author](#)

[For Author](#)

[For Author](#)

Home | About Us | Contact Us | Privacy Policy | Terms and Conditions | Copyright

Copyright © 2023, International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES) - All Rights Reserved.

Powered by [IJTIMES](#) to [submit](#)

Intrusion Detection System using SMIFS and Multi class Multi layer Perceptron

V Maheshwar Reddy, I Ravi Prakash Reddy, K Adi Narayana Reddy

Abstract— As the new technologies are emerging, data is getting generated in larger volumes high dimensions. The high dimensionality of data may not be a great challenge while classification. The presence of redundant features and noisy data degrades the performance of the model. So, it is necessary to extract the relevant features from given data set. Feature extraction is an important step in many machine learning algorithms. Many researchers have been attempted to extract the features. Among these different feature extraction methods, mutual information is widely used feature selection method because of its good quality of quantifying dependency among the features in classification problems. To cope with this issue, in this paper we proposed simplified mutual information based feature selection with less computational overhead. The selected feature subset is experimented with multiclassified perception on KDD CUP 99 data set with 2-class classification, 3-class classification and 4-class classification. The accuracy of these models almost similar with less number of features.

Keywords — IDS, Perceptron, Mutual Information, Entropy, Conditional Entropy, Feature Selection.

1. INTRODUCTION

Intrusion detection system [3, 19, and 20] dynamically detects and monitors the activities that occur in the network and analyzes the malicious activity which violates the security policy and user security. Intrusion detection is categorized into misuse and anomaly detection. In misuse detection the incoming and outgoing packet signatures are compared against a database of signatures. Anomaly detection creates a profile for the normal behavior and any activity that deviates from the profile is considered as an attack. There is continuous growth in attacks on the network from the last three decades. The attacks are impacted lot on the user security. It is difficult to handle these attacks traditionally. To handle these attacks automatically, lot of research [1-10] is carried on intrusion detection system using machine learning. Machine learning algorithm requires the past data to train the model. The IDS using machine learning is built on the standard data sets like KDD CUP 99, NSL-KDD, Kyoto-2006+, ISCX, etc. The KDD CUP 99 data set is the most popular and standard data set used in the literature. The data is collected and distributed by MIT Lincoln laboratory and is sponsored by the Defense Advanced Research Projects Agency (DARPA) and Air Force Research Laboratory (AFRL). The KDD CUP 99 and KDD CUP 99 data sets are a subset of DARPA sponsored project. The [13] KDD CUP 99 data set contains 41 features

and a class label. The class label is multi-class and it has five classes namely Normal, DoS, Probe, RLL and UTP.

Feature selection [1, 2, 6, 7, 12, 13] is an important technique in selecting the subset of important features from the high dimensional data. This technique extracts relevant features and removes the redundant features. The feature selection approaches are categorized into filter based and wrapper based techniques. The wrapper based technique is dependent on classification algorithm whereas filter based technique extracts the subset of features, independent of classification algorithm. Most of the researchers developed the IDS models using machine learning algorithms with the different feature selection technique combinations. The ranking methodology and SVM are used in [21] as feature selection and classification algorithm. Similarly GA and Decision tree algorithm in [22], PCA and SVM algorithm in [4], GA and SVM algorithm in [2] and rough set theory and SVM with different kernel functions in [14] are used as feature selection and classification algorithms. The feature selection techniques like correlation based feature selection, consistency based filter and INTERACT are introduced in [5]. The naive Bayes, tree augmented naive Bayes and NBTree are trained on the selected subset of features. The relevant features are selected using BIRCH hierarchical clustering algorithm in [6] and in [3] bagging with REPtree is trained on these selected features. These feature selection techniques are wrapper based and works with only the specific classification algorithm. We propose a feature selection technique based on mutual information. This technique is a filter based feature selection technique. In the next section we cover the literature on mutual information based filtering technique.

The paper is organized as, section two deals with concepts of entropy, joint entropy, conditional entropy, and mutual information along literature survey on mutual information. Section 3 covers the proposed simplified mutual information based feature selection. Section 4 deals with experimental setup and results and the final section concludes the paper.

2. MUTUAL INFORMATION

Mutual information is originally proposed by Claude E. Shannon [15, 16] in the year 1948 in his research paper "A Mathematical Theory of Communication." Entropy and conditional entropy are the simplest units of mutual information. Mutual information measures the dependency between two variables. The entropy measures the uncertainty of a random variable. The entropy of a random

Received Manuscript Received on July 11, 2019.

V Maheshwar Reddy, Assistant Professor, ACS Engineering College, Tadipatri, India.

I Ravi Prakash Reddy, Professor, G. Visweswaraiah Institute of Technology and Research, Tadipatri, India.

K. Adi Narayana Reddy, Professor, ACS Engineering College, Tadipatri, India.

Journal Website: www.ijitee.in
DOI:10.2315/IJITEE.V08I09.2422

Published By:
Star Eya Intelligence Engineering
& Research Publications



variable X , joint entropy and conditional entropy of two random variables X and Y are defined respectively as

$$H(X) = - \sum_{x \in X} P(x) \cdot \log P(x) \quad (1)$$

$$H(X, Y) = - \sum_{x \in X} \sum_{y \in Y} P(x, y) \cdot \log P(x, y) \quad (2)$$

$$H(Y|X) = - \sum_{x \in X} \sum_{y \in Y} P(x, y) \cdot \log P(y|x) \quad (3)$$

Here $p(x, y)$ is the probability density function. The relationship between joint entropy and conditional entropy is defined as:

$$H(X, Y) = H(X) + H(Y|X) = H(Y) + H(X|Y) \quad (4)$$

Where $H(X, Y)$ and $H(X|Y) / H(Y|X)$ are joint entropy and conditional entropy respectively. The relationship between the entropy, conditional entropy, joint entropy and mutual information is shown Fig 1.

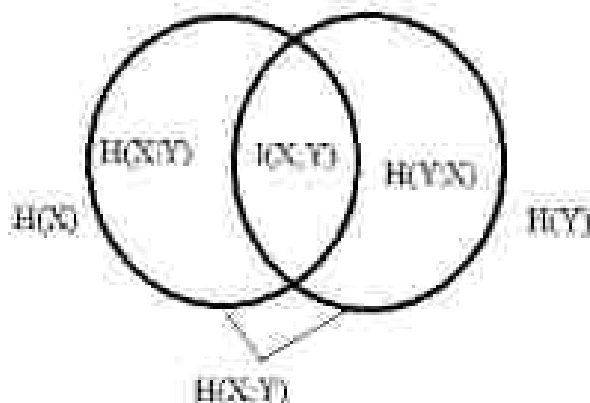


Fig 1: Relationship between entropies and mutual information

For two discrete random variables, the mutual information(MI) is defined as

$$MI(X, Y) = \sum_{x \in X} \sum_{y \in Y} P(x, y) \cdot \log \frac{P(x, y)}{P(x) \cdot P(y)} \quad (5)$$

The MI between two continuous random variables X and Y is defined as

$$MI(X, Y) = \int_X \int_Y p(x, y) \log p(x, y) dx dy \quad (6)$$

Here $P(x)$, $P(y)$ and $P(x, y)$ are marginal density functions of X , marginal density function of Y and joint probability density function of x, y respectively. The variables X and Y are dependent if $MI(X, Y)$ is very high and independent if $MI(X, Y)$ is zero.

Many researchers[1,2,6,9,11,12,24,25,26,27,28] used mutual information to select the sub set of features from the feature set and built the predictive models on the subset of features to classify the attacks in IDS. Baruti [10] proposed mutual information based feature selection in which a greedy selective procedure is applied based on the equation (7). This calculates the MI between candidate feature and class label using selected features and we select the feature with highest mutual information into the feature subset. Here β lies between 0.5 and 1.

$$\max \{MI(F_i, C) - \beta \sum_{f_1, f_2 \in S} MI(f_1, f_2)\} \quad (7)$$

The MIFS-U is a variation of MIFS and was proposed by Nojun Kwak et al. [11] in the year 2002. The MIFS-U is defined in equation (8) as

$$\max \left\{ MI(F_i, C) - \beta \sum_{f_1, f_2 \in S} \frac{MI(f_1, f_2)}{MI(f_1, C)} \right\} \quad (8)$$

where $H(f_i)$ is the entropy of the selected feature. In 2003, D.Huang et al. [8] and in 2005, Feunyu W.S. Chow et al. [7] proposed optimal feature subset using mutual information (OFS-MI). The OFS-MI uses Feature Relevance Criteria (FRC) and Feature Similarity Criteria (FSC). FRC selects the relevant features using $FRC(F_i, C) = MI(F_i, C)$ and FSC reduces the redundancy among the selected feature using the similarity between the features. A candidate feature becomes selected feature if $FSC(F_i, S) \geq \theta$, where θ value is fixed with 0.1.

$$\max \{MI(F_i, C) / R(F_i)\} \quad (9)$$

To overcome the drawbacks of OFS-MI H. Jiang et al [9] proposed another feature selection in 2005 which is minimal redundancy and maximum relevance (mRMR). The mRMR minimizes the redundancy between the features and maximizes the dependency among the selected feature subset and class labels. It consists of two stages: in the first stage it finds the feature subset with minimum error rate and low classification error. In the second stage a greedy forward selection and backward eliminating procedure is applied based on the formula (10) by replacing β with β' in (8).

$$\max \left\{ MI(F_i, C) - \frac{\beta'}{k} \sum_{f_1, f_2 \in S} MI(f_1, f_2) \right\} \quad (10)$$

In 2006, another estimation of MIFS was proposed by Huang H et al. [17] called MIOC in which analogies of candidate feature and selected features also used to extract the features in forward selection procedure with the equation (11).

$$\max \left\{ \frac{MI(F_i, C)}{\sqrt{\frac{MI(F_i, C)}{MI(F_i, S)} + \frac{MI(F_i, S)}{MI(F_i, C)}}} - MI(F_i, C) \right\} \quad (11)$$

An enhanced version of MIFS, MIFS-U, mRMR is proposed by Pablo A. Estevez et al. [13] in the year 2006 and is known as normalized mutual information based feature selection (NMIFS). The NMIFS uses normalized MI, in which it finds the relevant features based on the equation (12).

$$\max \left\{ MI(F_i, C) - \frac{\beta}{k} \sum_{f_1, f_2 \in S} \frac{MI(f_1, f_2)}{MI(f_1, C) \cdot MI(f_2, C)} \right\} \quad (12)$$

In 2016, Fuzzy Mutual Information-based Feature Selection with Non-Dominated solution (FMIFS-ND) was proposed by N. Hoque [18]. The FMIFS-ND selects the features using feature-class fuzzy mutual information and feature-feature fuzzy mutual information.

In 2016, Nguyen Tuan Vinh et al. [12] proposed relmMRMR. The relmMRMR estimator: relevancy ($R(F_i, C)$), dependency ($D(F_i, S)$), second order interaction ($3MI(F_i, S, S)$) and less-relevant redundancy ($R(F_i, S, C)$). The three forms of relmMRMR are defined in equations (13 - 15) as Form-6:



$$\max_{f \in S} \left\{ MI(C; S) - \frac{1}{|S|} \sum_{f \in S} \left\{ MI(C; f) + MI(f; f_1) \right\} \right\} \quad (15)$$

Form 1

$$\max_{f \in S} \left\{ MI(C; S) - \frac{1}{|S|} \sum_{f \in S} MI(C; f) + \frac{1}{|S|} \sum_{f \in S} MI(f; f_1) \right\} \quad (16)$$

Form 2

$$\max \left\{ MI(C; S) - \frac{1}{|S|} \sum_{f \in S} MI(C; f) + \frac{1}{|S|} \sum_{f \in S} MI(f; f_1) \right\} \quad (17)$$

In 2014, Precoti et al. [14] proposed maxMIFS which selects the optimal features with less computational overhead. The equation (16) defines the maxMIFS as $\max_{f \in S} \{ MI(C; f) - \max_{f_1 \in S} \{ MI(f; f_1) \} \}$ (16)

We proposed new version of MIFS called simplified mutual information based feature selection (SMIFS) which uses only a candidate feature, class label and recently selected feature to extract the next feature. The selected subset of features is mapped to the five class target classification. SMIFS is discussed in the following section.

3. SIMPLIFIED MUTUAL INFORMATION BASED FEATURE SELECTION (SMIFS)

The literature covers different feature selection methods using mutual information. The computational overhead is high in most of the methods. We proposed computationally efficient Simplified Mutual Information based Feature Selection (SMIFS) algorithm. The SMIFS initially considers all the features of the KDD CUP 99 dataset. It applies forward selection process and extracts the features. The first feature is selected from the given feature set which maximizes the mutual information between candidate feature and the class label. Next feature is extracted by finding the relevance $I(C; f)$ and dependency $I(f; f_1)$. Here f_1 is the recently selected feature, f is the candidate feature from given input set of features (F). In each iteration, one feature is selected based on the maximum value produced in equation (17) and placed into the selected feature subset (S) and on this subset we apply multilayer perceptron. This process is continued if the classification accuracy is increasing otherwise we stop the feature selection.

$$\max \{ MI(C; f) - MI(f; f_1) \} \quad (17)$$

The proposed algorithm is presented in Fig 2.

Algorithm: SMIFS

Input: Set of all features from KDD CUP 99 data set.

Output: Optimal sub set of relevant features (S)

Procedure:

1. Initialize $F =$ set of all features of KDD CUP 99 data set and $S = \emptyset$.
2. Calculate the relevancy between the class label and a candidate feature (f) from F .
i.e., calculate $I(C; f)$
3. Select the feature f_1 which gives maximum among the $MI(C; f_1)$, and place this feature into S and remove it from F . $F = F - \{f_1\}$ and $S = S \cup \{f_1\}$
4. Apply A forward Selection procedure (A Greedy selection Approach):
i. calculate the relevancy $MI(C; f)$ and dependency $MI(f; f_1)$
ii. find the maximum value using equation (17).
iii. Select that feature and marked it as selected.
 $F = F - \{f\}$ and $S = S \cup \{f\}$
5. Repeat the step four until features of S gives high accuracy when S is applied to classifier.

In SMIFS only recently selected feature is used to extract the next feature. The order and relevant features also affects the performance of the classifier.

4. EXPERIMENTAL SETUP AND RESULTS

The proposed IDS model uses SMIFS for feature selection and multi layer perceptron as classifier. The proposed model consists of four stages as shown in Fig 3. In first stage, data is gathered and divided into train and test data. In our model, KDD CUP 99 data set is used. KDD CUP 99 data set is available in various sizes for training and test data separately. The data set consists of 41 candidate features and one class label. Yuqin Li et al categorizes [2] the 41 features, 9 features are basic features of individual TCP connection (duration, protocol_type, service etc.), 13 features are domain knowledge features (host, logged_in, root_shell etc.), 9 features are traffic features computed by two second time window (count, serial gate, inv_count etc.) and remaining features are transportation feature of target host. In second stage preprocessing is done on the features. In this all non numeric features are transformed to numeric by appropriate functions and also the missing values are imputed. The features V20 and V27 values are zero and these two are removed from the data set. In stage three, we have estimated the dependency between target class label and the set of features of given data sets using proposed SMIFS of the proposed model. In the first level we build a two class predictive model which categorizes given



data into normal and attack. In the second level predictive model is a five class classification model and the classes are normal, dos, probe, r2l and u2r. In the third level we build another model which classifies only the attacks. In four class classification model, the class labels are dos, probe, r2l and u2r. Each time new feature is selected and placed in optimal feature subset. After each feature selection, feature subset is trained using multi layer perceptron with 10-fold cross validation is during the training the model.

Artificial Neural Networks (ANN) is computing systems inspired from the biological neural networks of human and animal brains. In our model shown in figure 2. Two types of multilayered neural networks are constructed to classify the data. First model is to classify the data into 5 classes (normal, dos, probe, r2l and u2r) and another model is to classify the attacks data only.



Table 1: Comparison of Accuracy with model with different features

No. of Features selected	Subset of selected features	Accuracy
9	5,9,23,22,24,12,35,37,3	98.21
10	5,9,23,22,24,12,35,37,3,6	98.66
11	5,9,23,22,24,12,35,37,3,6,32	98.74
12	5,9,23,22,24,12,35,37,3,6,32,36	98.82
13	5,9,23,22,24,12,35,37,3,6,32,36	99.03
14	5,9,23,22,24,12,35,37,3,6,32,36,2	98.75
15	5,9,23,22,24,12,35,37,3,6,32,36,2,31	98.45

Fig 3: Stages in IDS model using SMIFS and Multi layered perception(5-class classification).

The experiments run in Intel core i4 2093 GHz processor computer with 4 GB RAM and windows 64-bit operating system. The code for the experiments is written in R language and used some of the inbuilt functions and libraries to develop the model.

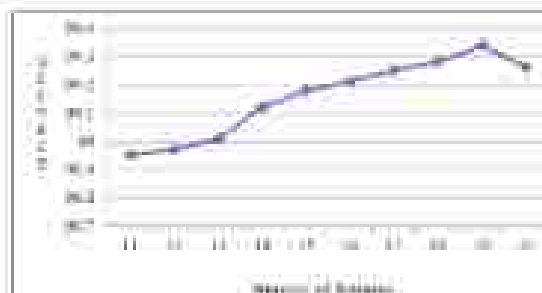


Fig 4: Accuracy of 3-class prediction model with different number of subset features

After every feature selection using SMIFS, feature subset is trained using two models. The results obtained from the experiments are displayed in table 1 and table 2. For 3 class predictions model the system accuracy is 99.34% with 19 features, for 5 class model the system accuracy is 99.03% with 13 features and 99.563% and for the 4 class attack classification model with 11 features only.



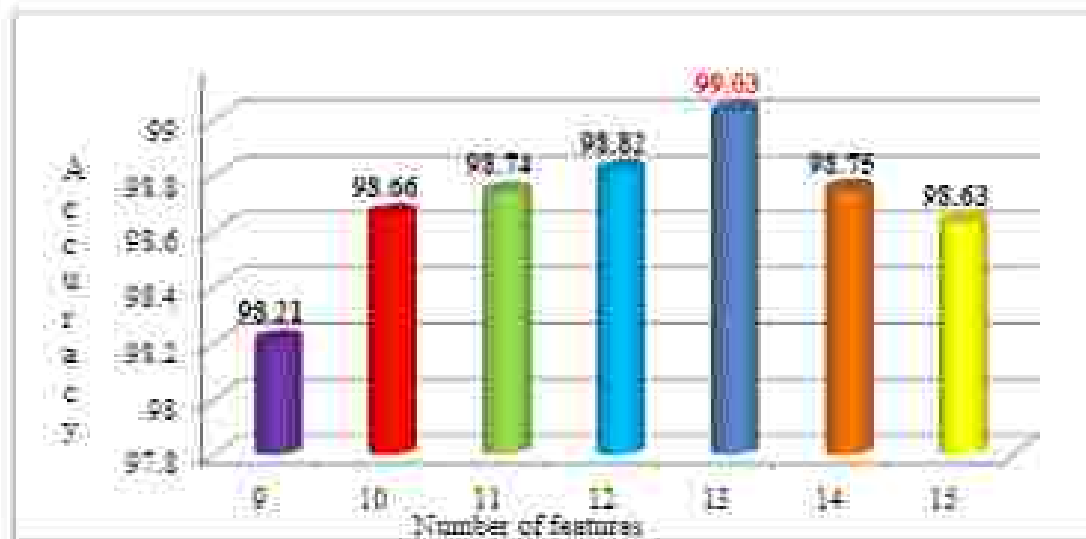


Fig 5. Comparison of accuracy with 5- class model using multilayered neural networks

Table 2 presents the accuracy of the model with different number of inputs to the multilayered neural network. When number of features are 11 out of 41 features of the attack data set of KDD CUP 99 and the

model is achieved approximately 99.6% of accuracy. So, we concluded that best features for proposed multilayered neural network with SMFS is 11 for the categorization of attack data.

Table 2: Results of multilayered neural network on attack data with order of features selection

No. of Features selected	Subset of selected features	Accuracy
9	{3,14,5,15,23,22,24,37,35}	99.368
10	{3,14,5,15,23,12,14,37,35,33}	99.442
11	{3,14,5,15,23,22,24,37,35,22,30}	99.643
12	{3,14,5,15,23,22,24,37,35,31,30,13}	99.352
13	{3,14,3,15,23,22,24,37,35,33,30,11,30}	99.194

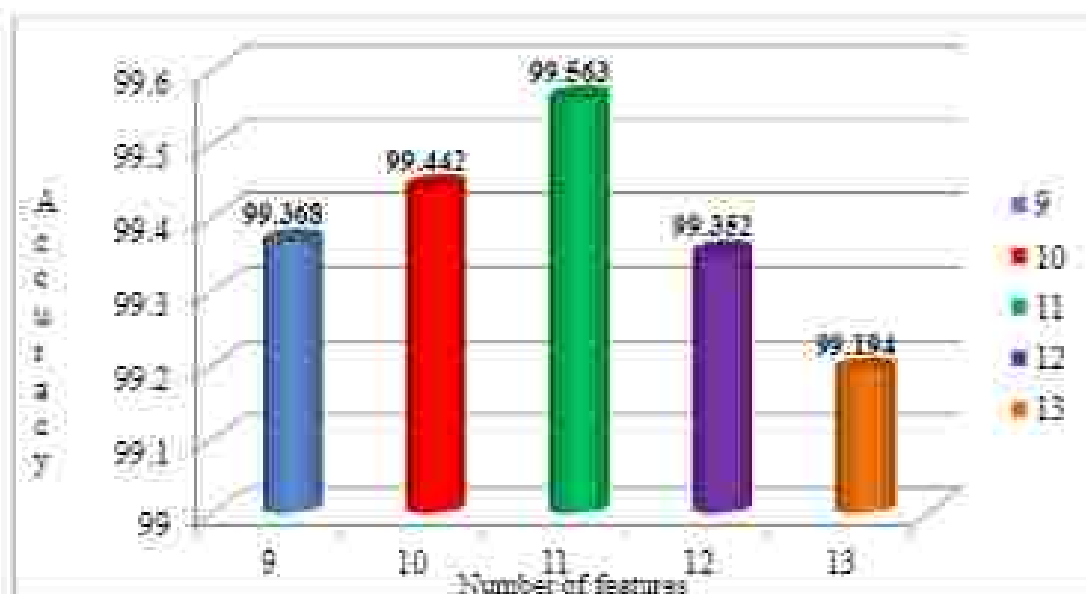


Fig 6. Comparison of accuracy with varying size of features of a attack dataset

The time taken to extract the features using proposed SMIFS is less when we compared with the existing feature extraction methods. The Table 3 shows that the time taken to extract the features using different existing algorithms and the proposed algorithm outperforms the existing algorithms.

Table 3: Comparison of Feature Selection mechanism

S. No	Feature selection Method	Time for each feature extraction in sec
1	MIFS	1.327
2	SMIFS	1.248

3	relieffMIFS	1.438
4	FMIFS-ND	1.378
5	maxMIFS	1.162
6	SMIFS	1.023

We built multilayer neural network predictive model on the extracted features with two-class, four-class and five-class classifications and the results are presented in table 4. The results shows that the accuracy of SMIFS+NN model is almost similar to the other models with less number of features.

Table 4: Comparison of results with different feature selection methods using multilayer neural network

Feature Selection Method	2-class classifier		5-class classifier		4-class classifier	
	# of features selected	Accuracy	# of features selected	Accuracy	# of features selected	Accuracy
SMIFS + NN	10	99.34	13	99.03	11	99.58
FMIFS + NN	21	99.28	13	99.32	10	99.48
MIFS + NN	23	99.32	15	98.99	12	99.55
SMIFS + NN	20	99.39	14	99.52	11	99.47
MMIFS + NN	22	99.08	13	99.17	12	99.62

5. CONCLUSION

In this paper, we proposed SMIFS algorithm to extract the useful features from the given data set. This algorithm is computationally efficient comparing with other feature extraction algorithms. The extracted features are feed into the multilayer neural network predictive model. The model is run on 2-class classification, 4-class classification and 5-class classification. The 2-class classifier considers only normal and attack as the classes. The 4-class classifier considers attack as dos, probe, u2r and r2l as classes. The 5-class classifier considers normal, dos, probe, u2r and r2l as classes. The experimental results prove that the proposed SMIFS+NN outperforms the other existing mutual information based feature extraction algorithms.

REFERENCES

1. Mahasenan, S. and Suresh, K. "Feature Selection and Feature Test: Building an Intrusion Detection System using a New novel feature selection Algorithm". IJCC: International Conference on Computing, Vol. 1, pp. 1-5, December 2014.
2. Yuhua Li, Jinglin Gu, Min Zhang, Jialun Yin, Guohua An and Baohua Guo. "An Efficient Intrusion Detection System based on Support Vector Machine and Genetic Feature selection method". Service Based Systems and Applications, 2012.
3. Looze, R., Deussen, S., Mariani, and Stefano, Galassi. A Network With Intra- and Inter-Subnet Based Multi-Class Classifier. Expert Systems with Applications, 19(2):179-184.
4. Fenglin Kang, Wuhong Gu, and Xinyu Zhang. "A novel hybrid APCA and SVM with GA method for intrusion detection". Chinese Applied with Computing, 2014.
5. D. F. Garza and Gustavo C. Meda. "An using Bagging Research method of Machine Learning". 2015. (unpublished).

6. H. Zhang and Y. Chen. "Learning sparse linear model using mutual information based algorithm" in Artificial Neural Networks, April 2003.
7. Yuhua Li, X. Chen and Li. Hong. "Extracting Optimal Feature Subset Using Efficient Feature Set of High-Dimensional Mutual Information". IJCC: International on Computing, vol. 1, No. 1, January 2015.
8. Debin Gu, Yuhua Li, and Baohua Guo. "Efficient Dynamic Feature Selection based Feature Selection Computing and Application". IJCC, 2012.
9. H. Peng, F. Ding and C. Wang. Feature selection based on mutual information: effects of over-dependency, over-selection and over-completeness. IEEE transactions on pattern analysis and Machine intelligence, vol. 29(2008).
10. Feature Selection Using Mutual Information for Selected Features in Support Vector Machine Learning. IEEE transactions on Neural Networks, vol. 17, No. 4 July 2006.
11. Ngiam, Ekin, and Ching-Te Chai. "Fast Feature Selection for Classification problems - IEEE Transactions on Neural Networks, vol. 17, No. 1, January 2002.
12. Agnes, Sze, Yuhua, Min Zhang, Jialun Yin, Guohua An, Baohua Guo. High Order Dependency's Impact on Mutual Information based Feature Selection-Feature Recognition. IJCC, 2014.
13. Fahy, A., Francis, "Multi-Feature Classifier for Ports and Hosts". Artificial Neural Network Mutual Information Feature Selection. IEEE Transactions on Neural Networks, vol. 20, no. 2, January 2009.
14. Charles Forgy, M. Elmaghrabi, Jerome Pollock and Ben Veloso. "Theoretical analysis of feature selection methods based on mutual information". Communications, 2011.
15. Shannon, C. E. "A Mathematical Theory of Communication". Bell System Technical Journal, July 1948, Oct. 1948.
16. C. E. Shannon. "Communication Theory of Secrecy Systems". Bell System Technical Journal, Oct. 1949.



17. Wang, S., Li, N., Qi, G. and Guo, Y. "Fuzzy Adaptive Self-Organizing Control Based on Information Entropy Control", *Adv. Intelligent Systems* 2018.
18. H. Hojati, O. K. Ghobadipour, and S. S. Eftekhari "MPC-MPC: A novel information based fuzzy adaptive method", *Expert Systems with Applications* 41(2014)2141-2150.
19. Chai, H., "Robust Adaptive Control System Design", pages 2002.
20. "Fuzzy Control and Gain Process" Double the cloud world, (in Hong Kong), Learning for Network Innovation Initiative, 2019. IEEE conference on Systems and Networks.
21. Anwar, M., Javed, K., Saad, "Fuzzy modeling and Adaptive An Intelligent Decision System using expert rules machine", 2002.
22. Jay, Srin, Raj, Chait, Anand, S. and Kishu A. Hira, "Hybrid Fuzzy Controller for Network Adaptive Decision with Delayed Fuzzy Inference", 2011.
23. Chai, Zhong, Zhang, Zhong, K. Ghobadipour, "Confidence of GRAPF based on fuzzy inference Prediction".
24. "Fuzzy Inference, Prof. Saeed, Shadi, Hayati and Fazel, Shadi, "Conditional Model: Information based fuzzy adaptive for Classification Task", Springer 2007.
25. Hwang, C., Yeh, M., and Jansen, J., "Conditional Dynamic Model Information based Fuzzy Inference, Computing and Information", vol. 21, 2017, Elsevier.
26. Farook, Saad, Mohammad, Erum, Yasmin, Fayyaz, Abdul, Majeed, Muneer, Yasmin - "Model information based fuzzy inference for adaptive decision systems - Journal of Network and Computer applications", Elsevier (2017).
27. S. Chai, H. Yu, "Model information based fuzzy adaptive for classification problems", *Decision support systems* 48(1)(2012) 671-686.
28. Mohammad A. Ghobadipour, "Fuzzy Model Information for Fuzzy Adaptive in Network Adaptive Decision System", Proceedings of the 10th International Conference on Digital Society and Networks (DigitalSoc), Kuala Lumpur, Malaysia, 2011.

Home > All Journals > Engineering & Technology

> International Journal of Computers and Applications > Current Issues > Volume 42, Issue 2

> Food pattern size and nutrient-dense food selection for reliable diet optimization in meals as per dietary instructions

Back To Table

PDF download + Online access

- 40 hours access to article PDF & PDF extract
- Article PDF can be downloaded
- Article PDF can be searched

USD 50.00

Buy Now

Issue Purchase

- 30 days online access to complete issue
- Article PDFs can be downloaded
- Article PDFs can be searched

USD 267.00

Buy Now

View the full record on Crossref

Disclosure statement

No potential conflict of interest was reported by the authors.

Additional information

Notes on contributors

Dr. Venkateswaranna

Dr. Venkateswaranna Pagada has 12 years of teaching experience. Venkateswaranna Pagada's research E.Ph.D. from IIT, Manipal and M.Tech. from R.V.R. & J.C. College of Engineering, Guntur, Country. Venkateswaranna Pagada is pursuing Ph.D. under a thesis guidance of Dr. L. Raj Prakash Reddy. The research interests are computer and communication networks, machine learning and big data analysis.

Dr. Ravi Prakash Reddy

Dr. L. Ravi Prakash Reddy received his B.Tech. from Vastav College of Engineering, Hyderabad in 1994 and M.Tech. from Anna University, India in 1997. He obtained his Ph.D. from JNTU Hyderabad in 2011. He has over 20 years of teaching experience and has 28 research publications to his credit in both National and International journals. Currently his research students are pursuing Ph.D. under his guidance. He joined IITB in 2011 and took charge as Head of the department in 2011. He is a member of Editorial Board of Journal of Current Trends in Information Technology, and also a member of professional bodies such as IEEE and IETE.

Related Research

Recommended articles

Viewing

A Novel Trust-Based Scheme Based on Data-Flow Protection for Cloud AD Hoc Networks

Pengpeng Chen et al.

Intelligent Automation & Soft Computing

July 2022, Volume 32(1)

[Home](#) > [All Journals](#) > [Engineering & Technology](#)

> [International Journal of Computers and Applications](#) > [Latest Issues](#) > [Volume 42, Issue 2](#)

> [Newly published articles in this issue](#)

April 2020 (2)

[International Journal of Economics](#)

[Published on 22 Feb 2017](#)

[Check Email Notifications from Deakin University for people who have followed using \[ORCID\]\(#\) Identifier](#)

[International Journal of Economics](#)

[Journal of Applied Social Research](#)

[Published on 26 Nov 2017](#)

Page 1/10

Home > All Journals > Engineering & Technology
 > International Journal of Computers and Applications - Local Issues > Volume 42, Issue 2
 > Food system size and structure case study selection for reliable data generation in small ag. doc datasets - martaaloo...

Information for

Author

Full information

Title

Abstract

Keywords

References

Books and journals

Identifying authors

Access statistics

Download statistics

Open Access

Changes

Submissions

Open Access

Open Access Policy

Open Access

FAQ and Information

FAQ and Support

Support

Alerts

Help

Home > All Journals

Open Access International Journal of Computers and Applications

Open Access

Open Access

Open Access

Open Access International Journal of Computers and Applications

Open Access International Journal of Computers and Applications

Open Access International Journal of Computers and Applications



A novel energy efficient virtual machine configuration and migration technique

L. Srinivas Rao^{1*}, L. Rajarajesh Babu²

¹ *Assistant Professor of Science and Technology, Anna's University, Chennai, Tamil Nadu, India*
² *Associate Professor of Technology and Science, Anna's University, Chennai, Tamil Nadu, India*
 *Corresponding author: E-mail: srinivasrao@anna.edu

Abstract

The overall goal of the first phase stage and the higher cost of managing virtual machines closely related to cloud services is reducing the cost of managing and migrating virtual machines. The cost of virtual machine management mostly includes the energy cost, this is the first mostly virtual machine management and migration techniques must save the lowest energy consumption. The management of virtual machine is closely dependent on the number of applications running on the virtual machine. When there is a very little usage the resources to improve the usage. The second parameter is migration in order to balance the load, when a number of resources are being carried out to reduce the energy consumption. This work addresses the issue of energy consumption during virtual machine migration and presents a novel virtual machine migration technique with improvement of energy consumption. The novel algorithm is first proposed in two implementations as VM migration and VM migration which demonstrate over 45% reduction in energy consumption.

Keywords: Cloud Computing, Virtual Machine Migration, Energy Efficiency, VM Migration, VM Migration.

1. Introduction

The issue of cloud computing for providing the scalable infrastructure is virtualization. Virtualization is used to maximize the underlying computing and communication infrastructure in order to create multiple instances of the same resources to be dynamically allocated to various customers or customer applications [1]. The virtualization as a technique allows the system provider to create different types of computing environments to match the customer requirements on a user server. Virtualization allows the service provider to meet the need for creating the scalable and application dependent environments. At the same time, the customer can also reduce the cost for maintaining computing and storage related infrastructure on site. The majority of this service providers deploy the use of virtual machines in order to improve actual hardware from the computing environment.

To understand the applicability of virtualization through virtual machines, we consider the fact that in case of physical and partitioned the requirements for multiple systems, administration of resources and reducing the cost of administration is the prime concern factor. In case of a person about the customer need to meet the administration from a certain or an even case client to host the infrastructure from one processor. In case of the old processor, having the same virtual machine can be used for variety of purposes and in case of all processors having the processor can be the same configuration for multiple customers. Hence, to meet the issue, the implementation of virtualization through virtual machines reduces the cost [2].

In the other side for public cloud environment, the user can choose multiple configurations for virtual machines to suit the requirements. Thus the user implementations for managing resource and create configurations of hardware resources for the provider.

The major implementation of virtualization is to manage the load balancing. The genetic load balancing techniques reduce the resource usage for the applications running on the data center. After it can be understood that, the cloud based load balancing techniques allow the customer to use the global or geographically distributed services based on geographically distributed server. Multiple service providers are being created and to demonstrate the benefits of load balancing in cloud based data centers in handling the high concurrent traffic generally referred to Cloud Application. Balancing the application resource based on demand without impacting the performance, increase the availability at the cost of VM migration. The cost of the virtual machine migration is to be equivalent by the energy consumption as the major component. Thus the work presents a novel algorithm for virtual machine migration with reduced energy consumption.

The rest of the work is presented as in Section 2 the implementations proposed with VM migration is presented, in Section 3 the genetic VM migration algorithm is proposed, in Section 4 the work presents the novel framework for virtualization, in Section 5 the work presents the novel virtualization algorithm, the results are presented in Section 6 and in Section 7 the conclusion is presented.

2. VM migration benefits

The overall work has demonstrated that the migration and migration of virtual machine can enhance the performance of the cloud application and infrastructure cost can be reduced. Thus in this work the concept for better influencing the performance and productivity with the migration [3].

Detailed Content

The Virtual Machines come with a reduced dimension in the system level and allows the provider, customer and migration to create more resources of the system. The access to computing

A SECURE AUDITING SCHEME TO PROVIDE MULTI-LEVEL

V.NAGA VAISHNAVI

DR.S.RAMACHARAN

ABSTRACT— *In the cloud, on the way to reduce the load on users, a trusted third party auditor (TPA) is engaged to behavior the verification, that is known as public auditing. However, the TPA may additionally have pointless get entry to non-public information throughout the auditing process. To ensure the integrity of the shared facts, a few schemes were designed to allow public verifiers i.e., TPAs to efficiently audit statistics integrity without retrieving the entire customers' information from cloud. Unfortunately, public auditing at the integrity of shared facts can also monitor information proprietors' sensitive data to the third party auditor. Here, we advise a new privacy-preserving public auditing mechanism, known as NPP, for the shared cloud data with a couple of group managers. Our scheme ensures that group customers can trace statistics adjustments thru distinct binary tree; and may get better the present day accurate data block whilst the current data block is damaged.*

Keyword: *Cloud Auditing, TPA, Integrity checking*

* **ACTech Student, Department of Security, Computer, Networks And Information, G.Narayanaswami Institute of Technology and Science (GNITS), Shaikpet, Hyderabad, India.**

** **Associate Professor, Department of Information Technology, G.Narayanaswami Institute of Technology and Science (GNITS), Shaikpet, Hyderabad, India.**

1. INTRODUCTION

Verifying the authenticity of records has emerged as an essential trouble in storing information on untrusted servers. It arises in peer-to-peer garage structures, community record systems, long-time period data, internet-server object shops, and database systems. Such structures prevent storage servers from misrepresenting or editing data by means of providing authenticity checks when getting access to statistics. Cloud storage server is the maximum common and famous provider among many cloud services for standard users. Users have a bottleneck in local storage space because there are increasingly more customers to shop records in cloud storage, so cloud storage service has excessive capability which solves customers' difficult hassle.

Many cloud garage auditing protocols had been proposed primarily based in this technique. In order to reduce the computational burden of the consumer, a TPA is delivered to help the consumer to periodically check the integrity of the statistics in cloud. However, it is viable for the TPA to get the client's information after it executes the auditing protocol more than one times. Auditing protocols are designed to ensure the privateness of the client's facts in cloud. While all current protocols awareness at the fruits or dishonesty of the cloud, they have disregarded the viable weak feel of safety and/or low safety settings on the purchaser. The method to cope with the customer's secret key publicity for cloud storage auditing is a totally important trouble. It is focused here on how to lessen the harm of the purchaser's key publicity in cloud storage auditing.

Third Party Auditor is form of checker. There are classes: non-public auditability and public auditability. Although private auditability can obtain better scheme performance, public auditability lets in each person, now not simply the consumer, to undertaking the cloud server for the correctness of information storage while retaining no non-public statistics. To permit off the load of control of records of the records owner, TPA will audit the facts of patron. It eliminates the involvement of the purchaser with the aid of auditing that whether or not his records saved inside the cloud are certainly intact, which may be crucial in reaching economies of scale for Cloud Computing. The released audit record might help proprietors to evaluate the danger of their subscribed cloud records services, and it will additionally be beneficial to the cloud server provider to enhance their cloud based totally provider platform. Hence TPA will assist

information proprietor to make sure Statistics are safe inside the cloud and management of records could be smooth and much less burdening to information owner.

In public auditing mechanisms, records is divided into many small blocks, whereas the proprietor is independently signal every block; and for the duration of integrity checking, a random combination of all of the blocks as opposed to the entire facts is retrieved. A public verifier might be a records user, who would really like to make use of the proprietor's records thru cloud. A public verifier offers professional integrity checking offerings. Existing public auditing mechanisms is used to verify shared facts integrity. But there is a privacy issue delivered in shared statistics with using current mechanisms is the preservation of identification privateness to public verifiers. It is hard to maintain identity privateness from public verifiers at some stage in public auditing, at some stage in protecting private records.

Moreover, an essential authentication procedure is lacking between the auditor and the cloud in maximums current public auditing schemes, as a result anyone can project the cloud for the auditing proofs. This problem will cause network congestion and useless waste of cloud assets. Although Liu et al. Designed a licensed public auditing scheme to clear up the trouble, it's far best suitable for a single patron, and cannot be implemented to organization-shared facts.

1. RELATED WORK

L. Huang, G. Zhang, and A. Fu proposed a privateness-keeping public auditing machine for statistics storage security in Cloud Computing. They applied the homomorphic linear authenticator and random masking to guarantee that the TPA would not research any understanding about the records content material saved at the cloud server at some point of the green auditing procedure, which not simplest gets rid of the burden of cloud person from the tedious and probably luxurious auditing undertaking, but additionally alleviates the users' fear in their outsourced-records leakage. Considering TPA can also concurrently take care of more than one audit classes from exceptional customers for their outsourced information documents, they similarly extended their privateness-retaining public auditing protocol into a multi-person placing, where the TPA can perform multiple auditing obligations in a batch way for higher efficiency.

B. Wang, H. Li, and M. Li given the privacy -keeping public auditing scheme which supports statistics dynamic operations. Public auditing scheme helps hashing approach. The statistics dynamic operations can get carried out by using Merkle Hash Tree (MHT). We use more than one TPA for the auditing procedure which handles more than one customer through group auditing. They make use of ring signature for secure cloud garage which guarantees that during the auditing method the TPA might not examine any records or information about information content material of group stored on cloud server. Ring signature preserves the identity of the signer from the verifier. They used Homomorphic Authenticable Ring Signature (HARS) scheme for group of users wherein they share information to each different and replace and delete data block wise manner.

G. Ateniese, R. Burns, R. Curtmola, et al focused on the trouble of verifying if an untrusted server stores a purchaser's statistics. They brought a model for provable records possession, in which it's far desirable to decrease the record block accesses, the computation at the server, and the purchaser-server conversation. Key additives of their schemes are the homomorphic verifiable tags. They allow verifying facts ownership without having access to the real statistics record. Experiments display that their schemes, which provide a probabilistic possession guarantee by means of sampling the server's garage, make it realistic to verify ownership of massive statistics units. Previous schemes that do not permit sampling are not realistic whilst FDP is used to prove possession of large quantities of records. Their experiments display that such schemes additionally impose a giant I/O and computational burden at the server.

3. FRAMEWORK

A. Proposed Framework Overview

In this framework we describing that a novel NPP scheme and its capabilities and by implementing this scheme, we can achieve the multi-levels privacy preservation along with group user revocation.

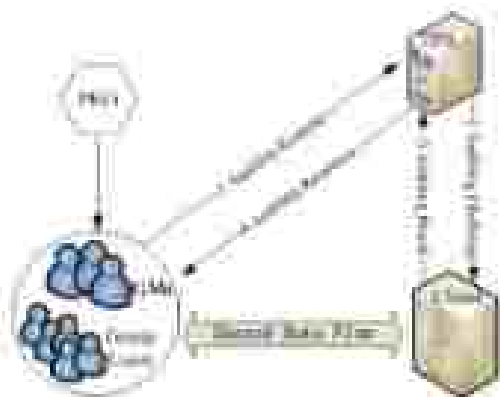


Fig1. NPP Scheme Architecture

From the fig1 our proposed system includes 4 main modules are as follows: Group Users (i.e., users & data owners), Cloud Server, Third Party Auditor (TPA) and Private Key Generator (PKG).

Workflow:

The cloud has effective storage space and computing capacity, and presents services (e.g., records storage, facts sharing, etc.) for organization users. The TPA can verify the integrity of the shared records on behalf of the institution customers. The PKG generates the machine public parameters and institution key pair for organization users. The institution customers include two kinds of customers: GMs (Group Managers) and regular members. Unlike existing device fashions, the GMs comprise multiple individuals who create the shared statistics together and proportion them with the regular members thru the cloud. Therefore, the GMs act as the common proprietors of the original statistics, and their identities are anonymous. Meanwhile, any of the GMs can add new contributors or revoke individuals from the organization. In addition, both a GM and an everyday member can get entry to, download, and modify the shared statistics within the cloud. Note that more than one manager in a collection could be very not unusual in exercise. For example, the shared information of a mission team is created by multiple managers together. Later, any of the GMs can maintain the shared records and manipulate the organization customers. When tracing the actual identity of the signer, a given wide variety of managers can cooperate to trace the actual identity, which ensures the equity of the tracing method. When a group consumer desires to check the integrity of the shared facts, she/he first submits an auditing request message to the TPA. After receiving the request, the TPA challenges the cloud for an

auditing proof. Once the cloud gets the auditing undertaking, it first of all authenticates the TPA. If valid, the cloud will go back the auditing evidence to the TPA. Otherwise the cloud will refuse the request. Finally, the TPA verifies the validity of the evidence and sends an auditing response to the group person.

B. Data Tracing and Recovery

To help records tracing and healing, we've designed an extra records shape primarily based on binary tree for the cloud server to document each exchange of information block. Through the facts, organization users can effortlessly trace information changes. When the damaged has been found, institution users can get better the proper statistics with the aid of the facts. As the organization customers can verify the elder blocks separately till find out the modern accurate block.

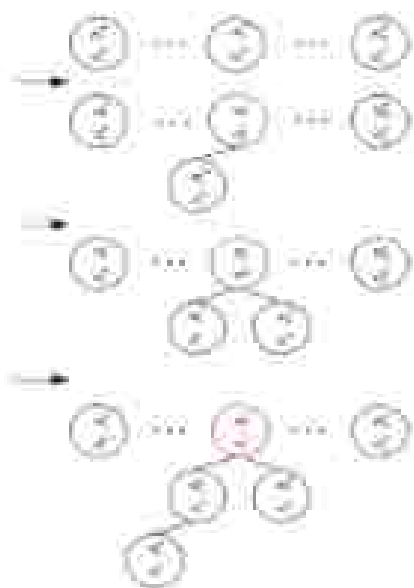
Procedure to Data tracing & recovery:

Step1: in this first step we took the original records to verify.



Here, the data blocks represented by "m" and signatures will be represented by "σ".

Step2:



In the i^{th} step, the i^{th} block has been updated for three times, in addition to the latest one is forever the root of the binary tree, the old ones are the nodes of the binary tree.

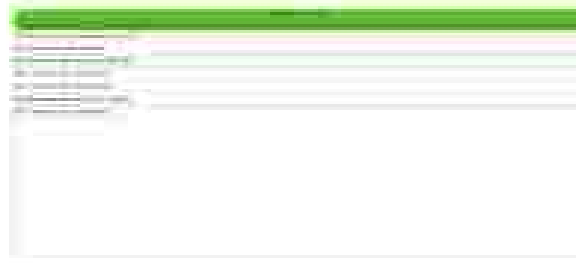
Step3: Finally,



Once the current signature has been spoiled, group users can trace the changes by implementing the postorder traversal to the final binary tree.

4. EXPERIMENTAL RESULTS

In this experiment, we used three servers which are included in our proposed scheme and those are TPA server, PKG server and Cloud Server. In this application we have group manager as well ordinary users. Whoever the user of the group, they must register and login into the application. After login as group manager, he can upload the file on to the cloud and also he can share the data to the ordinary users while file uploading process.



When the group manager required any file, he can download the file from himself.



When an ordinary user login into the application, he can download, verify the file and he can modify the data blocks. The TPA server can verify the metadata of the received file. The cloud server can store the uploaded files by group manager and PKG can generate the keys to the all users.

Finally, any user may join and revoked by group manager in this application.

5. CONCLUSION

Here, we proposed a novel multi-stage privacy-preserving public auditing scheme for cloud information sharing with more than one manager. During the method of auditing, the TPA cannot gain the identities of the signers, which ensures the identification privacy of the organization customers. Moreover, unlike the prevailing schemes, the proposed NPP calls for few institution managers to work collectively to trace the identification of the misbehaving person. Therefore, it neglects the abuse of single authority power & make sure non-framability. Exceptionally, group users can hunt the information changes via the designed binary tree & get better the latest correct data block when the current data block is spoiled.

REFERENCES

- [1] Anmin Fu, Shui Yu, Yuqing Zhang, Huiqun Wang, and Chanying Huang, "NPP: A New Privacy-Aware Public Auditing Scheme for Cloud Data Sharing with GroupUsers" DOI 10.1109/TBDATA.2017.2701347, IEEE Transactions on Big Data
- [2] B. Wang, B. Li, and H. Li, "Panda: Public auditing for shared data with efficient user revocation in the cloud," *IEEE Transactions on Services Computing*, vol. 8, no. 1, pp. 92-106, 2015.
- [3] B. Wang, H. Li, and M. Li, "Privacy-preserving public auditing for shared cloud data supporting group dynamics," *Proceedings of IEEE ICC*, pp. 1946-1950, 2013.
- [4] L. Huang, G. Zhang, and A. Fu, "Privacy-preserving public auditing for dynamic group based on hierarchical tree," *Journal of Computer Research and Development*, vol. 53, no. 10, pp. 2334-2342, 2016.
- [5] G. Ateniese, R. Burns, R. Curtmola, et al, "Provable data possession at untrusted stores," *Proceedings of ACM CCS*, pp. 598-609, 2007.
- [6] W. Hsien, C. Yang, and M. Hwang, "A survey of public auditing for secure data storage in cloud computing," *International Journal of Network Security*, vol. 18, no. 1, pp. 133-142, 2016.
- [7] J. Yu, K. Ren, C. Wang, et al, "Enabling Cloud Storage Auditing with Key-Exposure Resistance," *IEEE Transactions on Information Forensics and Security*, vol. 10, no. 6, pp. 1167-1179, 2015.

- [8] Q. Wang, C. Wang, K. Ren, et al. "Enabling public auditability and data dynamics for storage security in cloud computing." *IEEE Transactions on Parallel and Distributed Systems*, vol. 22, no. 5, pp. 847-859, 2011.
- [9] T. Jiang, X. Chen, and J. Ma. "Public integrity auditing for shared dynamic cloud data with group user revocation." *IEEE Transactions on Computers*, vol. 65, no. 3, pp. 2363-2373, 2016.
- [10] Y. Yu, J. Ni, M. An, et al. "Comments on a public auditing mechanism for shared cloud data service." *IEEE Transactions on Services Computing*, vol. 3, no. 6, pp. 996-999, 2015.

The Bastion Scheme for Securing Data under Key Revelation

¹P. Soehatri, ²T. Aparna

¹Dept. of Computer Networks And Information Security, G Narayanaamma Institute of Technology and Science(GNITS),
Shankarpet, Hyderabad, India.

²Department of Information Technology, G Narayanaamma Institute of Technology and Science(GNITS), Shankarpet, Hyderabad,
India.

Available online at: www.ijcseonline.org

Accepted: 13 Aug 2018, Published: 26 Aug 2018

Abstract—Modern days present a prevailing danger which breaks returns discretionary some stage in acquiring cryptographic keys by means of oppression or backdoors in a cryptographic software program. Once the encryption key is uncovered, the most effective possible degree to keep information confidentiality is to limit the attacker can allow accessing the ciphertext. This perhaps executed, for example, by sharing the ciphertext blocks to servers in compound executive domain names subsequently conceived that the attacker cannot reunion all of them. Nevertheless, if records are encrypted with existing schemes, an adversary geared up with the encryption key, can still compromise a single server and decrypt the ciphertext blocks saved therein. In this paper, we look at statistics confidentiality in opposition to an adversary which is aware of the encryption key and has to allow to a huge fraction of the ciphertext blocks. In this case, we propose Bastion, a unique and efficient scheme that guarantees records confidentiality although the encryption key is leaked and the adversary allows to almost all ciphertext blocks. We examine the security of Bastion, and we evaluate its performance by means of a prototype implementation. We also discuss sensible insights with admire to the combination of Bastion in industrial dispersed storage structures. Our assessment outcomes recommend that Bastion is nicely-appropriate for integration in present systems because it incurs much less than 5% overhead as compared to existing semantically at ease encryption modes.

Keywords—Modern days present, ciphertext,

1 INTRODUCTION

In the real world lately corroborates a big surveillance program aimed at breaking users' privacy. Perpetrators were not hindered by way of the diverse security measures deployed within the targeted services. For instance, despite the fact that these services trusted encryption mechanisms to assure records confidentiality, the important keying material was acquired by backdoors, bribe, or coercion. We research about the data confidentiality towards an adversary which is aware of the encryption key and has got entry to a massive fraction of the ciphertext blocks. The adversary can collect the important thing either through exploiting flaws or backdoors within the key-generation software program or by compromising the gadgets that save the keys. This antagonist invalidates the sanctuary of most cryptographic solutions, which includes individuals who preserve encryption keys with the support of mystery-sharing (bearing in mind individuals keys can be leaked as soon as they are generated). A brain bavel and efficient scheme which guarantees that plaintext information cannot be recovered as long as the adversary has access to at minimum all but two ciphertext blocks, even when the encryption key is uncovered. Bastion achieves this by way

of combining the use of widespread encryption capabilities with efficient linear recode. In this research, Bastion shares similarities with the perception of all-or-nothing transform.

Storage offerings provide the secure to the file replication as well as tolerate failures of the user's data. However, when all information replicas are controlled by way of the equal entity, there are obviously common system additives, and therefore failure modes common to all replicas. A failure of those additives can also cause facts turning into not available or maybe being misplaced, as lately witnessed for the duration of an Amazon S3 outage and Google's transient loss of email facts.

An AONT is not an encryption by itself but can be used as a pre-processing step before encrypting the statistics with a block cipher. This encryption paradigm known as AON encryption converted into brute-force attacks on the encryption key. However, AON encryption also can maintain facts confidentiality in case the encryption secrets uncovered, so long as the adversary has allow to at extreme all, yet, one ciphertext blocks. Secret-sharing schemes are a tool used in many cryptographic protocols.

A secret sharing scheme involves a supplier who has a secret, a hand and fist of a parties, and a set A of subsets of events known as the get right of entry to the structure.

II. RELATED WORK

This paper focuses in particular on the use of kind styles of Visual Secret sharing strategies which might be correct and framing all the strategies collectively as a literature survey. Aim an intensive experimental study of implementation of diverse has VSS techniques. Also specializes in the encryption techniques that are utilized in every scheme with their overall performance parameter, concentrates directly on the security issue. This has a look at extends to an application of the visual mystery sharing scheme that embeds an additional private photograph with pair key structure with no pixel enlargement.

The net is in want of protection in all the elements of transactions of statistics through it Visual secret sharing scheme promotes a few stages of security. Hence to know more approximately one of a kind sets of visible secret sharing schemes and its overall performance, the Literature has been performed on this paper. To sum up, all of the techniques are different and used for distinctive ranges in actual time. Some techniques are practical, to provide the security to the appropriate locations, but at present these old techniques not providing security to all locations. Every day new VSS techniques are evolving for this reason choose this paper well as secure Visual secret sharing scheme will generally utilize precisely in phases of security problems. A utility that has been discussed in this paper holds a couple key structures which promote proper stage of protection in revealing the greater private image.

A key-value shop (KVS) offers functions for storing and retrieving values related to unique keys. KVSs have become widely used as shared garage answers for Internet-scale distributed programs. Cristina Basescu et al provided a fault-tolerant wait-loose green set of rules that emulates a multi-reader multi-writer sign up from a fixed of KVS replicas in an asynchronous environment. Their implementation serves an unbounded number of customers that use the storage. It tolerates crashes of a minority of the KVSs and crashes of any number of customers. They furnished versions of our set of rules: one enforcing an atomic register and one imposing an everyday register, the latter does now not require examine operations to shop facts in the underlying KVSs. The authors got an efficient and reliable storage answers to this situation are either not possible or prohibitively inefficient.

Cristina Basescu et al furnished two robust, asynchronous, and efficient emulations of a check in over a set of fault-tolerant KVS replicas. Both emulations are designed for

an unbounded wide variety of clients, which may additionally all examine facts and write to the register (i.e., the emulations put in force a multi-writer multi-reader sign up). This makes the algorithms suitable for Internet-scale structures. Both emulations are delay and optimally resilient. The latter property approach that the set of rules tolerates crash-fatal screw-ups of any minority of the KVS replicas and of any variety of customers. The first one emulates a multi-writer normal sign up and it does not require study operations to write to KVSs. The other algorithm emulates an atomic or linearizable sign-up, in which all read and write operations seem to execute at a single factor in time between their invocation and response.

Consider a situation where in the transmission of encrypted messages is intercepted via an adversary who can hear ask the sender to reveal the random picks (and additionally the name of the game key, if one exists) used in producing the ciphertext, thereby exposing the cleartext. An encryption scheme is demable if the sender can generate t own random selections with the intention to make the ciphertext look like an encryption of a specific cleartext, as a result returning the real cleartext non-public. Analogous requirements can be formulated with appreciate to attacking the receiver and with gain to attacking both parties. Ran Canetti et al brought demable encryption and proposed buildings of schemes with polynomial demability. Additionally to living being demating through it, and having numerous programs, demable encryption presents a beginner's and smart construction of adaptively secure distributed deduction.

Ran Canetti et al described many structures that transform sender-demable schemes into receiver-demable schemes and vice-versa. If there are other events which can help in transmitting the records, they also constructed a sender-and-receiver-demable scheme from any sender-demable scheme. They defined the structures with appreciate to schemes that encrypt only one bit at a time. Generalizing these buildings to schemes that encrypt arbitrarily long messages is straightforward.

III. FRAMEWORK

A multi-cloud storage system that could leverage some of commodity cloud providers (e.g. Amazon, Google) with the aim of providing is given as actual with across distinct administrative domains. This "cloud of clouds" version is receiving growing attention in recent times with cloud storage organizations which encompass EMC, IBM, and Microsoft, pressing merchandises for multi-cloud structures. The adversary may also accomplish that both by way of leveraging firms at backdoors in the key-technology software program or via compromising the device that stores the keys (within the cloud or at the

personal. Since ciphertext blocks are distributed across servers hosted within special domains.

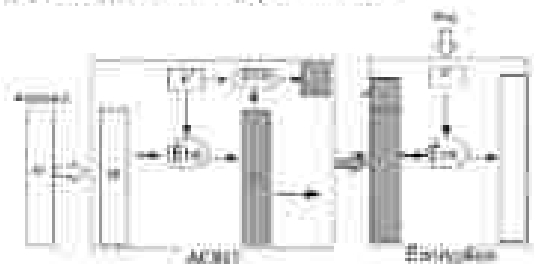


Fig.1 Pre-processing cipher encryption.

Bastion departs from existing AON encryption schemes. Current schemes require a pre-processing round of block cipher encryption for the AONT, accompanied by another round of block cipher encryption. Figures 1.

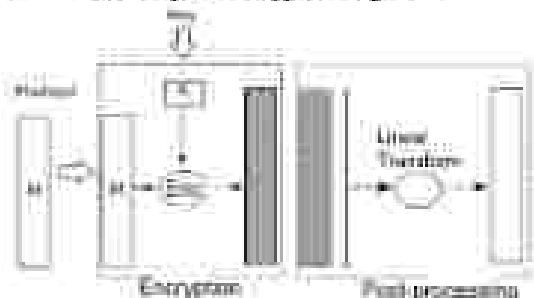


Fig.2 Post-processing cipher encryption.

Differently, Bastion first encrypts the data with one round of block cipher encryption, after which applies an efficient linear post-processing to the ciphertext. Figure 2.

A polynomial-time algorithm A that has non-negligible benefit in breaking the ind protection of Bastion may be used as a black-box through another polynomial-time set of rules B to interrupt the ind protection of the underlying encryption mode. The security proof of Bastion resembles the usual security proof of the CTR encryption mode and relies on the way of pseudo-random variations.

Bastion uses insecure encryption mode to encrypt a message, after which applies a linear random on the ciphertext blocks. It is easy to conclude that Bastion is ind comfortable. In different words, a polynomial-time algorithm A that has non-negligible benefit in breaking the ind protection of Bastion can be used as a black-combiner by way of every other polynomial-time algorithm B to interrupt the ind safety of the underlying encryption mode. In unique, B forwards A 's queries to its oracle and applies the linear transformation to the acquired ciphertext earlier than forwarding it to A . The identical method is used when A outputs two messages on the case of the discover degree. the two messages are forwarded to B 's oracle, upon receiving the blockciphertext, B applies the linear transformation and forwards it to A . When A replies with

its identity, B outputs the identical wager. This is easy to see that if A has active gain in predicting effectively which data become encrypted, so does B . Furthermore, the running time of B is the only of A plus the time to apply the linear transformation to A 's queries.

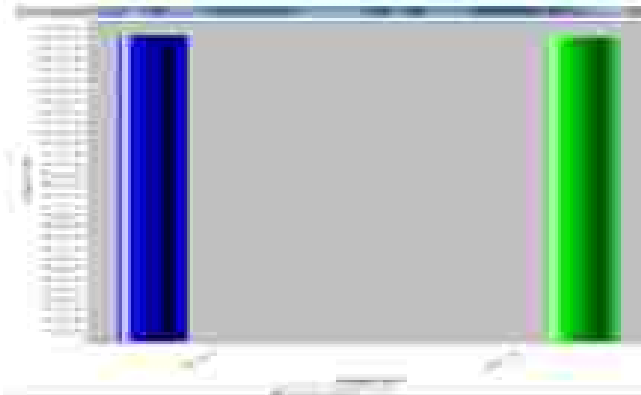
IV. EXPERIMENTAL RESULTS

We examine Bastion with the AON encryption schemes of Rivest and Desai which can be utilized in present dispersed storage structures. In our assessment, we provide the results of network delay and congestion, and we most effectively determine the processing performance of the encryption for the considered schemes. This is an inexpensive assumption considering the fact that all schemes are period-protection (plus a further block of 1 bit), and are consequently probably to show the identical network performance while compared with trafficking (a - 1) CAKE secure scheme, together with Desai AON encryption and Rivest AON encryption, our graphic evidence fortifies facilitates the summit throughput of Bastion is practically double as big as that of Desai AON encryption, and greater than three times larger than the peak throughput of Rivest AON encryption. We display these regardless of the block length. Bastion closest across negligible overall performance deterioration in peak throughput while compared to the CTR encryption mode.

First, we run the cloud servers after person software then register the several users into the cloud server. The user login and upload a file. Then Generate blocks, encrypt and random (right here the uploaded report could be divided into no. Of blocks based totally upon the file length and the blocks might be encrypted using AES and linear transformation is applied using XOR operation. That is called BASTION).



And download the file then latency evaluation chart. Then check each server.



V. CONCLUSION

We addressed the problem of securing information outsourced to the cloud against an adversary which has access to the encryption key. For that matter, we introduced a singular safety definition that captures facts confidentiality against the new adversary. We anticipated Bastion scheme which guarantees the plaintext of encrypted data after the attacker has the encryption key, as well as not rather ciphertext blocks. Bastion is most suitable where the ciphertext blocks are stored in multi-cloud storage systems. In those settings, the adversary would need to collect the encryption key and to compromise all servers, with a view to reveal any single block of plaintext. We analyzed the safety of Bastion and evaluated its performance in sensible settings. Bastion appreciably improves (by more than 80%) the performance of existing primitives which give comparable security below key publicity, and most effective incur a negligible overhead (less than five%) while as compared to existing semantically secure encryption modes (e.g. the CTR encryption mode). Finally, we have shown how Bastion may be almost included in existing dispersed storage structures.

REFERENCES

- [1] M. AbdEl-Malek, G. R. Farnam, G. R. Gordon, M. K. Reiter, and J. J. Wylie, "Fault-tolerant Byzantine Fault-tolerant Services," in *ACM Symposium on Operating Systems Principles (OSDI)*, 2002, pp. 59–74.
- [2] M. K. Aguilera, E. Amisano, and L. Xu, "Using Erasure Codes Efficiently for Storage in a Distributed System," in *International Conference on Dependable Systems and Networks (DSN)*, 2011, pp. 330–343.
- [3] W. Aiello, M. Williams, G. D. Coppersmith, and R. VanDam, "Security amplification by composition: The case of decommitment, list update," in *Advances in Cryptology (CRYPTO)*, 1996, pp. 389–407.
- [4] C. S. Baccara, C. Colina, I. Eyal, R. Miao, and M. Valente, "Follow them sharing with key-value stores," in *ACM SIGACTS/SIGOPS Symposium on Principles of Distributed Computing (PODC)*, 2011, pp. 211–222.

- [5] A. Banaś, "Secret sharing schemes: A survey," in *International Workshop on Coding and Cryptology (IWCC)*, 2011, pp. 11–20.
- [6] A. Banaś, M. Corvo, H. Chermak, P. Fábregas, and P. Ferrás, "Deduplication, Dependability and Secure Storage in a Cloud of Servers," in *10th Conference on Computer Systems (EuroSys)*, 2011, pp. 1–16.
- [7] G. E. Blazy and C. Meadows, "Security of ring schemes," in *Advances in Cryptology (CRYPTO)*, 1994, pp. 245–266.
- [8] V. Boyko, "On the Security Properties of (HMF) as an Authenticated Transform," in *Advances in Cryptology (CRYPTO)*, 1998, pp. 30–48.
- [9] E. Cramer, C. Dwork, M. Naor, and E. Yung, "Distributed Encryption," in *Proceedings of CRYPTO*, 1997.
- [10] Century, "Encryption Engine Design," <http://www.centurystorage.com/wiki/114.aspx>.
- [11] C. Chang, J. Pappas, and R. Suresh-Naras, "Conditionally secure secret sharing schemes with linear-time operations," in *IEEE Conference on Computer and Communications Security (CCS)*, 1994, pp. 85–95.
- [12] A. Dwork, "The security of all-or-nothing encryption: Homomorphically secure interactive key search," in *Advances in Cryptology (CRYPTO)*, 2000, pp. 309–323.

Safety Use Pre-Existing Routing for Movable Ad hoc Networks

'Avani Reddy M' 'Sesha Bhargavi V'

¹M.Tech Student, G.Narayana College of Engineering and Technology, Village Shalkpet, District Hyderabad, Telangana, India

²Assistant Professor, G.Narayana College of Engineering and Technology, Village Shalkpet, District Hyderabad, Telangana, India

Abstract- *The flexibility and mobility of Mobile Ad hoc Networks (MANETs) have made them growing famous in a extensive range of use instances. To protect these networks, safety protocols have been developed to guard routing and alertness instances. However, these protocols only shield routes or verbal exchange, no longer both. Both comfortable routing and communicat security protocols should be implemented to provide complete safety. The use of verbal exchange protection protocols at first developed for wire line and Wi-Fi networks can also location a heavy burden at the restricted network resources of a MANET. To deal with these troubles, a singular cog framework (SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS) is proposed. The framework is designed to permit existing community and routing protocols to perform their capabilities, while supplying node authentication, get entry to manipulate, and verbal exchange security mechanism. This paper gives a unique safety framework for MANETs. Safety Use Pre-Existing Routing for Movable Ad hoc Networks. Reproduction penalty compare SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS with IPSec, SAGDY and SOLSR are provide to illustrate the design framework fitness for Wi-Fi verbal exchange over protection.*

INTRODUCTION

Mobile independent networked structures have viable extended utilization through the military and industrial sectors for responsibilities deemed too monotonous or risky for human beings. An example of an autonomous

networked gadget is the Unmanned Aerial Vehicle (UAV). These can be small-scale, networked structures. Quadricopter swarms are a noteworthy instance of such UAVs. Networked UAVs have mainly demanding verbal exchange necessities, as statistics change is crucial for the on-going operation of the community. UAV swarms require normal community control communique, ensuing in frequent route modifications because of their mobility. This topology making examine is existing by a collection of movable Ad-hoc Network (MANET) nesting protocol. MANETs are forceful, personality-configuring, and transportation-less agency of mobile strategy. They are normally created for a particular purpose. Each device within a MANET is referred to as a node and should take the position of a consumer and a router. Communication throughout the network is performed with the aid of forwarding packets to a vacant spot node, whilst a right away the source-destination hyperlink is unavailable intermediate nodes are used as routers. MANET verbal exchange is commonly wireless. Wireless communique may be trivially intercepted by way of any node in a number of the transmitter. This can depart MANETs open to a number attacks, consisting of the Sybil assault and route manipulation attacks that may compromise the integrity of the network. Eavesdropped communique may additionally equip attackers with the means to

compromise the trustworthiness of a network. This is finished by way of manipulating routing tables, injecting fake path information or enhancing routes. Man in the middle (MitM) attacks can be released by way of manipulating routing statistics to bypass site visitors through malicious nodes. Secure routing protocols have been proposed to mitigate assaults against MANETs, but those do no longer make bigger protection in other records. Autonomous structures require a giant amount of verbal exchange. Problem fixing algorithms, including Distributed Task Allocation (DTA), are required to clear up assignment planning problems with out human intervention. As a end result, these algorithms are liable to packet loss and fake messages; partial facts will lead to sub-optimality or failed mission assignments. This document proposes a narrative safety set of rules, safety using Pre-Existing Routing for movable Ad hoc Networks (SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS). The protocol is designed to deal with node authentication, community get right of entry to manipulates, and comfortable communication for MANETs the use of existing routing protocols. SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS combines routing and communication security on the network layer. These contrast with existing tactics, which offer most effective routing or communication security, were requiring a couple of protocols to defend the network.

2. RELATED WORK

MANET Routing

MANETs rely on intermediate nodes to path messages between remote nodes. Warring communications to manage the approach in which packet be in retreat to

their destination. MANET direction-finding protocol instead spend routing table on all nodes within the network, contain the full or partial topology data. Reactive protocols, initiative of Ad-hoc On-call for Distance Vector (AODV), plan routes while messages need to be dispatched, polling nearby nodes in an attempt to find the shortest path to the destination node. Optimized Link State Routing (OLSR) takes a proactive approach, periodically flooding the network to generate routing desk entries that persist till the following update. Both approaches are movement-tolerant and have been applied in UAV MANETs. Motion-tolerance and cooperative communication characteristics make these protocols best to be used in UAVs. The primary versions of AODV and OLSR lack security mechanisms, permitting malicious nodes to intervene with the community in a diffusion of ways. The key contributing issue to this trouble is an inability to differentiate legitimate nodes from malicious nodes. Many MANET routing protocols cannot agree with among nodes, which can be a vital weak spot in phrases of safety, as such an assumption may permit malicious nodes to interfere with routing mechanisms. Routing attacks can abuse the path discovery and topology generation mechanisms of routing protocols. An attacker ought to, as an example, put it on the market routes with hop counts higher or decrease than actual routes. This can be used to draw visitors to malicious nodes to the gain of the attacker. Malicious hobby may additionally result in the appropriation of information, sacking of packets and modification of packets. All such outcomes impair the networks potential to assure safe, personal and reliable communication.

Yang et al. Used that malicious attacks might also without problems disrupt MANET operations. An attacker can take benefit of MANETs that expect,

however not put into effect, consider using nodes. Closing the network by way of forcing valid nodes to authenticate can remedy the assumption of consider, by making sure that hardest legitimate nodes can grow to be individuals of the community. In a closed community, participation is restricted to authorized nodes, and verbal exchange is encrypted to prevent third-party comprehension of the contents of network communication. Authentication is required to permit new nodes to enroll in and be seen as valid by way of present community individuals. The quantity of time a person UAV node might also remain operational is restricted by means of its battery existence (power), which can be shorter than the anticipated period of the network's deployment. A substitute can be required if a node runs out of energy. Malicious nodes may masquerade as valid nodes, attempting to gain depended on reputation within the network by means of posing as a recently departed or newly arriving node. Subversion of the alternative process can be mitigated by means of requiring the a success authentication of a node with the community. This technique might authenticate nodes using certificates supplied at initialization through a trusted authority. This authority is valuable to the community protection scheme, but need now not be gift within the subject.

3. FRAME WORK

SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS is a framework that operates at the network layer (layer three) of the OSI version. It is designed to offer a absolutely secured communication framework for MANETs, without requiring modification of the routing protocol. Fig. 1 shows the waft of information from transport, thru the network layer (along with SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD

HOC NETWORKS) to the information link layer. The dashed packing containers represent elements of SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS that techniques packets and offer confidentiality and integrity. SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS also provides node authentication.

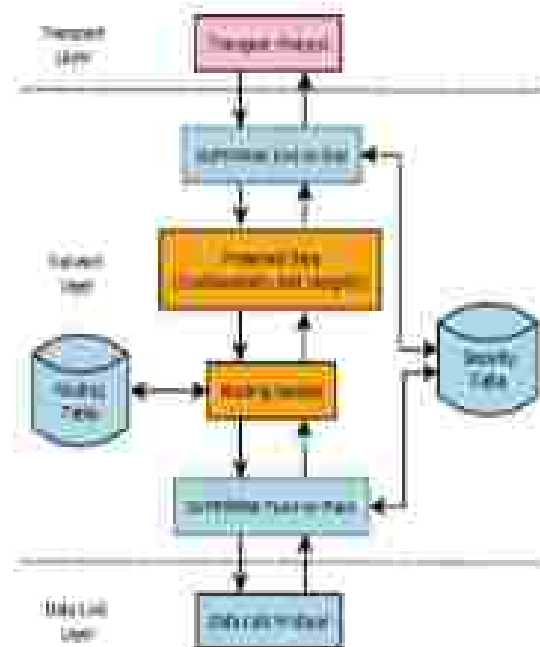


Fig. 1. Diagram illustrating the SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS confidentiality, integrity, and authentication services for data packets.

Key Supervising

SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS relies at the dynamic era of keys to provide comfortable communication. The Diffie-Hellman key-exchange algorithm offers a method of producing symmetric keys dynamically and is used to generate the SK keys. SKs keys can simply be generated through random quantity generation or an equal at ease key generation provide.

Safe Joint-to-Joint Keys

SKe keys are used to carry hop-to-hop communication with different nodes, with one SKe key generated in line with node, for every different node administratively authorized with the network. SKp keys are used for point-to-point protection and generated in the identical way as SKe keys. It is essential that SKe and SKp keys are specific, as the network needs to secure both the content of a packet and the direction taken. A KDF may be used to generate those keys alongside the result of the Diffie-Hellman set of rules, requiring a $DKSp:DKSp_{priv}$ pair, to minimize the cost of protection on the community and reduce the important thing re-use and, in turn, the lifetimes of every key. These keys are generated whilst nodes acquire $DKSp$'s from other SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS nodes.

Safe End-to-End Footers

Safe footers are appended to all message packet dispatch between SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS nodes. SKp and SKp(x) key are utilize in transmit and unicast honesty transporter stipulation correspondingly. An example tag era algorithm is the Hashed Message Authentication Code (HMAC) which provides integrity and authenticity services to a packet. A digest of the packet is generated, encrypted with the best key (SKp or SKp(x)), and appended to the packet. This tag is eliminated, checked and regenerated at each hop.

Safe Transmit Keys:

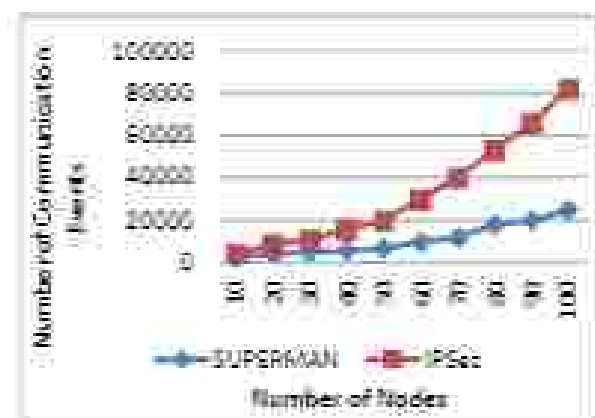
At initialization of the network, the primary node to be contacted about becoming a member of the

community will generate a symmetric community key (SKc). This secret is sent to all nodes that authenticate with the community. This key presents the premise for all broadcast communicate safety in a SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS scenario. The SKc is processed via the characteristic KDF (SKc, type) into broadcast keys (SKCb and SKCb).

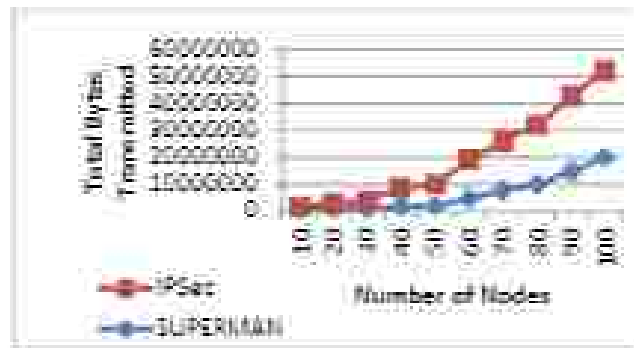
4. EXPERIMENTAL RESULTS

To analyze SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS, the subsequent key areas were investigated:

1. Completion of safety requirement instances
2. Number of conversation events required to secure communications among all nodes
3. Number of bytes required to related communications between all nodes



The number of communication events is compared for the better understanding of the benefits of the proposed system. The number of communication events is lower when compared.



The number of bytes transmitted also is compared and the proposed system outperforms the existing system. The number of bytes transmitted is observed against the number of nodes.

The eight key safety dimensions, mentioned in X.305 are evaluated by means of evaluation among SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS and IPSec/MANIPsec. These are compared in phrases of the services provided. This is vital due to the fact it contextualizes the comparisons of the respective safety and communication fees. These charges represent the additional information or packets (based totally on the wide variety of concurrent activities) required to offer the safety offerings, referred to from this point as the safety overhead. Overheads are calculated for the network layer of the OSI model. The Data link and Physical layers of the network stack are not taken into consideration as this paper focuses on the community layer (OSI layer 3) mainly.

The next step required of the system is the execution. The proposed system will be executed the following screens are displayed below.



The network is created as the number of networks to be created is entered as size. The simulation results applied on the proposed system are the screens below as shown.



Therefore all the operations performed at the time of execution and the series of events are acquired and are displayed in the output screen.



CONCLUSION

SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS is a singular safety framework that protects the community and

communications in MANETs. The primary consciousness is to confine access to a simply closed network (VCN) that permit expedient, dependable communications with confidentiality, integrity and authenticity offerings. SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS addresses all eight safety dimensions mentioned in X.505. Thus, SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS can be stated to put into effect a complete suite of protection offerings for self-reliant MANETs. It fulfils more of the middle offerings mentioned in X.505 than IPsec, because of being community focused as opposed to end-to-end terminated. IPsec is intended to provide easy surroundings among end-points irrespective of direction, and has been cautioned by a few researchers to be a feasible candidate for MANET safety. However, it does not increase safety to routing offerings. Nor does it offer low-cost safety, requiring a prolonged set-up and tear-down process, generally on a session foundation. Simulation has been undertaken and the effects are manifested and analyzed to decide the relative fee-of-protection for SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS, as compared towards IPsec, SAODV and SOLSR where applicable. SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS affords a VCN, in which the foundation block of protection is furnished via authenticating nodes with the network. This allows further blessings, along with the security association referral and community merging. It also presents a fairly light-weight encapsulation packet and variable duration tag. Under both CBSA and CP-CBSA, the safety overheads of SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS were confirmed to be lower than those of IPsec. Both

DTA algorithms continue how a MANET may be made independent, by permitting hassle solving with-out human intervention to arise on the community. Securing the communication required to facilitates this capability is a critical consideration when providing a fully secured network. By presenting lower value protection than present options, at the same time as offering protection across all eight security dimensions, SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS proves it's for a viable and aggressive approach to securing the communication required with the aid of self-reliant MANETs. SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS has been proven to provide lower-value security than SAODV and SOLSR for respective routing protocols. By establishing a secure, closed community, one can assume a positive degree of agree with inside that network. This reduces the need for pricey community routing behaviours designed to mitigate the outcomes of an untrusted environment (and untrusted nodes) on the routing procedure. By preventing the access of doubtlessly untrustworthy nodes to the network, and consequently the routing process, a MANET can be liberated from subversion of its routing offerings at a decrease fee, as malicious nodes are barred from the manner completely. SAFETY USE PRE-EXISTING ROUTING FOR MOVABLE AD HOC NETWORKS provides security to all facts communicated over a MANET. It specially targets the attributes of MANETs, it isn't appropriate for use in different varieties of community at the moment. It sacrifices adaptability to various networks, to make certain that MANET verbal exchange is manifested completely and correctly. An unnamed green technique protects routing and streamlines facts, making sure that the

MANET affords reliable, confidential and trustworthy verbal exchange to all valid nodes.

The future enhancement of the proposed work would be implementation of a simple mobile node platform to provide services beyond two closed networks over an insecure intermediate network to understand and implement the secure communication.

REFERENCES

- [1] P. S. Kiran, "Protocol architecture for mobile ad hoc networks," 2009 IEEE International Advance Computing Conference (IACC 2009), 2009.
- [2] A. Chandra, "Ontology for manet security threats," PROC NCCN, Krishnankoil, Tamil Nadu, pp. 171-17, 2005.
- [3] A. K. Bal, R. P. Tewari, and S. K. Upadhyay, "Different types of attacks in integrated internet-internet communication," International Journal of Computer Science and Security, vol. 4, no. 3, pp. 265-274, 2010.
- [4] D. Ghosh, J. Wetherell, S. Woodward, and A. Asekoula, "A cluster-based approach to consensus based distributed task allocation," in Parallel, Distributed and Network-Based Processing (PDP), 2014 22nd European International Conference on, IEEE, 2014, pp. 414-431.
- [5] J. D. Chakeres and E. M. Belding-Royer, "Aodv routing protocol implementation design," in Distributed Computing Systems Workshops, 2004. Proceedings. 24th International Conference on, IEEE, 2004, pp. 694-703.
- [6] T. Clausen, F. Jacquet, C. Adjih, A. Laoufi, P. Minier, P. Muhlethaler, A. Qayyum, L. Viennot et al., "Optimized link state routing protocol (olsr)," 2003.
- [7] M. Hyland, B. E. Mollie, R. C. Baldwin, and M. A. Temple, "Simulation-based performance evaluation of mobile ad hoc routing protocols in a swarm of unmanned aerial vehicles," in Advanced Information Networking and Applications Workshops, 2007. AINAW'07. 11th International Conference on, vol. 2, IEEE, 2007, pp. 349-356.
- [8] J. Pejda, A. Wolke, M. Stepi, and C. Wierfeld, "Performance analysis of mesh routing protocols for uav swarming applications," in Wireless Communication Systems (ISWCS), 2011 8th International Symposium on, IEEE, 2011, pp. 317-321.
- [9] H. Yang, H. Liu, F. Ye, S. Lu, and L. Zhang, "Security in mobile ad hoc networks: challenges and solutions," Wireless Communications, IEEE, vol. 11, no. 1, pp. 38-47, 2004.
- [10] N. Garg and R. Mahapatra, "Manet security issues," IJCSSE, vol. 3, no. 1, p. 241, 2009.

Home > Other

Enumerate Inter-Reliant Solitude Threat through Spot Statistics

PDF FILE

PDF FILE



Download

Ex66h

Cyber Resilience Act

1/13

International Journal of Research in Advent Technology, Vol.8, No.7, July 2018

E-ISSN: 2321-9637

Available online at www.ijrat.org

Enumerate Inter-Reliant Solitude Threat through Spot Statistics

Sci.Priya Chandra.S, Mrs.Venureshwantham.P

Department of Computer Science and Information Systems, Agriculture Technology

Abstract—Covert statistics about consumers is more and more available on-line. For instance, cellular consumers increasingly implicitly document their co-locations with different users in the messages and photos they put up on social networking websites, by tagging the names of the jobs they're with. This customer ID address additionally contains a supply of co-located information. Co-located with (less) information) nearby statistics, such as photos may be used to enhance the influence of the consumers' location. Absorption is a hidden monitoring that location predictions. As co-located information is taken into consideration, no longer complete a user's pronounced places and activity styles can be used to localize her, but also the ones of her pals (and the buddies of their friends and so on). In this paper, we take a look at this issue with the aid of quantifying the effect of co-located friends on privacy, thinking about an adversary which includes a social community specialist that has access to such statistics. We formalize the problem and design an exact influence algorithm that consists of such co-located friends, but at the fee of excessive complexity. We analyze a less approximate influence algorithm, exclusive of a solution that is predicated on the failed propagation algorithm achieved on a standard Bayesian network version, and we experimentally examine their performances. Our experimental consequences display that, even within the case where the adversary equates to logarithm of the targeted case with a simple friend, the median region predictions of the user is realized through up to sixty two% in a typical setting. We additionally look at the impact of the non-aka-lead parameter (e.g., the strength of the location-privacy policy mechanism) in different experiments.

Keywords—Location privacy, co-located information, social networks.

1. INTRODUCTION

Social networks and particularly location-primarily based social networks have had up immensely feature. Every day, hundreds of thousands of users submit information, including their locations, about themselves, (or at least) approximately their pals. As viewing the feature, which is the focus of this paper, is to record co-locations with different customers on social networks, e.g., by means of tagging friends on pictures they add or in the messages they post. For example, our initial survey asked to 171 consumers what percent of

likely to be connected to the social network every year, how impacting evidence of their co-located, attacks exploiting such report and co-located facts (as which) may be pretty effective, as we show in this paper. Defects and describes two common schemes co-located can improve the performance of a localization attack, completely depending the privacy privacy of the customers involved. It is clear that the right application of such information with the aid of an attacker may be complicated due to the fact he has to consider at the same time the co-located facts, different co-located information that will

Amazon Mechanical Turk, well-known shows that lifts the 1% of the contributors repeat associations in their checks are not that far from users who do so, on average, 2.44% (9% of those checks are include co-location information). In fact, co-location statistics can be acquired in many different methods, such as automated data extraction via plugins (which extract the time and cost at which the photo changed time when in their EXIF records, e.g., Face lock's Photo Mosaic), photo-embedded device sniffing and reporting neighbouring subjects, similarly, customer who join from the same IP deal with an

array of users. This is due to the reality that, within the presence of co-visibility users, a user's vicinity is overlaid with that of her buddies, which is in fact overlaid to that in their very own vicinity set as well. This circle of relatives of attacks and their complexity is exactly the focus of this paper. More specifically, we make the following four contributions: (1) we discover and formalize the location problem with co-place statistics, we suggest a novel simple inference set of rules and estimate its complexity. We display that, in extreme, the optimum inference rule set of rules is tractable

156

1/15

DOWNLOAD PDF (PDF - 5 Page - 366.54KB)

due to the equivalence of the energy space (see (2) We describe how an attacker can effectively reduce the computational complexity of the search by method of well-chosen approximations. We present a polynomial-time heuristic based on a limited set of considered customers (i.e., their) inference with the facts of location at their users) and an approximation based heavily on the belief propagation (BP) the set of rules done on a well-known Bayesian community version of the basic approximate inference with the statistics of all the users. (3) Using a carefully chosen, we evaluate and evaluate the overall performance of the use of a kind system in exclusive situations, with specific settings. The entire propagation primarily based system, which does not seem to be the first version of the work, gives appreciably higher accuracy (in terms of the overall performance of the inference) than the heuristic (first). We advocate and evaluate a few countermeasures (i.e., social-aware place-privacy safety mechanisms) along with false co-places reporting and confirmed place disclosure. This first mechanism additionally cost more new users with respect to the first model of this work. In this context and related issues, we also update the literature and the evaluation to have to reveal the fact that users can avoid being co-located while, in reality, they're not. Our experimental outcomes show that, even inside the case wherein the adversary chooses co-location with limited a single set of the nearest person, the median accuracy probability of the person is reduced by using up to 62% in a typical setting. Even within the case wherein a customer does no longer reveal any place facts, her privacy was lower by as much as 22% (due to the data collected by other users). A permanent learning of one pricing is that customers in just two capabilities over their organs, processes in co-locations and non-co-locations history records disclosed, with the aid of other customers consistently have an effect on these user area processes. Our experimental consequences additionally display that a single countermeasure (i.e., confirmed location disclosure) can reduce the probability loss by users of up to 70%. To the literature of our expertise, this is the primary try to quantify the outcomes of co-visibility facts that stem from social relationships, or place privacy, in a well-accepted a connection between CPMs and region

2. RELATED WORK

Mobile consumers have and users report their co-places with other users, further to revealing their locations to public services. For example, they tag the names of the friends they may be with, within the message and within the photographs they put up on social networking web sites. Combined with (possibly) professional location information, such information may be used to estimate the relevance of the customer's location. In that vision, similarly describing their vicinity preferences as co-visibility facts is taken under consideration, not simplest a user's reported places and mobility patterns can be used to localize her, however also the ones of her pals (and the buddies of her friends and so forth). In this paper, we take a look at the basic through quantifying the impact of co-place records on location privacy, with appropriate to an adversary inference of a social network system that has got information to such statistics. We formalize the locale and derive a novel filtering inference algorithm that carries well co-place data, we do the job of high complexity. We advocate polynomial-time approximate inference algorithms, and we considerably compare their overall performance on a actual dataset. Our experimental outcomes display that, even within the case wherein the adversary chooses co-places with most effective a single buddy of the targeted user, the security performance of the customer is decreased by over 60% (such as security facts in a traditional setting). Even within the case in which a customer does not divulge any place facts, her privacy can decrease by more of 20% in extent due to the information collected through different customers.

Z. C. Feng, D. Feng, C. Borini, and C. S. Jensen, "Location-related privacy in geo-social networks," *IEEE Internet Computing*, vol. 15, no. 3, pp. 26–27, 2011.

Four privacy aspects related to these social networks have been considered in this paper. They are: Location, Address, Co-location and history privacy. A possibility for protecting co-location privacy is to apply cloaking to one or more of the reported locations so that co-located entities sufficiently away people. Several techniques were used in this paper to address location privacy threats. They are Query obfuscation, Fake locations and Fuzzyism based techniques.

EPSON

Join the
EcoRevolution

BUY NOW

Epson EcoTank Printers
powered by
HEAT-FREE TECHNOLOGY

International Journal of Research in Advanced Technology, Vol.6, No.7, July 2018

E-ISSN: 2321-9037

Available online at www.ijrat.org

The goal of this paper is not to design yet another location-privacy-protection mechanism (LPPM), but rather to try to make progress on the quantification of the performance of an LPPM. A general theoretical framework for analyzing and evaluating location-privacy has been proposed.

L.J. E. Miller and K. Paragoge, "On the anonymity of home-work location paths," in *Perasive*, 2009, pp. 180–197.

Misuse of location data can lead to targeted operations, harassment and spying.

As well as attacks on an individual (home, family or relative-anonymity) is the mechanism that has been used in this paper in order to address location-privacy. Anonymity is useful, but insufficient for protecting location-privacy.

L.J. E. Miller, E. Polakis, E. Anagnostopoulos, J. Mogg, and N. Ioannidis, "Facingoff: Preventing privacy leakage from phones in social networks," in *CCS*, 2015.

Facebook is the social network that has been discussed in this paper. They have described how there is a theme to location-privacy: Facebook has shared the most data concerning online user activity as well as the de-facto platform for sharing photos online. A fine-grained access control mechanism is designed, that allows digital users to define the exposure of their own data, by setting their preferred permissions.

In this present paper we are working on Kevin Hogeman et al studied the impact of user's preferences while evaluating information to be

shared. The message of this work is that protection mechanisms used to not ignore the social components of place information. Because it isn't possible to report always full of co-located instances for this fact is displayed on the user's profile on social networks, a single-protection keeping mechanism makes an alternative to general information opportunities, co-positioned customers (i.e., update the names of the co-positioned customers by the set of social (i.e., "with two go") or to generalize the time (i.e., replace the exact time of the element with the period of the day, e.g., changing them with "morning", when the location is declared a presence) of a social gathering, as well as the places of customers at other locations, so that you can reduce the effectiveness of the attacks we showed on this paper. We intend to address the design of social-network place-privacy safety mechanisms (plugging all the user's cell gadgets) to avoid the customer misuse and protect their velocity preferences when co-locating their activities.

3. PROPOSED SYSTEM

We present a geolocated user location based on a limited set of users and an approximation based on the general Poisson arrival model. We also propose two countermeasures that mitigate the effect of co-location of the user's location-privacy. The two simple countermeasures that we have proposed are User Coordination (i.e., hiding the user's id and Denormalization of co-locations (i.e., generalizing the time component instead of duration the exact time of

but, before to individual (obscured) security records. In the first case of our knowledge, that is the primary goal, to quantify the results of co-location information, the data from social relationships among members, on location privacy, as such a contains a primary step toward bridging the space among research on place, persistence and social networks. We have shown that, by considering the user's location together, an adversary can take advantage of co-location data to higher location estimates, hence reducing their privacy protection. Although the goal stated in our location attack is a multidimensional extension, computational complexity, the polynomial-time approximate inference algorithms that we solve in K-Nearest Neighbors or alongside rapid localization overall performance. An important consistency from our work is that a person's most privacy is not strictly in her usage, because the co-location and the distinct location records dictated by other users significantly have an effect on her personal user

which has been met. We put out and formalize the location problem with complex information. We suggest a first-time inference algorithm and estimate its complexity. We show that, in practice, the highest quality inference algorithm is attainable due to the explosion of the location space size. We describe how an attacker can effectively lower the computational complexity of the search by means of method of multi-classifier approximation. We proposed a polynomial-time heuristic based mainly on a combined set of auxiliary estimates on a general Bayesian network model of the problem. Using a mobility dataset, we estimate and evaluate the performance of the different solutions in different situations, with one of a bias setting. The belief propagation principle based solver, which does an longer work inside the first version of this work, offers substantially higher computation (in terms of the performance of the inference) than the former. We suggest and compare some countermeasures (i.e. social-network location

privacy ability (combined) together with her co-location reporting and associated place features.

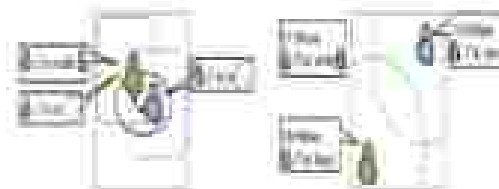


Fig. 1. (a) Co-locating users, (b) Two users are actually apart from each other

4. EXPERIMENTAL RESULTS

We experimentally examine the algorithms, offered in Section 3, in extraordinary scenarios, with unique settings. For the server-based totally in local propagation, we relied on our personal Java implementation.



Fig. 2. Home screen

Category	Value
Location	1234
Time	10:00
Distance	500m
Speed	50km/h

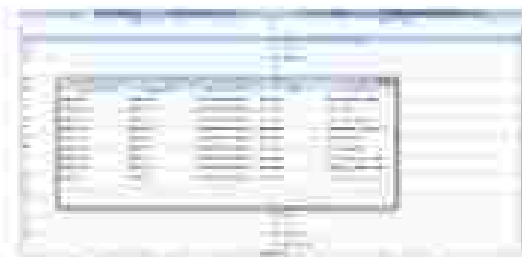


Fig. 3. Shows the complete user details



Fig. 4. Shows the use of user privacy protection

5. CONCLUSION

In this paper, we have studied the effect on user's user privacy when co-location information is available in addition to individual (obscured) location data. To the use of our knowledge, that is the first time to quantify the outcomes of co-location records that come from social relationships among members on location privacy, as such it constitutes a first step closer to bridging the space between studies on location privacy and social networks. Indeed, preliminary results on geographic and social networks show a link of how social ties can be inferred from co-located between people and how social ties can be used to de-anonymized mobility traces. We then prove that, with the aid of considering the adversary's privacy policy, an adversary can gain the



Fig. 3. Shows the input size and time complexity.

and co-located users to higher location users, hence lowering their isolation performance. Although the paper just illustrates the result for a polynomial-time approximate inference algorithm (as we attempt to provide full location-based social performance. A crucial observation from our work is that a person's region privacy is not as absolute as her control, as the addresses and the chamber location, mostly disclosed by using different user categories offer her very own location privacy. The message of this work is that safety mechanisms should not be forget about the social components of vicinity analysis.

1564

4/5

International Journal of Research in Advanced Technology, Vol.6, No.7, July-2018

E-ISSN: 2321-9027

Available online at www.ijrat.org

However it is not acceptable to record during lists of collected customers (as this records is displayed at the users' profiles on social networks, a place-privacy keeping mechanism needs either to guarantee strictly approximately co-located distances or to generate the time of a party, in addition to the places of customers at other locations, in order to reduce the effectiveness of the attacks we considered in this paper. As a first try to reduce the perimeter's danger stemming from co-place information, we proposed a map-comprehensions that utilize an comparison among maps and further established its effectiveness. We intend to address the topic of social-aware (dis)privacy protection mechanisms (using for walks on the area, cell devices) to help the customers estimate and protect their location privacy when co-location records is available. A crucial component of generalization techniques is the security among software and privacy: For a person, reporting to be with "some one" may not be sufficiently informative, and the generalized co-occurrence records could fail to secure the user's privacy. Usability is also a vital aspect for the adoption of technical protection mechanisms. We plan to analyze user's the utility and usability aspects of such protection mechanisms from several person surveys.

networks." *IEEE Internet Computing*, vol. 15, no. 3, pp. 29-37, 2011.

- [4] Facebook Messenger adds text photos through some free integration. The Verge, <http://www.theverge.com/2015/11/9/9666766/facebook-messenger-photo-sharing-free-integration>, nov 2015, last visited: Nov 2015.
- [5] G. Ahlman, R. Kanan, A. Khamisov, C. Srikumar, and K.-L. Tan, "Tethering queries in location based services: Management and user awareness," in *WOMODS 2009*, pp. 121-132.
- [6] K. P. Mardia, Y. Wu, and M. J. Griffin, "Lumpy bullet propagation for approximate inference: An empirical study," in *ICALM 2009*, Kluwer Publishers Inc., 1999, pp. 467-473.
- [7] L. E. Baum and T. Petrie, "Statistical inference for probabilistic functions of finite state Markov chains," *The Annals of Mathematical Statistics*, vol. 37, no. 4, pp. 1534-1538, 1966.
- [8] K. Saitoh, G. Hoshikawaguchi, J.-Y. Le Boudec, and J.-P. Flourens, "Quantifying location privacy," in *S&P*, 2011, pp. 247-262.
- [9] R. L. Strassenich, "Continuous Markov Processes," *Theory of Probability & its Applications*, vol. 7, no. 2, pp. 176-178, 1966.
- [10] R. J. M. Douma, "Theoretical size of a connectivity

Acknowledgments

The authors are grateful to Stefan Mithras for his assistance in gathering valuable insights about the utilization of services on Facebook and to Konstantinos Christodoulakis and Marco Semerari for their assistance with the examination of the impact of co-places from a differential privacy point of view. Parts of this work were completed while K. Hagmann and M. Dworkin were with EPFL and R. Sridhar was with ETH Zurich. This work was mostly subsidized by the Swiss National Science Foundation with grant 310001-130000.

REFERENCES

- [1] A. M. Özdemir, K. Higashino, R. Sridhar, and J.-P. Hubaux, "Quantifying the Effect of Co-location on Location Privacy," in *ICPS*, 2014, pp. 194–203.
- [2] A. Nanyemba and V. Atanasiu, "De-anonymizing social networks," in *ISPPW: Proc. of the 10th IEEE Symp. on Security and Privacy*, 2008, pp. 171–187.
- [3] C. Vares, D. Tross, C. Bettini, and C. S. Jensen, "Location-based privacy in geosocial

1361

[Download PDF \(5 Pages\)](#)
Full text

(1)

1361

Enumerate Inter-Reliant Solitude Threat through Spot

Statistics

Sri Prash Chandra S1, Mca Venkateswaramma P2

Department 1, 2-Computer Networks and Information Security1, Information Technology2

Abstract—Co-places statistics about customers is more and more available online. For instance, cellular customers

increasingly regularly document their co-locations with different users in their messages and within the photos they put up on social networking websites via tagging the names of the pals they're with. The customers' IP addresses additionally constitute a supply of co-region information. Combined with (likely obfuscated) vicinity statistics, such co-places may be used to enhance

the inference of the customers' locations, subsequently in addition threatened their location privacy. As connectivity information is taken into



Figure



References

Ver

Related documents

STATISTICS OF THE CRIMINAL SANCTIONS AGENCY statistics 2011

The average time served in prison by those released in 2011 was 12.4 months for sentenced foreign prisoners and 3.7 months for sentenced Finnish prisoners. The average duration

THE 2015 REFUGEE CRISIS THROUGH STATISTICS

The recognition rate covers refugee status in line with the Refugee Convention, subsidiary protection and different forms of humanitarian protection, which is not

Some Essential Statistics The Love of Statistics

• The p-value is the probability that the null hypothesis is true (strength of evidence, provided by the sample data, in favor of H_0). $p < 0.0$: H_0 is false, and differences

Descriptive statistice Statistical inference statistical inference, statistical induction and inferential statistice

Variance and Standard Deviation: In addition to knowing the average behavior (value) of a set of data, we would like to know how much the data is spread about the average, the sum

Statistics on Co-operatives

Sources of data: [Bit:Primary co-ops](#) > Statistics on Agricultural Co-operatives, Statistics on Specialized Agricultural Co-operatives, Statistics on Forest Owner Co-operatives

Effect of Leadership, Human Resource Management, Innovative

Organizational Toward Nursing Organizational Performance Community Hospitals

Data analysis used the descriptive statistics to find the percentage, mean and standard deviation, As for the inference, statistics was used for analyzing the effect on

Career Outcomes of Political Science Ph.D. Recipients: Results from the Ph.D.'s Ten Years Later Study

The completion of the Ph.D.'s Ten Years Later study, a national study of the career paths of doctoral degree recipients, has allowed us to provide detailed information about the:

Adaptation of a Rule Based Translator to Río de la Plata Spanish

This work includes: development of a translation pair for Río de la Plata Spanish-English (back and forth), based on the Span- Isp-English pairs previously

[Company](#)

[About us](#)

[Stemag](#)

[Legal](#)

[Terms of use](#)

[Contact & Help](#)

[Contact us](#)

[QA](#)

[Feedback](#)

[Social](#)

 [LinkedIn](#)





[Advances in Decision Sciences, Image Processing, Security and Computer Vision](#) pp 507–519

[Home](#) > [Advances in Decision Sciences, Image Processing, Security and Computer Vision](#) > [Conference paper](#)

A New Topology of Interline Unified Power-Quality Conditioner for Multi Feeder System

[Surya Prakash Thota](#)  & [Safish Kumar Peddapeil](#)

Conference paper | [First Online: 26 July 2019](#)

1016 Accesses | 1 Citations

Part of the [Learning and Analytics in Intelligent Systems](#) book series (LAIS, volume 4)

Abstract

This paper presents a new topology of UPQC (unified power-quality conditioner). It can compensate both voltage and current compensation simultaneously in multi-bus/multi-feeder systems. In this proposed system, four converters (two shunt VSCs (voltage-source converter) and two series VSCs) exist. The system can compensate voltage and current imperfections in adjacent feeders.

9. Jindal AK, Ghosh A, Joshi A (2007) Power quality improvement using interline voltage controller. IET Gener Transm Distrib 1(2)

10. Jindal AK, Ghosh A, Joshi A (2007) Interline unified power quality conditioner. IEEE Trans Power Del 22(1):364–372

Author information

Authors and Affiliations

Department of EEE, GNITS, Hyderabad, Telangana, India

Surya Prakash Thota

Department of EEE, University College of Engineering, Osmania University, Hyderabad, Telangana, India

Satish Kumar Peddapelli

Corresponding author.

Correspondence to Surya.Prakash.Thota.

Editor information

Editors and Affiliations

School of Computer Engineering, Kalinga Institute of Industrial Technology (KIIT) Deemed to be University, Bhubaneswar, Odisha, India

Dr. Suresh Chandra Satapathy

Department of CSE, CMR Technical Campus, Hyderabad, Telangana, India

Prof. Dr. K. Shujan Raju

A Novel IUPQC for Multi-Feeder Systems Using Multilevel Converters With Grid Integration of Hybrid Renewable Energy System

T. SURYA PRAKASH¹, (Member, IEEE), P. SATISH KUMAR², (Senior Member, IEEE),
AND R. P. S. CHANDRASENA³

¹Department of Electrical and Electronics Engineering, O. R. G. Modernization Institute of Technology and Science for Women (OIMTS), Hyderabad 500084, India

²Department of Electrical Engineering, University College of Engineering (UCE), Osmisa University (OU), Hyderabad 500082, India

³Department of Electrical and Information Engineering, Faculty of Engineering, University of Malaya (UM), Kuala Lumpur, 50608, Malaysia

Corresponding author: T. Surya Prakash (Hitesurya@gmail.com)

This work was supported by the Department of Science and Technology (DST), Government of India, and the Ministry of Science, Technology and Research (MSTR), Government of the Democratic Socialist Republic of Sri Lanka under India Sri Lanka Joint Research Project at the Department of Electrical Engineering, University College of Engineering, Osmisa University, India, and the Department of Electrical and Information Engineering, Faculty of Engineering, University of Malaya, Kuala Lumpur, Sri Lanka under Grant INT/INT/08/LP/142/16.

ABSTRACT This paper presents a novel topology of multifeed unified power quality conditioner (IUPQC) for multi bus/multi-feeder systems, capable of compensating both voltage and current imperfections simultaneously for power quality improvement. In this system, four voltage source converters (VSC) with multilevel configuration are considered and space vector pulse width modulation is used in hexagonal coordinate system to reduce the complexity in generating switching pulses. In the proposed IUPQC, all converters share a common dc-link capacitor. Hence, power can be transferred from healthy feeder to adjacent feeders for compensation of sag/swell and current/voltage harmonics. This IUPQC is implemented between two feeders with hybrid renewable energy system in one of the feeders. The performance of the proposed system for various power quality problems is analysed and presented using MATLAB/SIMULINK.

INDEX TERMS Grid integration, multi-feeder systems, multi-level converters, power quality improvement, renewable energy systems.

I. INTRODUCTION

In the era of liberalisation, the privatisation of world electric energy market brought in a new level of competition in the energy supply business. The increasing use of sophisticated equipment for domestic and industrial applications, has increased the vulnerability to power quality problems.

In order to mitigate the power quality disturbances and to give economical solutions [1]–[3], newer devices based on power electronics called “custom power devices”, have been developed. Modern solutions for load related problems and imperfections in supply voltage include unified power quality conditioner (UPQC) [4]. It is obtained by combining shunt compensator and series compensator to provide a solution for multiple power quality problems. The shunt compensator improves the current profile and the series compensator improves the voltage profile.

This article also available for reprinting in its entirety and supporting it for publication via <https://doi.org/10.1109/ACCESS.2020.2989274>

Based on the idea of taking power from adjacent healthy feeder to compensate the problem in the existing feeder, multi-feeder custom power devices have evolved. When compared to single feeder custom power devices, superior performance is assured with these devices. Some of the multifeed custom power devices include multifeed dynamic voltage restorer (DVR) [7], [8], multifeed voltage controller (IVOLCON) [9], [10], IUPQC with two VSCs [11].

In secondary selective systems the customer load is generally divided between two feeders and supplied from two different substations. In this regard, it is considered that the effect of voltage variation in a feeder on the other feeder is negligible. Hence, two feeders are considered as two treated sources based on the bus level at point of common coupling. In IUPQC [11] with two VSCs, one converter is connected in shunt with one feeder and another converter in series with another feeder. In this configuration, current profile of the first feeder and the voltage profile of the second feeder are improved. In this connection, many other possibilities are explored by the addition of third converter [12]–[16] with

The results show that proposed HPOC can be satisfactorily implemented for grid integration of IBES. HPOC is capable of regulating load voltages to prevent the loads from voltage disturbances in the system. Also, compensates for the reactive and harmonic components of nonlinear load currents. Power can be transferred from healthy feeder to adjacent feeders for compensation of sag/swell and current/voltage harmonics. It can be inferred that HPOC can be a better solution to multiple power quality problems in multi-feeder systems.

REFERENCES

- [1] M. Sanoji, B. Kulk, and H. Nelson, "A comparative evaluation of harmonic reduction techniques in three phase utility interface of power electronic loads," in *Proc. IEEE Int. Appl. Conf. 2004 Int. Assoc. Meeting*, Toronto, ON, Canada, Oct. 1993, pp. 971-974.
- [2] H. Matsu, "New loads in active filter for power conditioning," *IEEE Trans. Ind. Appl.*, vol. 32, no. 6, pp. 1313-1323, Nov/Dec 1996.
- [3] F. Z. Peng, "Application issues of active power filter," *IEEE Int. Appl. Mag.*, no. 4, no. 3, pp. 31-38, Sep/Oct 1998.
- [4] H. Fujita and H. Akagi, "The unified power quality conditioner: The integration of active and passive filters," *IEEE Trans. Power Electron.*, vol. 13, no. 3, pp. 117-123, Mar. 1998.
- [5] J. W. Dixon, G. Venegas, and L. A. Moran, "A nonlinear active filter based on a resonant current-controlled voltage-source inverter," *IEEE Trans. Ind. Electron.*, vol. 48, no. 1, pp. 613-620, Oct. 1997.
- [6] V. Hrudobkin, "Enhancing electric power quality using DPOC: A non-injection inverter," *IEEE Trans. Power Electron.*, vol. 27, no. 3, pp. 2284-2293, May 2012.
- [7] D. Vaidyanathan, H. M. Wipkiss, and S. X. Chen, "A novel technique to compensate voltage sags in multiple distribution systems—The selective harmonic voltage source," *IEEE Trans. Ind. Electron.*, vol. 53, no. 3, pp. 940-943, Oct. 2006.
- [8] D. M. Vaidyanathan, H. M. Wipkiss, and S. X. Chen, "Injection dynamic voltage source: A novel and economical approach for multiple power quality compensation," *IEEE Trans. Ind. Appl.*, vol. 46, no. 4, pp. 1678-1683, Nov. 2010.
- [9] A. K. Jaisil, A. Chack, A. Jishi, and S. M. Didi, "Voltage regulation in parallel distribution feeder using DMR-COC," in *Proc. IEEE Power Energy Soc. Gen. Meeting Conference: Int. Electr. Energy Eng. Conf.*, Jul. 2010, pp. 1-4.
- [10] A. K. Jaisil, A. Chack, and A. Jishi, "Power quality improvement using selective voltage controller," *IEEE Conf. Technon. Education*, vol. 1, no. 2, p. 207, 2007.
- [11] A. K. Jaisil, A. Chack, and A. Jishi, "Transient limited power quality conditions," *IEEE Trans. Power Syst.*, vol. 22, no. 1, pp. 104-105, Jan. 2007.
- [12] M. C. Wang, C. F. Zhao, Y. D. Han, and L. H. Zhao, "A unified approach for distribution system conditioning: Distribution system unified controller (DS-UDC)," in *Proc. Power Eng. Soc. Winter Meeting*, Jan. 2000, pp. 2707-2712.
- [13] A. Babji, Y. Kato, and D. Dasovic, "Power quality compensation using universal power quality conditioning system," *IEEE Trans. Ind. Electron.*, vol. 50, no. 12, pp. 16-19, Dec. 2003.
- [14] P. L. Q. Tin, H. Shin, and Y. Yang, "Power quality control center and its control method," in *Proc. IEEE/PES Transmission Distrib. Conf. Expo. Asia and Pacific*, Aug. 2001, pp. 1-4.
- [15] P. Li, Q. Bai, and G. Li, "Crowbarless control strategy for UPQC and its verification," in *Proc. IEEE Power Eng. Soc. Gen. Meeting*, Jun. 2006, pp. 1-4.
- [16] H. E. Mubarek, A. T. Vagstad, and H. Mubarek, "Multivariable unified power quality conditioning system MC-UPQC," *IEEE Trans. Power Electron.*, vol. 24, no. 3, pp. 1079-1086, Jul. 2009.
- [17] P. S. Kumar, R. P. S. Chandrasekar, V. Ramu, G. M. Suresh, and K. V. S. M. Babu, "Energy management system for small scale hybrid wind solar battery based microgrid," *IEEE Access*, vol. 8, pp. 6336-6343, 2020.
- [18] N. Subbaraja, P. S. Kumar, and S. R. Suresh, "Generalized algorithm of power supply based DPMW strategy for dual-changed multilevel inverter," *IEEE Trans. Ind. Appl.*, vol. 54, no. 3, pp. 2403-2411, May 2018.



T. SURYA PRADEEP (Member, IEEE) received the B.Tech. degree in EEE from Nagpur University, and the M.E. degree in electrical drives and control from Oryza University, India, where he is currently pursuing the Ph.D. degree. He is also working as an Assistant Professor at the Department of Electrical and Electronic Engineering, O. N. Murgasthyan Institute of Technology and Science for Women (O.N.T.S.), Hyderabad. He has 16 years of teaching and research experience.

He has published research articles in two international journals and three international conferences. He has filed one patent in the area of power quality. He visited Tokyo, Japan, to present his research paper in international conference. His research areas are power quality, renewable energy sources, power electronics, grid integration of microgrid, and multilevel inverter.



P. SURESH KUMAR (Senior Member, IEEE) received the B.Tech. degree in EEE, the M.Tech. degree in power electronics, and the Ph.D. degree in multilevel inverter from IITR, in 2011.

He is currently an Assistant Professor with the Department of Electrical Engineering, Vellore Institute of Engineering, Chennai University, Hyderabad, India. He has more than 21 years of teaching and research experience. His four Ph.D. students has been awarded under his supervision and at present guiding eight Ph.D. students in the area of power electronics. He visited USA, France, Switzerland, Japan, Singapore, Hong Kong, Bangkok, and Sri Lanka to present his research papers in various international conferences. He has published 53 research articles in international journals and has presented 32 papers in international conferences, and filed three patents in the area of multilevel inverter. He has authored one text book entitled *Power With Modulation: Analysis and Performance in Multilevel Inverter*. His areas of interests are power electronics, drives, power converters, multilevel inverter, special machines, and renewable energy systems. He is a Fellow of IIE, a member ISTE, and an editorial member of various international journals. As the Principal Investigator, he completed two Major Research Projects funded by IITC and SERB, Government of India. He is also implementing Data Sri Lanka joint research project sponsored by IITC, Government of India. He received the Best Teacher Award from the State Government of Andhra Pradesh, in September 2014, the Post Track Scheme for Young Scientists Award from SERB, in 2013, the Award for Research Excellence, in 2014, and the Global Teacher Role Model Award, in 2015.



R. P. S. CHANDRASEKAR received the B.Sc. (Eng.) degree from the Faculty of Engineering, University of Peradeniya, Sri Lanka, in 1996, the M.Eng. degree from the Faculty of Engineering, University of Malaya, Sri Lanka, in 2001, the M.Phil. degree in electrical engineering from the Faculty of Engineering, University of Peradeniya, in 2011, and the Ph.D. degree in adaptive control in electrical from the Faculty of Engineering, Curtin University, WA, in 2013.

He is currently a Senior Lecturer with the Department of Electrical and Information Engineering, Faculty of Engineering, University of Malaya, Sri Lanka. He has more than 15 years of experience as an Academic Researcher. He has published more than 11 publications in international journals and conferences. He is also supervising one M.Phil. student and he has taught undergraduate courses, such as electrical machines, power systems, power electronics, and more. He has co-authored a book chapter in *Renewable Energy: Sustainable Challenges and Solutions* (Springer Press, Singapore, in 2016). His areas of interest are power electronics, renewable control, microgrid, and renewable energy generation. He received the IET Premium Award 2015. He received a research grant worth around 3 million rupees for a joint project proposal submitted to the Ministry of Education, Technology and Research, Sri Lanka, under the Indo-Sri Lanka Joint Research Program.

STATCOM Based Multilevel Inverter Modelling and Simulation



P. Shruthi, Y. Priyanka

Abstract: The desired reactive power can be provide by exchanging the instantaneous reactive power among the system. A cascaded multilevel inverter type STATCOM is implemented with an inductor DC energy storage. To generate gate pulses for cascaded H-bridge type of multilevel inverter a Level shifted pulse-width modulation technique is employed which reduces harmonics and also the voltage at the output can be maintained. This topology for applying STATCOM together with ANF controller for injecting reactive power gives effective results.

Keywords: Artificial Neural network (ANF), Cascade H-Bridge (CHB), phase angle modulation (PAM) and Total Harmonic Distortion (THD).

I. INTRODUCTION

To increase the efficiency of the power system operation produced by deregulation of the industries, many transformations were carried out in the electrical utilities arrangement [1]. Adapting to patterns and methods of generation need changes, transmission system require greater capacity and flexibility. Additional demands are constantly being made on utilities for supplying increasing loads and improving reliability. FACTS is nothing but a collection of different types of controllers which has the capability to coordinate with other controllers and it can also inter relate to other system parameters they are real and apparent power, impedances like shunt and series. This paper consists of six parts: with the introduction from section - I, section - II provides system description, section - III presents multilevel inverter introduction, Section-IV explains the ANF controller, Section-V discusses the simulation and results and finally in Section VI conclusions are presented.

II. SYSTEM DESCRIPTION

Voltage source inverter is the main part of STATCOM in order to produce VAR.

Applying multi-pulse inverters to STATCOM has demonstrated and the better output waveform can be obtained by increasing the pulse number with lesser harmonics and filtering requirements, but it requires other components that adds to costs.



Fig 1. Schematic diagram of proposed system

The power from the source will be transmitted to load from 3-phase source through transmission line. During the transmission of power there may be losses due to faults then the current flowing through the line is lowered therefore STATCOM equipped with voltage source converter is connected in shunt with the system also acts as reactive power compensator.

III. MULTI-LEVEL INVERTER

A MLI is an electrical device which converts dc power to ac power. Available multilevel inverters are classified as follows:

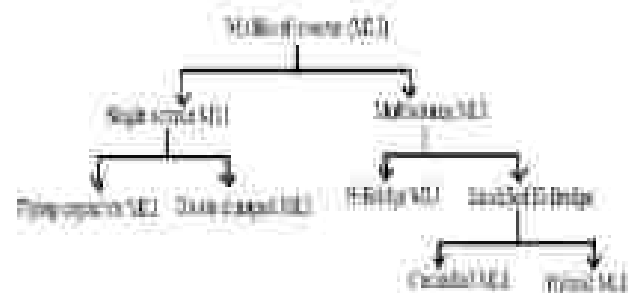


Fig 2 Classification of MLI

A seven level VSC made of three H-Bridges with three distinct sources is shown in below figure. The no of carrier waveforms to be used depends on the required no of gate pulses. Six different carrier signals will be needed to achieve a seven level output. The available voltage is divided into three distinct sources, thus reducing the voltage to be handled by the switches [2].

Revised Manuscript Received on 30 July 2019

*Corresponding Author

Ms. P. Shruthi*, PG Student, Department of Electrical and Electronics Engineering, Sri S. Narayanaiah College of Technology and Science, National Institute of Technology, Calicut, India.

Ms. Y. Priyanka, Assistant Professor, Department of Electrical and Electronic Engineering, S. Narayanaiah College of Technology and Science, National Institute of Technology, Calicut, India.

© The Authors. Published by Blue Eyes Intelligence Engineering and Technology Publications (BIET). This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



Improved Automatic Generation Control of Interconnected Power System

V.Jahnavi Reddy, K.Krishna Murthy, P.V. Balu Subramanyam.

ABSTRACT— In present day energy framework situation, the more immense significance is given to interconnection of different frameworks as the way to meet the dynamical modifications in burden additionally carry out various in specific elements it's miles essential to manipulate the framework recurrence and its-line streams of an interconnected electricity framework. After normal controllers are applied to meet the most conditions, yet on the same time a a unique controller is required for powerful manage. In this paper, an proposed programmed age manipulator (AGC) with fuzzy logic for a one heat hydro manage framework is exhibited. Consistent on the factors of burden, required suggestions are completed to improve enduring in of a and dynamic reaction of one-area manage framework. The adequacy of proposed controller is raised via making use of MATLAB-Simulink programming.

Keywords – AGC, load recurrence control, MATLAB/SIMULINK

1. CREATION

Presently a day's due to the fast development inside the populace, the strength request has likewise been growing an excellent manner to meet this want, the interconnection of at least power systems is required. This interconnection need to resemble hydro-hydro, warm, aqueduct, wind hydro, and so on. but, this interconnection may additionally spark off frequency fluctuations. So in order to cry no the changes in recurrence and tie- line streams, load recurrence control (LFC) is wanted in power frameworks.

Writing check shows a part of the beyond works in LFC of an Inter associated framework [1],[2],[3],[4]. Execution of PI controller for interconnected power framework improves the relentless nation reaction however the dynamic response is un fundamentally affected [5] because of this, in an effort to enhance its dynamic reaction, the improvement of a compelling fuzzy reason controller (FLC) based AGC is needed.

2. MATHEMATICAL MODELING

2.1. Block Diagram structure of LFC of single region Thermal machine

A entire square graph portrayal of a solitary region warmth framework which includes governor, turbine, and power framework squares is showed in the determine (1) Isolated Single Area Thermal System

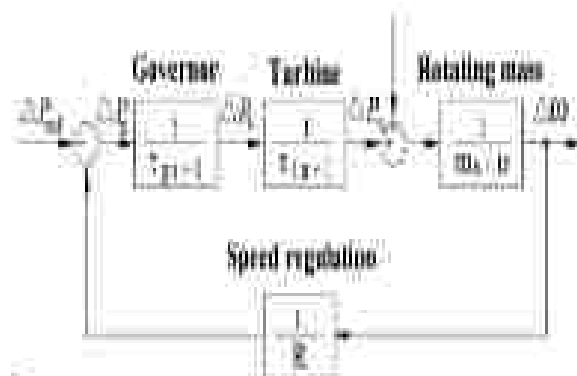


Fig 1: Block Diagram Model of LFC of an

2.2 Multi-Area Local Frequency Control

A power framework can be partitioned into various control territories buy associated by methods for tie-lines. Give us a chance to consider a two-region warmth hydro control framework which is interlinked by methods for a tie-line



Fig 2: Thermal-Hydro Control areas interconnected with Single Tie-Line

For any exchange in load takes region in each the regions, the frequency of every place and additionally the strength in tie-line should be controlled. The change inside the frequency in a two region energy gadget is given by using equation (1)

$$\Delta F(s) = [\Delta P_G1(s) - \Delta P_G2(s) - \Delta P_{Tie.1}(s)] * K_{g1} / (1 - T_{p1}s) \quad (1)$$

The tie line power flow change in area-1 is given by equation (2)

$$\Delta P_{Tie.1}(s) = H_{Tie.12}[\Delta F_2(s) - \Delta F_1(s)] \quad (2)$$

Similarly, the tie line power flow change in area-2 is given by equation (3)

$$\Delta P_{Tie.2}(s) = H_{Tie.21}[\Delta F_1(s) - \Delta F_2(s)] \quad (3)$$

The manipulate goal any load frequency controller is to modify frequency of every area in addition to to alter the tie-line flows, so that the steady kingdom and dynamic response of power device is advanced.

Received Manuscript Received on August 15, 2019.

V.Jahnavi Reddy, K. Krishna Murthy, P.V. Balu Subramanyam, Institute of Technology & Science, Hyderabad, Telangana, India.

K.Krishna Murthy, Head of Division, G. Narayana Murthy Institute of Technology & Science, Hyderabad, Telangana, India.

Dr.P.V. Balu Subramanyam, Professor, CRR College of Engineering & Technology, Hyderabad, Telangana, India.



Suresh Patel

Comprehensive Examination on Solar-Wind Energy Systems' Grid Integration and Emerging Power Quality challenges

Authors: [Suresh Patel](#), [Jeyapriya Somai](#)

Publication date: 2019/08

Journal: [International Journal of Engineering and Advanced Technology \(IJEAT\)](#)

Volume: 8

Issue: 889

Citations: [Cited by 3](#)

2019-2021

Scribd articles: [Comprehensive Examination on Solar-Wind Energy Systems' Grid Integration and Emerging Power Quality challenges](#)
[S.Patel, J. Somai - International Journal of Engineering and Advanced Technology](#) ... 10-5
[Cited by 3 - Related articles](#)

Multilevel UPQC Fed Grid Connected Hybrid System for Sag and Swell Mitigation

K.Manogna, P.Tejaawi

Abstract— This paper presents the cascade multilevel UPQC for sag and swell mitigation of a grid connected hybrid system. Power quality is the major problem facing by modern power system. Due to the use of power electronic converters and drives the harmonics are injected into the grid that may result in grid failure. To mitigate these harmonics custom power devices are used. UPQC is the custom power device that is used in this paper. The seven level cascade multilevel converter is used for both the series and shunt converters of UPQC for better harmonic distribution. This system is connected to the PV-WIND hybrid system to provide effective utilization of the resources. The UPQC contains a DC link which controls the sag and swell, LG Fault and improves the power quality of the system. This system is simulated in MATLAB SIMULINK.

Index Terms— Cascade Mult Level Converter (CMLC), Solar, Wind, PMSG, Voltage sag, Voltage swell, UPQC, DG, LG fault.

I. INTRODUCTION

Renewable integration involves many technically challenging issues which effects on the existing power and power quality. These involve voltage regulation, stability, power quality problems, etc. The customer mainly focuses on the quality of the power utilized. Losses and faults are also the reasons that causes the power quality problems. Electricity generation from the renewable sources has significantly increased due to limitless existence of sources such as solar and wind energy. The energy from the renewable sources varies continuously, there will be a lot of difficulty in interfacing renewable sources with the normal traditional electric grid. Due to the low efficiency of renewable sources, these generating systems are designed for small scale generation. Power electronic devices are widely used for the DG to connect it to the normal grid which requires a special technology for the intertaring infrastructure. UPQC is the custom power device which mitigates the power quality issues like harmonics, sag, swell, power factor, voltage and current fluctuations [1-3].

The multilevel converter fed UPQC filters the voltage and current harmonics. Both the series and shunt converters in the UPQC are replaced by the cascade H-bridge multilevel converters and it causes the absence of DC link.

The batteries provided in the cascade H-bridge MLI helps to provide the use of the DC link. Series filter is used to compensate the voltage whereas shunt filter compensates the current using multilevel strategy. This multilevel waveform

helps to mitigate the selected harmonics in the system. It is very important to maintain constant frequency and voltage when a system is connected to the grid to maintain better power quality and reliability of power system. Solar and wind energy generation systems are the two main renewable sources used in this paper as the hybrid generating system.

In this paper Cascaded H-bridge MLI UPQC is used for the mitigation of sag, swell, LG fault and harmonics that occurs in the transmission line a part from the hybrid system interfacing into the grid. In voltage swell the nominal voltage increases from 10% to 90% of the RMS voltage whereas in voltage sag the phenomenon is exactly opposite to that of voltage swell. Power angle control is the technique that involves in the operation principle of the UPQC. The simulation results using MATLAB SIMULINK are provided.

II. MATHEMATICAL MODELLING

A. Solar Modelling

The equivalent circuit of solar is provided as the two diode model which is shown in fig. 1. The diode D_1 is used to draw the current from the p-n junction of the solar panel where as the diode D_2 acts as bypass diode and hence provide the path to the limiting current of the solar panel, the current generated from the sunlight is represented as photo current (I_{ph}), the current passing through the diodes are represented as diode currents I_{d1} & I_{d2} . Series Resistance (R_{se}), Shunt Resistance (R_{sh}), Shunt Current (I_{sh}), Series current ($I=I_{ph}$) and Output Voltage (V) are the ruling parameters of the two diode equivalent circuit of the solar cell [3].

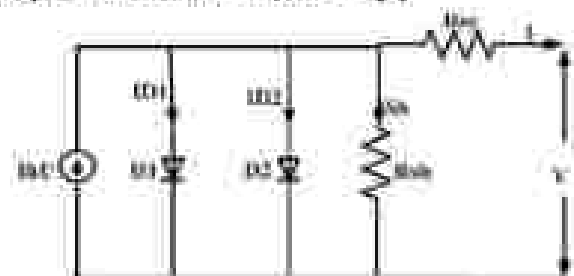


fig 1. Two diode model of solar PV system.
(1)

Received Version Manuscript Received on 10 September, 2019.

K.Manogna, PG student (M.Tech), Department, Institute of Technology and Science Hyderabad, Hyderabad, India.
(Email: Manogna.k@gmail.com)

P.Tejaawi, Assistant Professor, IEE Department, Department of Technology and Science Hyderabad, Hyderabad, India.
(Email: tejaawip@iitghy.ac.in)

Different ANN Models for Short Term Electricity Price Forecasting



K Sarada, S S Tolasi Ram

Abstract: In a deregulated electricity market, price forecasting is gaining demand with application of Artificial Neural Network (ANN). The paper deals with price forecasting with different ANN models like Back Propagation Neural Network (BPNN), Radial Basis Function Neural Network (RBFNN) and Genetic Algorithm based Neural Network (GANN). A conceptual investigation is made with the simulated data of the day-ahead pool market prices of the California Pool Market using the above four different ANN models and the results are compared.

Keywords: ANN, genetic algorithm, electricity market, market clearing price

I. INTRODUCTION

Since the start of deregulation in power sectors around the globe, power market changes into a focused market. In such deregulated markets, showcase players should be educated regarding future power costs to have fixed positions accordingly power value determining has turned out to be one of the most significant arguments. Power industry is reforming day by day by increasing the competitive framework in the market which leads to the introduction of new mechanisms by replacing the old methods. This lay a path for reduction in prices without secured and reliable power supply to the end level. In the region of Power System checking and control, PC based Energy Management Systems are presently generally utilized in vitality control focuses. Power System examination projects and anomaly application projects are utilized in Energy Management Systems for the reasons for researching and anticipating the conduct of anomaly frameworks under consistent state tasks. In spite of the fact that these projects are incredible assets, their capacity to help activity specialists to settle on productive choices is restricted when improngna or startling methods of framework activity happen. The irregular methods of framework activity might be brought about by system shortcomings, dynamic and receptive power outward nature, or recurrence deviations. A spontaneous activity may prompt a real activity or a real framework power outage. Under these crisis circumstances, control frameworks are reestablished back to the typical state as indicated by choices made by experienced activity engineers. For effective finding

of system flaws, assurance of institutional procedures for system reevaluation, and adjusting dynamic and receptive forces, there is obviously a need to grow new PC strategies and techniques to assemble programs where the valuable information of experienced activity specialists can be represented notwithstanding the customary power framework application programs. There is also a need to develop fast and efficient methods for the prediction of abnormal system behavior.

Power has its unmistakable attributes from different sources. For instance, power can't be put away financially and transmission charge may counteract free trade among control regions. In this way, power value development indicates exceptionally extraordinary, really, the best, unpredictability among all items [1]. Individuals in power industry know about burden determining as forecasting power burden has turned into a significant undertaking for the correct arranging and activity of anomaly framework [2]. With presentation of deregulation into power industry, cost of power has been the key of all exercises in the power advertise. Accurately and efficiently forecasting electricity price becomes more and more important [3]-[5]. The power market guidelines is that the hourly power costs depend basically on the interest. The power request displays hourly, every day and occasional patterns, being likewise affected by the financial activity and the (GDP) of the nation. The atmosphere impact and other related elements are basic as well to decide the last power value, that may vacillate contingent upon the season and day and hour [6, 7]. Besides, power value development indicates extraordinary unpredictability among all products [4]. Value determining strategies in power frameworks are generally ongoing systems [8]-[9].

Artificial Intelligence (AI) has provided techniques for encoding and reasoning with declarative knowledge. The advent of neural networks provides neural network modules, which can be executed in an online environment. Many ANN based price forecasting models were proposed [10]-[12]. Numerous Artificial Intelligence frameworks and Expert Systems have been worked for taking care of issues in various regions inside the field of anomaly frameworks. Electric price forecasting using GA technique is proposed in [13]-[14]. These new techniques supplement conventional computing techniques and methods for solving problems of Power System planning, operation and control.

This paper presents the uses of Artificial Intelligence and Neural Networks in Power Engineering. It first reports territories in Power Systems that Artificial Intelligence has been applied to. It at that point outlines the man-made conscientious systems, which have been utilized, and makes recommendations for the improvement of existing man-made brainpower devices.

Manuscript published on 31 September 2019

* Corresponding Author

K. Sarada, Department of CPE, Jyoti's Education Foundation, Vaidhyanagar, A.P, India

S.S Tolasi Ram, Department of IEE, JNTUH, Telangana, India

© The Author. Published by Blue Eyes Intelligence Engineering and Sciences Publications (www.ijeep.com). This is an open access article under the CC BY-NC-ND license <http://www.ijeep.com>



A New Technique for Transmission Loss Allocation in a Deregulated Electricity Market

K Sarada, S S Tulasi Ram



Abstract: In a present day a necessity for fair allocation of transmission loss in a deregulated electricity market. This paper presents a modified loss allocation method to calculate the allocation of transmission loss loss. The procedure depends on straightforward circuit laws and doesn't include any sophisticated results obtained by IEEE 14 Bus system are analyzed with the other present methods.

Keywords: Load Flow Analysis, Transmission Pricing, Z_{bus} , Transmission Loss Allocation

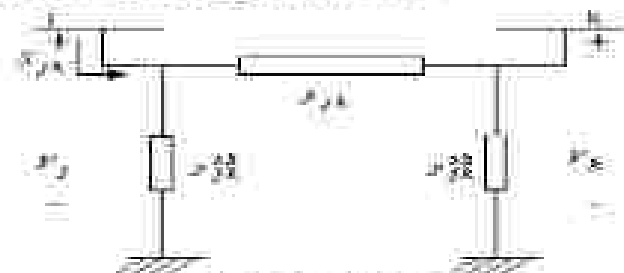
1. INTRODUCTION

Loss allocation of transmission loss plays a important role in deregulated electricity market. In a power system has generators and demands are connected to the common network, change in one individual effects the others connected in the network by complicating the calculation of cost of each individual accountability[1]. A perfect method of calculating the allocation of transmission loss is needed for all individual who participate. Each elected method is constructed on specific characteristics of its network [2]. Proportional sharing method is the simplest method which respects with the amount of power flow and its usage for particular time regardless of its supply and demands in the network located. This method suits to the electric system where all the generators and demands located with short distance without considering the usage of participants[1]. Actual Power flows are not reflected in power grid using compact path method[2]. Another method The MW-Mile explains the participation of each demand & generator in each line flow and its loss[1],[2]. Proportional sharing principle method calculates the losses proportionally to the flow of power entering the bus, based on KCL. Loss allocation is done 50% loss to generation and 50% to demands from total loss this method depends on effect on of slack bus[3].

J Butskantipated a method to calculate loss allocation via merit based generation power dispatch and calculating nodal pricing to allocate loss between supplies and demands [4].

Coefficients used can be positive or negative for transmission loss allocation in incremental transmission loss(TL) [5]. A)Consequenceknowledge the mathematical

separation of losses in existing network buses, by subjugated Z_{bus} , new proposed a loss allocation method [6]. J.S. Daniel et al modified the Y_{bus} to comprise the method of transmission loss allocation [7]. Using bus loss matrix a quadratic loss load and allocation is introduced by Qiang Ding and Ali Abur [8]. Z_{bus} based technique offers commensurate of bus currents to complex line flows is built up [9]. A bound together methodology for transmission loss distributionwithbuses and different exchanges is established in[10]. The framework loss is disintegrated by the whole of bus-shrunk fractional integrals, every one of which speaks to the bus wise allocation of loss in[11]. Power loss in transmission line is spot pricing is not often through because of its complicatedlike flow of power in paths, nonlinearity, ambiguous solutions in order to minimize the error of allocation to match with accurate real system loss in [12]. S.M. Aboul Elhanderintegratedtransmission loss into various sects (1) flow of current from generator to demands, circulating current within generators and theirinvolvement arrangement leads to rise or reduction of transmission losses[13]. AC load flow is used to calculate loss factors aimed at calculation of loss allocationfrom incremental methods [14]. Heavy transfer of power is accountablefor huge transmission losses and loss procedure, loss allocation for mixed pool and bilateral markets was anticipated in[15]. By means of bus-branch flow direction matrix determined power flow tracing loss allocation was established [14]. The paper anticipates a new model to achieve transmission loss allocation factors for [7]. The method consists of basics of Kirchhoff laws. The method obtains power loss allocation by comprising real power loss and its bus contribution factors. The results were obtain on a IEEE 14 BUS system. The results were compared with the results of other existing methods. The paper is organized as follows: converged load flow solution, conclusion of the contribution of bus currents to the complex line flow is presented in Section II. Transmission loss allocation methodology is known in section III. Results of IEEE 14 bus system loss allocation are presented in section IV. Conclusions are given in section V.



Manuscript received on 30 September 2019

* Corresponding Author

K Sarada*, Department of EEE, Kuvempu Lakshminarayana Muruganapada Institute of Technology, K.P. Nellore

S S Tulasi Ram, Department of ME, RVVU of, Tadipatri, India.

© The Author. Published by The International Journal of Recent Technology and Engineering Publishing (IJRTE). This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)



Integrated Buck Boost Series Parallel Fly-Back Converter for Electronic Ballast and LED Drive Applications

Naga Pooja V, Pundri Kumar K, Sreenu Kumar S L V, Lokeshwararao K

Abstract— Integrated Buck Boost Series Parallel Fly-Back Converter (IBBSPPFC) a single MOSFET switch is used. This IBBSPPFC can achieve high or low voltages by buck and boost process. The pass through a film capacitors be able to be low due to facilitate film capacitor can be used. Buck-Boost converter can operate in Buck mode and Boost mode with continuous conduction mode by the inductor and capacitor. In this design, regulation and reliability of the converter improves when the capacitors are linked in series among the main winding of isolation transformer and the power transfer capability is improved by parallel connection of the isolation transformer with capacitor. By this IBBSPPFC can increase and decrease of volt conversion without any transformer losses is obtained for different duty cycles. Therefore, this is beneficial for higher efficiency and reliability and the cost of the system can be reduced by using Fast recovery diodes, inductor and capacitor. By Conversion of 24V input in 50V Output in continuous conduction mode (CCM) under 100W output power is obtained.

Keywords— Integrated Buck Boost Series Parallel Fly- back Converter (IBBSPPFC), Isolation Transformer, Continuous Conduction Mode (CCM), Open Loop Control, Buck-Boost Converter (BEC), Fly-back Converter (FC).

I. INTRODUCTION

Green power systems like Solar PV module and gas cells, are extensively used in industries & mobile home areas designed for reducing of carbon emission. But, small amount of end power is their typical defect [1]. In grid-tied usage, DC input voltage of a converter have to be high abundant to infuse power to utility grid [2]. For switching mode power supplies (SMPS) it requires high efficiency and more power density with high switching frequency can reduce the size of the power converters.

In Isolated DC-DC Converter FC is considered with BE regulator. Whereas Buck and Boost converters are used in power converters to increase or decrease the voltage obtained at the output. Buck operates as step-down chopper and Boost operates as step-up chopper. In most of the PV cells we required to get more voltage. By using the buck-boost converter the voltage can be given in the inverter as it takes

low or high voltage [3]. Buck-Boost converter is a non isolated converter and whereas fly-back converter is a isolated regulator. In BE regulator the voltage at output side is more / low than the voltage at the supply side [4]. applications are use in SMPS, [6] power amplifier and in battery power systems. The advantage of low operating duty cycle and higher output voltage FC is taken as of the BE regulator as in BEC we use inductor coil (L), so this inductor is splited to form as the isolated transformer. Fly-back converter has a particular propose to facilitate it is a non direct converter that it does not have a direct path between input and the output in any instant of operation [7]. Applications of fly-back transformer are it develops high voltage, can fix multiple outputs and has low switching stress [5]. IBBSPPFC is connected in series parallel with the isolation transformer, when it is linked in parallel it increases the reliability when one transformer is limited then other transformer can operate and when it is connected in series it improves connecting two transformers in the input side can operate with the high power transfer capability. These fly back transformers can be used in Aeronautical applications, electrical converters and inverters.

In this propose, of the integrated buck boost series parallel fly-back converter a single switch is used this can reduce switching stress with one switch. Buck boost inductor is used at the input side [8], whereas the fly-back inductor acts as isolated transformer it is connected across the capacitors, the capacitor used can be a film capacitor as it use a slight plastic film as the dielectric. These film capacitors are low-priced, steady and can with stand for large reactive power values. These film capacitors are used in electronic ballast, X-ray tubes and can be used in electrolytic capacitors [6].

It has Single power switch, three capacitors, one inductor, seven diodes and isolation transformer are the main components of this converter. The inductor is at the supply side so it has the voltage same as the supply voltage. The study and representation of the suggested converter or circuit configuration is shown in Section 2. Mathematical calculations are in Section 3. The MATLAB Simulink results are in part 4 and conclusions are shown in part 5.

Received Version Manuscript Received on 20 September, 2018.

Naga Pooja V, PG Scholar, GNTU(BEE), Hyderabad, Telangana, India.
E-mail: naga.pooja@gnit.ac.in

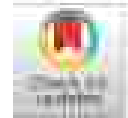
Pundri Kumar K, Asst. Prof, GNTU(BEE), Hyderabad, Telangana, India.
E-mail: kulkarnipundri@gmail.com

Sreenu Kumar S L V, Asst. Prof, GNTU(BEE), Hyderabad, Telangana, India.
E-mail: sllv@gnit.ac.in

Lokeshwararao K, Asst. Prof, School of IITM, GITAM, Bangalore, Channa, Karnataka, India.
E-mail: lokeshwararao@gmail.com

Abstract— Integrated Buck Boost Series Parallel Fly-Back Converter (IBBSPPFC) a single MOSFET switch is used. This IBBSPPFC can achieve high or low voltages by buck and boost process. The pass through a film capacitors be able to be low due to facilitate film capacitor can be used. Buck-Boost converter can operate in Buck mode and Boost mode with continuous conduction mode by the inductor and capacitor. In this design, regulation and reliability of the converter improves when the capacitors are linked in series among the main winding of isolation transformer and the power transfer capability is improved by parallel connection of the isolation transformer with capacitor. By this IBBSPPFC can increase and decrease of volt conversion without any transformer losses is obtained for different duty cycles. Therefore, this is beneficial for higher efficiency and reliability and the cost of the system can be reduced by using Fast recovery diodes, inductor and capacitor. By Conversion of 24V input in 50V Output in continuous conduction mode (CCM) under 100W output power is obtained.

An Examination on Advanced MPPT Methods For PV Systems Under Normal & Partial Shading Conditions



Buchibabu P, Jarupula Somlal

Abstract: Maximum power point tracking is an method to derive maximum amount of power from PV array irrespective of its atmospheric and load conditions. There is only singular point on the PV graph where we can obtain the maximum power, more popularly known as MPP. Basic conventional methods namely Perturb & Observe (P&O), Incremental Conductance method (INC) & Fractional open circuit voltage have a very elementary design in tracking the maximum power which are susceptible to track the maximum power under partial shade conditions & rapid atmospheric change conditions. Hence to overcome the above situations MPPT methods based on partial shade conditions are illustrated in these Paper. In addition to these the advancement made in conventional methods regarding the step size is also proposed in these paper. Advanced MPPT methods based on Artificial Intelligence which are bio inspired algorithms are presented.

Keywords: MPPT, Partial shade, Artificial Intelligence & Bio-inspired algorithms.

I. INTRODUCTION

The era of Electrical Energy from sustainable power source (RES) has grown a ton in ongoing decades, basically because of expanded interest for power, just as the worldwide concentrated endeavor to defeat the unsafe natural impacts brought about by contamination vitality sources, for example, oil, coal, flammable gas, and others. Embedded in this situation, sun based vitality has risen as a promising RES because of its plenitude over the world's surface. Another reason the PV modules have gained importance these recent time is due to incentives given by government [1].

A great amount of research work in a grid system is emphasized on inverter topology. The main aim of inverter herein not only the inversion of DC power to AC power, but it should also track the maximum power irrespective of adverse conditions which is total based on the advancement of technology used in algorithms [1]. But unfortunately the main drawback here is the efficiency of the solar panels are in the range of 16% to 20% but the recent research suggests that a high efficiency of 23% to 27% is possible [3][4]. In

addition to the above statistics surprisingly a high efficiency around 30%, was made from Ge-As photovoltaics [5].

The analysis of above data reveals that the conversion efficiency of above of solar panels is very low which enabled all the researchers to emphasize their research works on the extraction of maximum power, so here comes the role of novel MPPT methods used in PV systems. The paper is structured in the such way that Section-1 speaks about the introduction, Section-2 describes basic MPPT techniques, Section-3 emphasis on advancement made in MPPT techniques and section -4 ends with bio inspired MPPT techniques for partial shade conditions.

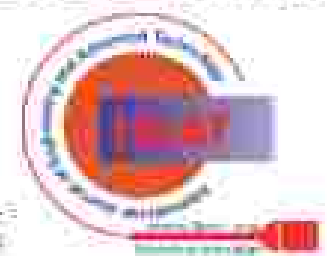
II. MPPT TECHNIQUES

The main criteria for the adoption of MPPT techniques is to give assurance suchthat the maximum power is squeezed from PV panels irrespective of its atmospheric conditions. In a normal sense the MPPT methods reads the values of voltage and current and modify the duty ratio of converter such that they try to squeeze the maximum power from PV panels. Under cloudy environment or shady conditions the PV graph represents many number of Local Maximum Power (LMP) & Global Maximum Power (GMP). So the basic approach MPPT methods namely P&O method, Fractional Open Circuit Method, Fractional Short Circuit Method & INC method can be implemented for tracking the maximum power for normal conditions but these methods fail under abnormal conditions. The major limitation with above methods is they cannot distinguish local and global MPP points. In addition to these a lock fro intuition is observed from MPP because of its fixed step size. Hence the research work has laid foundation for novelty methods for overcoming the above limitations. Modified Methods such as Enhanced P&O (EPO) [6], Modified Incremental conductance algorithm [7] and updated Open Circuit Voltage based method [8] are the few examples. In addition to these more advanced methods like ANNAI and bio-inspired algorithms are predominant these days. Among them the particle swarm optimization (PSO) was the earliest method for implementing MPPT. Over the past many decades many methods MPPT techniques has evolved in the literature but many of the methods differ from the other in some aspects like complexity, speed of operation, tracking of irradiation, iteration methods to reach MPP, settling time, cost, efficiency, hardware and implementation of algorithm. A brief description of the similar methods are shown below.

Manuscript published on 30 September 2019.

BOOKABAST P Assistant Professor, EEE Department, OJAS College of Engineering, Hyderabad.
Dr. JARUPULA SOMLAL Professor, in EE Department, OJAS College of Engineering, Hyderabad.

© The Author. Published by Blue Eyes Intelligence Publications and Science Publications (BEIPSP). This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



PAPER • OPEN ACCESS

Sag and Swell mitigation and Power quality improvement in grid connected hybrid system using UPQC

K. Manogna¹, P. Tejuswi² and G. Sujatha²

Published under license by IOP Publishing Ltd

Journal of Physics: Conference Series, Volume 1362, International Conference on Physics and Photonics: Progress in Nano Sciences 20–22 June 2019, Eluru, India

Citation: K. Manogna *et al* 2019 *J. Phys.: Conf. Ser.* **1362**, 012075

DOI: 10.1088/1742-6596/1362/1/012075

Manogna.k.mamthas@gmail.comTejuswetha.0110@gmail.comsujathagantham08@gmail.com¹ PG student (M-Tech), G.Narayanaamma Institute of Technology and Science Hyderabad, India² Assistant Professor, EEE Department, G.Narayanaamma Institute of Technology and Science Hyderabad, India[Buy this article in print](#) Journal RSS[Sign up for new article notifications](#)[Create citation alert](#)[PDF](#)[HTML](#)

Abstract

Power quality is the major problem that always affects the cost and efficiency of the transmission and distribution system. The effective solution for this problem is to use the power conditioning devices to compensate the power quality problems. These power conditioning devices are made of power electronic converters. These imperfections are present in both the source and the load ends which are compensated by the Customized power device like UPQC. The UPQC is formed with hybrid system.

[IOPscience](#) for Privacy and Cookies policy

Home > Other

Cost Allocation Of Transmission Line using Fact Devices

N/A

N/A

6 hits

Download

go.crowdfunder.com

2023 Cloud Risk Report

International Journal of Innovative Technology and Exploring Engineering (IJITEE)

ISSN: 2278-3075, Volume-8 Issue-6, April 2019

Cost Allocation Of Transmission Line using Fact Devices

K. Surada, S.S. Tulasiram, V. Hala Shweta,

Abstract: This paper presents the cost calculation when their cost calculation. Different FACT devices are used to compensate the real power flowing in the available transmission system. The FACT devices are SVC and UPFC different values are obtained at different placements and loading situations. IEEE-9 bus system as standard test is used for the study of the reactive power in different situations. Optimization of power using FACTS devices is done and the line becomes healthy with less losses. The main important of current study is to reduce decreasing active power losses, system working cost plus the price of FACTS devices and congestion in transmission system. As cost is main factor to be considered in all the conditions. It has been observed that by optimal placement of FACT devices with consideration on transformers and different tap changers in the transmission line gives good power flow in the line and the congestion in the lines is controlled.

Index Terms: Cost allocation, Reactive compensation, English power flow controller.

FACTS were the concept that is first introduced by Bragdon [1]. FACT device is solid-state converters which are proficient of controlling many factors in the transmission lines. In a way the FACT devices can influence the power flow in transmission line is illustrated in [2]. Several uses is identified and their perceptible based changes are done in the system [3]. The location by the placement of FACT device is discussed and is given in [4]. FACTS controllers are used to enhance the power flow in the transmission system. Power flow and controlling in the lines is discussed by Goussari and Berry [5]. Locating the perfect place to place the FACT devices and to other transmission for system was the main objective of Liu and Dign [6]. Different approaches to find the optimal allocation of the devices was presented by Xian et al. [7]. Proper placement of FACT devices and minimization of cost was deliberated by Singh and David [8]. Series FACTS controllers can be used to raise the power transmission capability in a steady state condition [9]. The basic of choice of FACT devices is connected in power

Ads by Google

Stop seeing this ad

Why this ad? ©

subtly: This leads to the transmission congestion and fluctuations in the line and the losses in the line are avoided. So to minimize the transmission congestion and the voltage in the line is one of the simplifying tasks. This can be controlled or reduced by (reactive power compensation in the weak nodes transmission line. This will improve the profile of line and both the steady state and dynamic conditions are reduced. Flexible AC transmission systems have the capability in the present situation to overcome the problem faced and the stability of the line is also increased, by employing proper FACTS devices at both ends of the transmission line at both the ends or the power flow in the lines is the function of voltage and the required reactive and active power can be compensated by advanced FACTS device.

Manuscript Received on April 07, 2013

K. SARADA, Professor and Director, Department, R. V. E. T. Dammak, Bangalore, Karnataka, India.

Dr. S. S. Jitendra, Associate and Assistant Professor, II, Sarva Jyoti Institute of Technology & Science, Mysore, India.

V. Ravi Shankar, Assistant in Professor, Department, R. V. E. T. Dammak, Bangalore, Karnataka, India.

placement of UPFC in the network was presented in [17]. Neural network method for the resolve of optimal number and place of FACTS devices labeled by Baburamiah et al [18]. This technique is useful for medium and large scale system. Artificial neural genetic algorithm (AGA) is applied for the optimal locations of FACTS devices in the congested power system for the improvement of available transfer capacity in [17]. UPFC networks through series and shunt FACTS optimizers were to reduce system operating cost in distributed reactive loading rates in [19].

II. INTRODUCTION TO SVC AND UPFC

Flexible AC transmission system is used to increase the thermal capability of the system. They are used for the better performance of the system. In this we have used FACT devices to enhance the system stability and security. SVC is an automatic device that is designed to bring the system closer to unity power factor. The Static Var Compensator are the most generally introduced FACTS. (reference right now)



Published In
International Journal of Science, Engineering & Technology

Cost Allocation Of Transmission Line Using Fact Devices

They insure the working standards of a variable input acceptance and utilize quick dynamic controllers with settling times of just a couple of control constants periods. From the operational perspective, the SVC modifies its extent consistently in light of changes in the working state of the system. By reasonable control of its proportionate susceptance, it is conceivable to forest the voltage slide at the SVC purpose of association, along these lines upgrading essentially the execution of the control framework. A blend of a static synchronous compensator (STATCOM) what's more, a static synchronous arrangement compensator (SSSC), which are coupled by means of a regular dc connect,

power sources beforehand present in the system. Along these lines, the key goal of this paper is to limit dynamic power misfortune and all out operational expense under different working circumstances by the establishment of FACTS gadgets at various ideal areas in transmission framework which likewise kills congestion. The choices for which they were put are generally subject to market outcome and the highlights of the precise framework. Introducing cost for various FACTS gadgets and the expense of framework links in particular, study subsequence costs are joint to shape target work is to be limited, which is liberty by administrative responsive age of the gadgets, administrative transmission lag

DOWNLOAD (PDF - 5 Page) - 495.14 KB

line pay without an extra electric voltage source. The UPFC, by means of precise unconstrained arrangement voltage regulation and control, simultaneously or specifically, the transmission line voltage, impedance and power or on the other hand, the genuine and reactive power stream in the line. The UPFC may likewise give freely controllable shunt susceptive pay. The UPFC which is a standard amongst the most encouraging gadget in the FACTS side, has been employed and put into stable use (Schauder, 1988).

framework, rely on methodology setting of transmission lag position and susceptive age of generators are contained an administrative parameter alongside FACTS gadget. The mass of transmission lag places and respective ages of the generators inside distributed breaking point are self-administering on the framework cost, just expense of the FACTS gadgets are to be considered. This top method is used to find the cost of the system with and without SVC and UPFC. The idea of relative sharing strategy is proposed by Bialek, where the requirement of indices is equivalent to the

An Integrated Boost Parallel Flyback Converter for Multi Load Applications

Medi Pallavi, S.L.V Srevas Kumar, N.Ravishankar Reddy

Abstract— In this paper, Integrated Boost Parallel Fly-back Converter (IBPFC) with continuous mode is presented. The bulk capacitor will supply the voltage to two transformers. The two transformers work with 1:1. The main advantage of this converter is high reliability, high power transfer efficiency and step up gain. Using this topology current stress on switches is reduced due to parallel operation. The parallel fly-back converter and boost converter sharing a common switch Q1, the input voltage VCB will be the parallel fly-back converter (PFC) is given the output of the boost converter. The operating modes of IBPFC has been presented. A 24V input, 50V and 50V outputs and 100W DC-DC isolated converter with 100 kHz of switching frequency is modeled using MATLAB Software and Simulation results have been presented.

Index Terms— Integrated Boost Parallel Fly-back Converter (IBPFC), open loop control, continuous conduction mode (CCM).

I. INTRODUCTION

DC-DC Converter can be operated as switching mode regulators to convert Uncontrolled Dc voltage to a controlled DC output Voltage. Which can be operate as a power switches like an inductor, a capacitor and a diode to transfer power from starting of the circuit to end of the circuit.

The switches are conventionally passive or active type.

Passive switches contain of a diode. Whereas the active switches is MOSFET transistor. These switches are very fast to control the pulse width modulation. Signal dont when frequency and duty cycle are in ON and Off conditions and very high power is generated at output. When duty cycle is in high mode. Commonly boost converters are used to step up the output voltage. Mainly DC-DC boost converter will operate in two modes continuous conduction mode (CCM), discontinuous conduction mode (DCM). When the boost converter works in CCM, inductor current will not be zero at any time where as in DCM, inductor current will fall to zero after every switching cycle [1][2][3].

The fly-back converter (FC) is deriving from buck boost converter with the inductor split to form a transformer. The voltage ratios are multiplied with the voltages to isolation. It has only one switch and magnetic component. It is accomplished to generate high voltages. FC is mainly used in high voltage, low power application for its intelligibility, isolation and short circuit protection.

The fly-back converter provisions both step up and step down the input supply voltage and the same ground reference, polarity for input and output time maintaining. The advantages of fly-back converter is the primary side is isolated from the output side. It is able to supply multiple

voltages. It can be isolated from the primary side. It has capacity to regulate the multiple output voltages with a single control, and it can operate with wide range of input voltages [4][5][6].

In an IBPFC with High step up Applications has been designed. IBPFC has the advantage of high step up voltage with boost converter and system isolation with PFC. The topology of traditional IBPFC is in the design of cascaded connection of a boost converter with FC. The input of fly-back converter is given to the output of the boost converter. Switch Q1 will act as main switch for the converter. CB is the Bulk Capacitor. In IBPFC, the boost converter comprise of fixed dc voltage source V_{in} with each time period, corresponding in the fly-back converter input inductor L_{in} , diode D1 and D2, main switch Q1 and bulk capacitor CB.

In this, the parallel fly-back converter it is comprised of identical current source corresponding to the boost converter, upper and lower transformer, diode D3 and D4 switch Q1 and Q2, output capacitor C1&C2 and load resistance R1&R2 [7][8].

At high level power, it is useful to parallel two or more converters preferably using a one high power unit. It has some lead of paralleling, (a) it supplies more system reliability due to discharging, (b) that it has more switching frequency and hence reduces current pulsations at the input or output, and (c) it permit low capacity inductor to regulate where a number of these will be paralleled to furnish high power ability. The issue of current splitting among the parallel converters can be rectified by means of current mode control, two fly-back converters are connected in parallel and these work at the same switching frequency, but the switches in the two converters are performed in turn on a half time period a part from one another[9].

Here, in this paper the analysis of IBPFC is discussed the design parameters of boost converter is 24V on primary side and the output voltage of PFC transformer (T)50V& transformer (T1) 50V on secondary side. The boost converter output will be given to the input of the Fly-back converter and 100W power of IBPFC Operating at 100 kHz is designed.

Manuscript Received on December 22, 2018.
Medi Pallavi, PG student, GNITC, Shakti, Hyderabad, India (medi.pallavi@gnitc.ac.in)
S.L.V Srevas Kumar, Asst.Prof-GNITC Shakti, Hyderabad, India (S.L.V.S.V.2571@gnitc.ac.in)
Dr.N.Ravishankar Reddy, Asst.Prof. EEE: GPTEC, Khammam, A.P. India (rcs@gnitc.ac.in@gmail.com)





Application of STATCOM in Renewable Energy Sources for Power Quality Improvement

Chelumala Nirosha¹, Dr. Geeta Annapurna²

¹M.Tech, Dept. of EEE, G. Narayanaiah Institute of Technology and Science (for women), Hyderabad, Telangana

²Associate Professor, Dept. of EEE, G. Narayanaiah Institute of Technology and Science (for women), Hyderabad, Telangana

Abstract: In the present trend, there is widespread use of digital or microprocessor controlled devices. Whenever the case, power quality problems may disrupt operations. According to the IEEE definition, power quality is the concept of powering and grounding sensitive equipment in a manner that is suitable to the operation of that equipment. In recent trends in electrical market, most of the electronic devices are more sensitive and may not operate properly when small variations or disruptions in the electrical supply occur. Various power quality issues that may damage the sensitive equipment are voltage sag (or dip), very short interruptions, long interruptions, voltage spike, voltage swell, harmonic distortion, voltage fluctuation and noise. To function properly, electronic devices require voltage to flow within a consistent range. Power surges, sags, transients and momentary interruptions can cause voltage to fluctuate outside this range. Based on the above power quality issues and working of different FACTS devices we would be proposing a custom power device called STATCOM. STATCOM will be developed in MATLAB software for proof of concept. On top of that, we have a plan to replace Hysteresis controller with Fuzzy logic controller, which can be implemented for closed loop testing to reduce the error and increase the gain margin and proved in the simulation results.

Keywords: Power quality, wind generating system (WGS), facts devices, shunt controllers

I. INTRODUCTION

In professional literature, there are described many different ways to "isolate" sources from disturbances introduced by the nonlinear loads and vice versa. For example to compensate reactive and higher harmonics currents, produced by the non-linear loads, STATCOM (Static Compensator) can be used. In those systems (independent with control algorithms) there is need to extract, from measured load or source currents (it depends if control algorithm is in open or closed loop), compensating components. Therefore the filtration quality is as good as well it is possible to extract compensating components and shape them.

A Flexible AC Transmission System (FACTS) is an ac transmission system incorporating power electronic-based or other static controllers which provide better power flow control and enhanced dynamic stability by control of one or more ac transmission system parameters (voltage, phase angle, and impedance).

In general, FACTS controllers can be divided into three categories:

- 1) Series controllers
- 2) Shunt controllers
- 3) Combined series-shunt controllers

Among FACTS controllers, the shunt controllers have shown feasibility in term of cost effectiveness in a wide range of problem-solving applications from transmission to distribution levels. For decades, it has been recognized that the transmittable power through transmission lines could be increased and the voltage profile along the transmission line could be controlled by an appropriate amount of compensated reactive current or reactive power. Moreover, the shunt controller can improve transient stability and can damp power oscillation during a post-fault event. Using a higher-speed power converter, the shunt controller can further alleviate or even eliminate the flicker problem.

The shunt controller basically consists of three groups:

- a) Static variable compensator (SVC)
- b) Static synchronous compensator (STATCOM)
- c) Synchronous generator (SSG) or STATCOM with energy storage system (ESS)

The paper is organized as follows. The Section II introduces the shunt controllers. The Section III introduces the . The Section IV describes the topology for power quality improvement. The Sections V, VI, VII describes the control scheme, system performance and conclusion respectively.

PID Controller Based Closed Loop Speed Control of BLDC Motor

M.Priya PG Scholar, Dept of EEE, G.Narasayamma Institute of Technology and Science, Hyderabad
N.Malla Reddy, Professor, Dept of EEE, G.Narasayamma Institute of Technology and Science, Hyderabad
 (marayyal225254@gmail.com, norema.nomula@gmail.com)

Abstract— As it is known that BLDC motors are rapidly gaining popularity because of its advantageous features like high efficiency, electronic commutation, high-speed range, maintenance free, good dynamic performance, etc. In many applications to obtain the desired characteristics, the speed of the BLDC motor is kept under control. In spite of many speed controllers being available, a PID controller is widely used in many industrial applications due to its ease of control and simple structure. This paper deals with the PID controller based speed control of BLDC motor, where the input to the BLDC motor is varied by the inverter, the inverter gating signals are controlled by hall sensor communication and the PID tuned current controller. This work mainly focuses on the closed loop operation and the design of speed controller. The proposed concept of speed control is developed using MATLAB SIMULINK and the hardware is implemented on this concept using a PIC16F877A microcontroller with programmed PID controller code.

Keywords—Three phase inverter, Brushless DC (BLDC) motor, Hall sensors, Proportional-Integral-Derivative (PID) controller, PIC microcontroller.

I. INTRODUCTION

In recent days most of the applications uses BLDC motors for their huge advantages, as for control techniques in industrial applications to aircrafts and as propulsion systems in automobiles, etc. The main reasons for rapid increase in popularity of BLDC motor are, it has excellent acceleration characteristics, less or no maintenance, good weight to power ratio, less noise when compared to brushed DC motor[1]. This special features has led to have a wide research area for the development of speed controllers for BLDC motor.

In conventional DC motor the current through the coil on the stator produces the air gap flux, but in BLDC motor unlike conventional DC motor the permanent magnet produces flux rather than the windings on the stator[2]. The permanent magnet synchronous motor with flat topped trapezoidal Back EMF shape is known as Brushless DC motor. Due to the simple control and wide range of speeds, DC motors are used in many industrial applications as an electric drives but it has its own problems because of the presence of brushes. By eliminating the brushes in the motor we call it as Brushless DC motor which has similar characteristics like DC motor. BLDC motor withstands the problems of electric erosion and mechanical friction.

Due to the absence of brushes in BLDC motor, they are commutated by electronic circuits. The stator coils are energized in a proper sequence in order to rotate the motor. To know which coil to be energize according to the sequence, for this we need to have knowledge on rotor position. Now a days BLDC motors are provided with inbuilt Hall sensors. Three hall sensors are available on the stator of BLDC motor for rotor position. These sensors are incorporated on the non-rotating part of the motor called stator. The details of pole passage near the position sensors is indicated[3]. Now the logic low and high signals are generated by the sensors according to the North pole and South pole of permanent magnet rotor movement. The appropriate sequence for commutation can be estimated based on these inbuilt Hall sensors and their communication signals in BLDC motor.

The aim is to result out controlled speed response of the BLDC motor by adopting PID controller. This paper work deals with the design of the Proportional Integral and Derivative controller for regulation of BLDC motor speed and to have a constant speed for varying set speeds or reference speeds. It is the closed loop speed control operation where the actual speed is compared with the set speed in order to generate the error, and this error is given to the PID controller. This not an instant problem solving method because here the actual speed and set speed are compared to process the error.

II. BLDC MOTOR

A. Modelling equations of Brushless DC motor

In BLDC motors the back EMF is trapezoidal indicating that mutual inductance between the rotor and stator is trapezoidal shape. The motor drive contains Brushless DC motor along with a three phase inverter. The motor commutation is done by making use of six power semiconductor devices for inverter which helps in energizing any of the two phases of the motor at a time, while setting the other phase as free [1]. The inverter switching algorithm is obtained by sensing the rotor position by Hall sensors, where the Hall sensors are placed 120° electrically on the stator of BLDC motor.

In the view of modelling the BLDC motor the following assumptions are made, considering per phase resistance for the stator windings is equal, constant self and mutual inductance, neglecting iron losses, inverter semiconductor devices are ideal.

The circuit equivalence of Brushless DC motor is shown in the Fig 1.

Analysis of Modified Five Level Flying Capacitor Based Multilevel Inverter

P.Siva Prasad, Dr.C.Annapurna

Abstract- Multilevel inverter concept gained importance because of high power handling capability and lower harmonic content in the output voltage. As the output voltage of multilevel inverters is synthesized from several levels of dc voltages, the harmonic distortion is minimum. Now \rightarrow level Carrier Based Pulse Width Modulation (CBPWM) technique gained importance as it can be easily extended to higher inverter levels and applied to Sinusoidal and Space Vector modulation schemes for control of multilevel inverters. This paper presents modified topology of Five level Flying Capacitor Multilevel Inverter with reduced number of dc bus capacitors and clamping capacitors. The performance of modified topology and normal topology Five Level FCMLI adopting Carrier Based Sinusoidal Pulse Width Modulation technique is evaluated in terms of THD in the output voltage. Simulation results based on MATLAB/SIMULINK are presented to verify effective compensation of harmonics when modified topology inverter is adopted.

Index Terms - Flying capacitor, multilevel inverter, CBPWM.

1 INTRODUCTION

Multilevel inverters are widely being used in high and medium power applications due low THD and high power handling capability. Now a days, there is a lot of literature about the topology and modulation schemes of multilevel inverter. The three topologies of multilevel inverters are Cascaded Multilevel Inverter (CMLI), Diode Clamp Multilevel Inverter (DCMLI), and Flying Capacitor Multilevel Inverter (FCMLI). [4]

Manuscript received June 11, 2019 and published on July 11, 2019
P.Siva Prasad, Avinash P.D from IJTCN Hyderabad
Dr.C.Annapurna, Department of Electrical & Electronic Engineering, C. Mangalam Institute of Technology, and Institute for Women, Hyderabad.

In Flying capacitor multilevel inverter, an extra capacitor is clamped to the power switches phase rail to supply the dc voltage level. These clamping capacitors help in reducing the switching states thereby allowing this structure of inverter to supply high voltages during the power outages.

A. Five Level Flying Capacitor Basic topology Multilevel Inverter

This basic topology inverter uses clamping capacitors. The capacitor clamped switching cells are connected in series. These capacitors help in transferring limited amount of voltage to electrical devices. The switching states in this type of inverter are same as that of diode clamped inverter. However, this inverter does not require clamping diodes. The drawback of the flying capacitor inverter is that the output is only half of the input DC voltage. In order to balance the flying capacitors, a sufficient switching redundancy within phase [1].

This flying capacitor topology consists of capacitors, diodes and switching devices. Even though the design of this topology can give infinite levels, it's usage is limited to six levels of voltage only due to practical limitations. In each leg there will be switches and clamping capacitors. The capacitors near the source have high voltage while those connected adjacent to load carries lower voltage. The output voltage levels depend on the number of switches conducting in each leg [5].

In four flying capacitor topology, the capacitors are used to clamp the voltages of the power switch string nodes directly. The main function of these capacitors is to store charge and to discharge when the charge is full. It is clear that the capacitors near the load have. This means that the capacitor which is closer to the load will have high charge while those away from the load will have the lower charge. The total harmonic

Solar PV based water pumping system employing induction motor drive with SVPWM

G.NAVYA¹, P.SAI NIRANJAN KUMAR²

¹PG Scholar, Dept of EEE, G. Narayanaamma Institute of Technology & Science (For Women), Santipur, Hyderabad, T. India
E-mail: gontomayee@gmail.com

²Asst Professor, Dept of EEE, G. Narayanaamma Institute of Technology & Science (For Women), Santipur, Hyderabad, T. India
E-mail: saipurnanjan@gmail.com

Abstract—In electric power generation the demand of renewable energy resource increasing day by day. Solar photovoltaic arrays (SPV) for water pumping system are used in industry and agricultural applications. A single ended primary inductor current converter (SEPIC) is interfaced between SPV and MLI for gaining more voltage from solar and fed the output to MLI. Cascaded multilevel inverter (CMLI) with space vector pulse width modulation technique (SVPWM) is proposed to generate three phase AC voltage and gives less total harmonic distortion, increase the efficiency of the system. The entire system of water pumping system and all components are designed in MATLAB Simulink.

Keywords— cascaded H-bridge multilevel inverter, SEPIC converter, Induction motor, water pumping system

INTRODUCTION

The demand of energy is necessary for the development of any nation [1]. Solar energy is most commonly used renewable energy resource when compared to other conventional resources. Various advantages of using solar energy are pollution free, low maintenance, no moving parts. Solar PV cell converts sunlight directly into electricity [2].

SEPIC is a non-isolated DC-DC converter used to increase or decrease the output voltage from the solar. This converter can also make same voltage at both of input and output terminals and it gives non-inverted output (that means having the same polarity both at input and output).

The multilevel inverter is used to convert the output of SEPIC converter i.e. DC into AC. The advantages of multilevel inverter are to minimize harmonics, high voltage application, less switching losses and higher voltage capability [3]. There are three different types of the multilevel inverter: 1) neutral point diode clamped (NPC) 2) flying capacitor (FC) 3) Cascaded H-bridge multilevel inverter (CMLI). The CMLI is used to generate the AC voltage and the gate pulse is provided by SVPWM technique. These MLI topologies are used in industrial and domestic applications.

The induction motor are widely used in water pump application because of many advantages as compared to DC motor are low cost, better ruggedness, low maintenance, reliable, higher efficiency. The applications of Induction motor are fans, pumps, blowers, etc [4].

Centrifugal pumps are common type of kinetic pump, it is widely used in the field of irrigation and industrial fluid pumping system application [5]. the centrifugal pumps are mainly used because of low cost, low maintenance, highly utilized for longer periods, low maintenance is required compared to volumetric pump, reciprocating pump [6].

In this paper, the performance of a centrifugal pump driven by an induction motor is analyzed, which is supported by a solar PV array with SEPIC converter interfaced to MLI by SVPWM. The complete system is simulated in MATLAB Simulink.

The paper comprised following parts they are: Introduction is covered in section I, followed by system description in section II. In section III, the system modeling is presented, section IV the mathematical modeling of centrifugal pump is explained and the results and discussion part is given in section V. In last, section VI concludes the paper.

II. SYSTEM DESCRIPTION

It consists of mainly five parts a) PV array, b) SEPIC converter, c) Cascaded multilevel inverter, d) Induction motor, e) Pump load. The layout of the system is shown below in Fig.1.

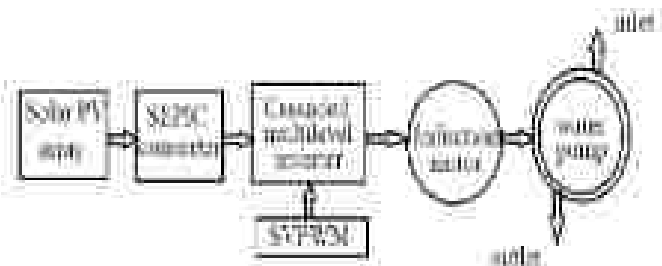


Fig.1 Reference diagram of the system

The PV array is employed to generate the dc power, to increase the dc power SEPIC converter is used and then it converted into three phase ac with the help of Cascaded H-bridge multilevel inverter. The output of the inverter is fed into the induction motor driven water pumping system for remote areas.

III. PHOTOVOLTAIC SYSTEM AND INVERTER TOPOLOGY

Modeling And Simulation of A Grid Connected Hybrid Photovoltaic (PV) - Wind Energy Conversion System

Y.Priyanka¹, Dr.R.Salasaubramanian²

Electrical and Electronic Engineering¹, G.Narasimman Institute of Technology & Science²

ppriyanka@gmail.com¹, rbsalasaubramanian@gmail.com²

Abstract- This paper deals with modelling and simulation of a Wind-PV hybrid generation system. Modeling of Wind Energy Conversion System (WECS) driven by a Squirrel-Cage Induction Generator (SCIG) driven by a variable speed wind turbine with back-back connected hysteresis band current controlled pulse width modulation (PWM) of IGBT based Voltage Source Converter (VSC). Modeling of the photovoltaic array based on its mathematical equation is used to interconnect the system to grid through a DC to DC converter. Hysteresis band current controlled PWM of IGBT based VSC has been done. The main objective of the control algorithm for the VSC is to achieve maximum power point tracking (MPPT) under varying wind speed and varying solar irradiance and load variations. The main objective of the Grid Side Converter (GSC) is to be able to control the reactive power and maintain unity power factor operation. This hybrid system using WECS - PV with MPPT controller for both are modeled and simulated in MATLAB using Simulink and Simpower system set tool boxes. The performance of this hybrid system is to allow its capability of MPPT and power quality improvement.

Keywords: MPPT (Maximum Power Point Tracking), VSC (Voltage Source Converter), GSC (Grid side Converter), MSC (Machine side converter), HBPWM (Hysteresis Band Current Control Pulse Width Modulation), TSR (Tip Speed Ratio), SCIG (Squirrel Cage Induction Generator)

1. INTRODUCTION

Renewable energy is any energy source that is naturally replenished like that derived from solar, wind, geothermal or hydroelectric action. Energy produced from the refining of biomass is also often classified as renewable. Coal, oil or natural gas, on the other hand, are finite sources known as Conventional energy sources but the majority of the world's energy sources come from Non-Renewable energy sources-fossil fuels such as coal, oil and natural gas and though, the available amount of these fossil fuels are extremely enormous, but due to reduce in level of fossil fuel and oil level day by day after a few years it will end. Hence Renewable energy source demand increases as it is green friendly and pollution free which reduces the greenhouse effect. The Non-Renewable energy Sources of energy are quickly depleting and also the cost of energy is rising therefore photovoltaic Generation system and Wind energy conversion system are hopeful substitute.

Therefore our main aim is to increase the efficiency and power output of the system by incorporating Maximum Power Point tracking (MPPT) for PV Generation system and Wind energy conversion system. It is also required to model PV system and Wind energy conversion system with suitable power electronic interfacing with the grid and load under varying solar irradiance, wind speed and load variations.

2. MODELLING AND SIMULATION OF PHOTO-VOLTAIC GENERATION SYSTEM

2.1. Modeling Of A PV Cell

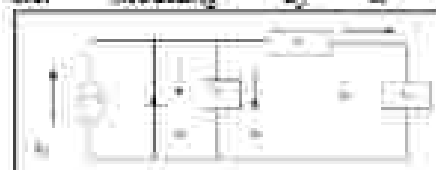


Fig.1 PV cell Equivalent circuit

$$I_{ph} = I_d + I_{sc} + I$$

$$I = I_{ph} - I_d - I_L$$

$$I = I_{ph} - I_s \left[\exp\left(\frac{V + I R_s}{V_t}\right) - 1 \right] \left[\frac{V + I R_s}{R_L} \right]$$

Where I_{ph} is the photo current, I is the Photo Voltaic Cell current, I_s is the Dark current, V is the Cell voltage, V_t is the Thermal voltage (kT/q), k is the Boltzman constant, T is the Temperature(K), q is the Charge of an electron [1]

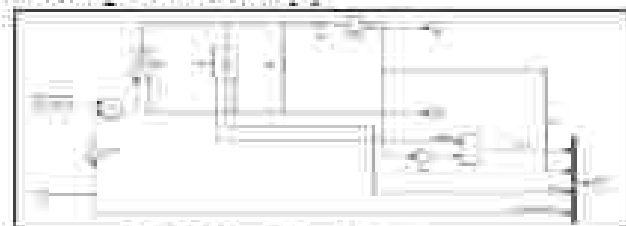


Fig.2 PV cell Simulink diagram



Power Scheduling and Control Schemes for Efficient Operation of a Solar Power in Hybrid DC Microgrids

K.V. Dhannalakshmi

Assistant Professor

*G. Narayana Murthy Institute of Technology and Science
Hyderabad (T.S.) [INDIA]*

Email: kv.dhannalakshmi@gnitv.ac.in

Y. Bhanu Sree

Assistant Professor

*GRIET University,
Guntur, Andhra Pradesh [INDIA]*

Email: ybhantii@griet.ac.in

ABSTRACT

In this paper, a hybrid DC microgrid consisting of a diesel generator with a rectifier, a solar photovoltaic (PV) system and a battery energy storage system is presented in relation to an effective power management strategy and two different control techniques implemented for power electronic interfaces. The solar PV and battery energy storage system are considered as the main source of energy that supply the load demand on a regular basis whereas the diesel generator is used as a backup for the emergency situations. All system components are connected to a common DC bus through an appropriate power electronics devices (e.g. rectifier systems, DC/DC converter). Also a detailed sizing philosophy of all components along with the power management strategy is proposed. Monthly basis energy distribution patterns of each individual component have also been presented. The power delivered by the solar PV system and diesel generator is controlled via DC-DC converter and excitation controller which are designed based on a linear quadratic regulator (LQR) technique as well as proportional integral (PI) controllers. The component level power distribution is investigated using these controllers under fluctuating load and solar irradiation conditions and comparative results are presented.

Keywords:— DC microgrid, solar PV system, diesel generator, battery energy storage system, string of components, energy management.

1 INTRODUCTION

DC microgrids are used to satisfy the load demand of remote locations such as telecommunication and railway sites. Such microgrids generally consist of a diesel generator, a battery energy storage system, and a renewable energy source to perform the hybrid operation. In most of the cases, solar photovoltaic (PV) systems are considered as the preferred source of renewable energy for a DC microgrid due to several advantages such as less capital cost, environmental conditions (i.e., open areas leading to high sun density) and low complexities associated with the structural requirements. Most of the remote locations are very difficult to reach and thus, the continuous fuel (e.g. diesel, coal, gas) supply is not possible. The operation of diesel generators mainly depends on the availability of fuel and therefore, its role is limited as a backup/emergency supply [1]. The battery energy storage system (BESS) is considered as one of the most reliable sources of energy as it can be charged either via a solar scheme or a diesel generator. However, the size of the battery storage system plays a significant role in

Home / [PDF Systems](#)

Role of Social Media in Teaching-Learning Process

January 2019

Articles



Renuka Sanyal Das
S. Nanyangamma Institute of Technology and Science



Gvitharan Pragasambalay
S. Nanyangamma Institute of Technology and Science



Maya Lakshmi V
S. Nanyangamma Institute of Technology and Science

[Download Article PDF](#)
[Download Article](#)
[Cite Me](#)

Citations (0) | [References \(0\)](#)

Abstract

Social media are becoming the most important social mediums among people where everybody can share, exchange, comment, discuss and create information and knowledge in a collaborative way. Social media lets a wide range of sharing the communication (textual, video, images) and other digital content (text, audio, video) and the way individuals learn in today's higher education settings, including students and other students on the subject of knowledge acquisition. The definition of social media is the technology that exist between network of people. The influence of social media on teaching and learning environment is growing every year and this application can enhance your teaching practice by increasing students' collaboration with you. The students and researchers are examining the social media technology in virtual collaboration, knowledge contributions and sharing with. The increasing interest use of social media goes to expand and deepen our's understanding of a relatively (new to) possibly important phenomenon that has implications for teaching and learning and learner education in the 21st century. The main aim of the paper is to find the gap of knowledge in adoption of social media used in teaching and learning process. Some ideas that can be applied in educational system and process elements for social media research are also a guideline for future research in social media used in education.

Keywords

- Social Media
- Learning
- Education
- Technology
- Digital
- Online

Introduction



Public Feedback (0)

Role of Social Media in Teaching-Learning Process

Content approved by [Sanyal Sanyal Das](#) Author when content may be subject to copyright

IMPROVEMENT OF VOLTAGE STABILITY AND REDUCTION IN POWER LOSSES USING FACT DEVICES

K. Serrada¹, Dr. S S Tunji Fam²

Abstract: In emerging power systems increased transactions often leads to the situation where the system is no longer secure operating region. Flexible AC Transmission System (FACTS) play a vital role in improving the operation of the power system even though which increase the cost of system. Optimal placement of FACT devices in the system may reduce the investment with improved operating conditions. They improve the active and reactive power control with voltage magnitude control simultaneously achieved. This paper proposes the method for optimal placing of multiple FACT devices in an IEEE 5 bus power system.

Keywords: FACT devices, optimal power flow, voltage stability

1. Introduction

Voltage stability has got lot of importance in power systems. It is the ability of the power systems to maintain steady acceptable voltages at all buses in the system under normal conditions and even after being subjected to disturbance [1]. In the normal operating condition the voltage of power system at every bus is stable, but when the fault or disturbance occurs in the system, the voltage reduces. Due to increase in the power demand power system network has become complex, both in size and controllability leading to operation in the low voltage regime at remote buses. This may lead to voltage instability, since the system could not further maintain the acceptable voltages. In order to reduce the probability of voltage collapse many preventive measures are implemented.

Because of the improvement of the FACTS gadgets, the voltage instability issues have been all projected and have picked up bunches of enthusiasm for ongoing years. There are two ages of intensity hardware based FACTS controllers. The original uses traditional thyristor exchanged capacitor and reactor. The FACTS controllers, for example, thyristor controlled arrangement capacitor (TCSC), static var compensator (SVC) are created in the original of FACTS controllers. The second era of FACTS controllers utilizes door turn off (GTO) thyristor exchanged converters. The FACTS controllers, for example, static synchronous arrangement compensator (SSSC), brought together power stream controller (UPFC), static synchronous compensator (STATCOM), and interline power stream controller (IPFC) are created in the second era of FACTS controllers.

Post research works have investigated into the unification of practically these classifications of controllers to improve the framework execution inside a few spaces of premium both in the fields of static just as unique examination of intensity framework. Because of their few focal points, some detailed literary works have used at least one of the either age gadgets and their related controller; in various kinds of frameworks ranging from benchmarked test frameworks to the genuine ones.

FACTS devices are used at various locations to provide the reactive power support. FACT devices can improve both transient and small signal stability margins. Controlling the power flows in the network. Under normal and abnormal condition of the network a help to reduce the losses with in the transmission line. When FACTS devices are placed at unsuitable locations and there is a chance of poor co-ordination between the multiple devices. Due to dispersion of FACTS devices, the reactive power cannot be not supplied, thus the operating voltage will fall down. Ramirez et al [24] proposed a method to co-ordinate stabilizers like a thyristor controlled series capacitor (TCSC) and a unified power flow controller(UPFC) taking into account the several operating conditions to enhance the dynamic stability margin of the power system.

1. FACT Device Model

In this paper three different models are selected and used for optimal location of FACT devices. These are SVC, TCSC and UPFC. Line reactance can be changed using TCSC, SVC is used to control the reactive power and UPFC is the most versatile member of FACT devices which is used to control all power flow parameters (i.e. line impedance, bus voltage and phase angle).

TCSC: TCSC is a series compensating FACTS device using to control power flow in transmission lines and improves transient stability in power system. TCSC controls the power flow in transmission lines by varying the impedance of TCSC by controlling the delay angle of thyristor valves. The basic scheme of TCSC is shown in Fig 1. It consists of the series controlled capacitor shunted by a Thyristor controlled Reactor.



Fig 1. TCSC

References:

- [1]. S. Singerman and L. Gyugy, "Understanding FACTS concepts and technology of Flexible AC transmission systems, Ploceany, 302 IEEE Press/Wiley, 2003.
- [2]. N. V. Sharma, A. Ghosh, and R.K. Varma, "A novel placement strategy for facts compensation," IEEE Transactions on Power Delivery, vol. 23, no. 3, pp.952-962, 2008.
- [3]. V. Zang and IV. Milosevic, "Global Voltage Sag Mitigation with FACTS Based Devices," IEEE Transactions on Power Delivery, vol. 22, no. 4, 2009.
- [4]. A.Rajaa, M.Vanoni, and M.Parmar, "Optimal reactive power dispatch for improving voltage stability margin using a local voltage stability index," Energy Conversion and Management, vol. 79, pp. 66-73, 2014.
- [5]. T. Capitanescu, H. Thomas, H. Lehtonen, V. Semakova, and T. V. Cutsem, "Decentralized by-branch loading and load shedding against voltage instability: Prospects and use on the IEEE system," Electrical Power and Energy Systems, vol. 34, pp. 2302-2310, 2016.
- [6]. E. Mann, F. Baran, and F. Wu, "Optimal capacitor placement in radial distribution systems," IEEE Transactions on Power Delivery, vol. 4, no. 2, pp.123-128, 1989.
- [7]. B.B.Denagari, and M. K. Varma, "An approach for optimal placement of DSTATCOM to enhance voltage stability margin under contingencies," Fifteenth National Power Systems Conference (NPSC), 01 January, pp.441-446, 2008.
- [8]. S. N. Singh, and I. Erlich, "Locating unified power flow controller for enhancing power system stability," International Conference Future Power Systems, ICONF, pp. 53.
- [9]. S. A. N. Nikil, R. Bharati, and M. M. Mousavi, "Power flow control and stability-based analysis of the unified flow controller," IEEE Transactions on Power Delivery, vol. 27, no. 4, pp.2336-2346, 2012.
- [10] B. Béjarani, A. Mohamed, and H. Shereef, "Optimal allocation of smart VAr compensators in power systems using a novel global harmony search algorithm," Electrical Power and Energy Systems, vol. 41, pp.262-272, 2012.

Author:

K.Sarada received B-Tech degree in Electrical and Electronics Engineering from Sri Veeyankateswara Engineering College, Andhra Pradesh, India. M-Tech degree in Electrical and Electronic Engineering from Sri Veeyankateswara University, Andhra Pradesh, India. Research scholar in Electrical and Electronic Engineering from Rourkela University. And currently she is an Associate Professor in K. L. Deemed to be University, Andhra Pradesh, India. Her research interests in De-regulation, Power system stability.

Co-Author:

Dr. S S Tulasi Ram, is a former Professor from JNTU Hyderabad with 35 years of experience. Currently he is working as Dean in G Narayanaiah Institute of Technology & Science (for Women), Hyderabad. He has encouraged many students in their research studies. His research interest are power systems, Control Systems.

Price Forecasting In Energy Market Using Deep Learning for Neural Networks: A Study

K.Sarada, Dr. S S Tulasi Ram*

Abstract:

In this paper, we suggested a strategy to the NN for predicting short-term electricity prices per hour. On the PJM electricity market, the suggested technique is examined. The findings of the simulation indicate that the suggested model delivers greater and better outcomes. Moreover, we also suggest profound new-type and extreme value theory (EVT) models in order to capture the impacts and to specify the tail behavior of load spikes. Deep ReLU and such customized LSTM architectures can model trend and temporal dependencies, while EVT captures extremely volatile load spikes above a preset limit. We use hourly price and request information from 4719 PJM interconnection nodes to demonstrate our methodology, and we build a profound predictor.

Keywords: Deep Learning, PJM Interconnection, EVT, Machine Learning, Locational Marginal Price (LMP)

1. Introduction

Today, electricity can be traded according to the laws of the free electricity market owing to a global liberalization of electricity markets. It can be purchased and sold as any other product. It is essential to optimize earnings and hazards for participants in the electricity market. This can be achieved through future electricity pricing forecasts. For example, precise short-term predictions can assist to improve bidding strategies. Electricity is distinguished by the fact that it cannot be stored in bulk amounts [1],[2]. This is one of the reasons why electricity prices have characteristics such as elevated volatility and peaks. In factors such as transmission bottleneck, weather conditions, fuel price or outages [3], [4] may also be caused by extreme price spikes or volatility. These variables, together with double seasonality, make it difficult to correctly forecast electricity prices. Many distinct techniques for forecasting electricity prices are implemented in literature. They can be categorized into five groups on the basis of [5], [6].

These groups are multi-agency models (e.g. Nash-Cournot framework, agent-based simulation models), basic models (e.g., basic parameters, parametric structural models), models of reduced form (e.g. Markov regime-switching models, jump-diffusion models), computational intelligence models (e.g., feed-forward neural network, recurrent neural networks) as well as Statistical models. Each method group has its own benefits and disadvantages. For example, multi-agent models can be considered very flexible tools for the analysis of strategic behavior in the electricity markets. However, given that these models generally focus on qualitative issues, high predictive accuracy cannot be accomplished. In recent literature, many approaches to electricity pricing are hybrid, combining two or more different techniques. For example [7] and [8] introduce hybrid smart

algorithms using a wavelet transform, based information filter method, the firefly-based optimization method and soft computing models based on fuzzy ARTMAP or neural networks. Using this technique, writers predict the market ahead. Another instance would be the hybrid method [9], which combines the transformation of the wavelet, a kernel extreme learner based on auto adaptive particle swarm optimization, and average moving and regressive method.

The traditional strategy to predicting electricity prices has applied economic models based on strong information content. More lately, data-based analytics have been used to discover price trends through large-scale price data sets and machine learning methods. However, supply and demand forecasting using a conventional profound learning model does not address the significance of maximum prediction. Deep learning models are designed to forecast the mean dependency of the variable and do not usually capture extreme jumps in information. In addition, squared losses are used to match the model, which implicitly assumes Gaussian error distribution. Therefore, a Gaussian model would be well adapted to anticipate the system's mean demand or power prices in electricity markets, but it would neither capture the peaks nor the real, fat-tailed distribution of the dependent factors. Until now, data-driven models had not been sufficiently flexible to record extreme nonlinearities in dynamic cost. Deep learners have recently demonstrated empirical achievement in big datasets predicting issues with high-dimensional nonlinearities.

2. Neural Network for Price Forecasting

An information processing model can be described as a neural network (NN), inspired by biological nervous systems such as brain processing information. Only the most fundamental features of the brain are replicated by

kernel based extreme learning machine methods," *Applied Energy*, vol. 198, pp. 291–303, 2017.

Author:



K.Sarada received B-Tech degree in Electrical and Electronics Engineering from Sri Vidyanandan Engineering College, Andhra Pradesh, India, M-Tech degree in Electrical and Electronic Engineering from Sri Venkateswara University, Andhra Pradesh, India. Research scholar in Electrical and Electronic Engineering from Rayalaseema University. And currently she is an Associate Professor in K. J. Somaiya Institute of University, Andhra Pradesh, India. Her research interests in De-regulation, Power system stability.

Co-Author:



Dr. S S Tulani Ram, is a former Professor from JNTU Hyderabad with 35 years of experience. Currently he is working as Dean in G. Narayanaiah Institute of Technology & Science (for Women), Hyderabad. He has encouraged many students in their research studies. His research interest are power systems, Control Systems.

COMPARATIVE ANALYSIS OF 3 LEVEL AND 5 LEVEL FLYING CAPACITOR BASED MULTI LEVEL INVERTER

Dr. G. Annapurna P. Siva Prasad

Abstract: As conventional two level inverter has limited power handling capability and high harmonic distortion in the output voltage. Multilevel inverter concept is growing as the new class of power converters for high and medium power applications. Multilevel inverter synthesizes a near sinusoidal voltage from several levels of dc voltages with less ripples and harmonic distortion. In present days, for control of multilevel inverter, Carrier Based Pulse Width Modulation (CBPWM) technique gained importance because of simplicity in expansion to higher levels and can be applied to Sinusoidal and Space Vector modulation schemes. This paper discusses about adaptation of Carrier Based Sinusoidal Modulation technique for 3 and 5 Level Flying Capacitor Multi Level Inverter (FCMLI). A comparative study of the performance of Three and Five level FCMLI is presented in terms of THD in the inverter voltage. Simulations are carried out using MATLAB/SIMULINK to validate effective suppression of harmonics when higher level inverter is adapted.

Index Terms: Flying capacitor, multilevel inverter, CBPWM.

I INTRODUCTION

Multilevel inverters have advantages like less voltage stress on switches, absence of EMI problems, less dv/dt ratio, high efficiency and less common mode voltage. Also they are suitable for high current and high voltage applications. The number of levels corresponds to the number of voltage steps in the output phase of the inverter. In multilevel inverters, effective harmonic elimination and voltage control is possible as the switches are controlled individually. Use of buffer snubber circuits can be avoided as the switches are operated from a fractional voltage of total dc link voltage.

An inverter with output voltage level greater than two is considered as multilevel inverter. The inverter voltage synthesized from increased levels is closer to sinusoidal wave shape with less harmonic content. Higher voltage levels can be achieved without device sharing problem as the voltages are summed by series devices. But, due to complex control circuit and circuit layout, the number of voltage levels is restricted.

At present, three benchmark topologies are available such as (i) Diode or Neutral Clamped multilevel inverter (ii) cascaded H-bridge inverter and (iii) flying or clamped capacitor multilevel inverter [1]. Diode Clamped multilevel inverters have limitations viz. several blocking voltages of diodes, turn diodes clamped indirectly and unbalanced dc link voltage. In cascade H-bridge inverter, more number of inverters are required suppress the harmonics. Also these inverters require complex dc voltage regulation loop. The flying capacitor multilevel inverter does not have such limitations imposed in above inverters [2]. However, the capacitor clamped inverters have advantage of splitting the voltage equally on several devices of smaller ratings connected in series. Another advantage is that several switch combinations are possible for a given voltage level which is useful for charging and discharging the capacitors. In this paper, a comparative study on three phase three and five level clamping capacitor multilevel inverters is analyzed with different modulation techniques.

A. Flying Capacitor Multilevel Inverters

In 1992, Meynard and Foch proposed that capacitor clamped as flying capacitor inverter. It involves in series connection of clamped capacitors. In this configuration the voltage on each capacitor is differed from one another. The size of the output voltage is given from the voltage increment between two adjacent capacitors.

It requires bulk capacitors to clamp the voltage [7] [8]. The voltage rating of each capacitor is almost equal to the main power switch. In a m-level Flying capacitor inverter will require $(m-1)*(m-2)/2$ number of clamping capacitors per phase along with $(m-1)$ dc bus capacitors [5] [6].



IJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 7 **Issue:** VII **Month of publication:** July 2019

DOI: <http://doi.org/10.22214/ijraset.2019.7015>

www.ijraset.com

Call: ☎08813907089

E-mail ID: ijraset@gmail.com



Fuzzy Logic Controller based Wind Power Generation in a DC Micro Grid

M.S.Nandja Kumar¹, N. Malli Reddy²

^{1,2}M.Tech, Dept of EEE, G. Narayana Murthy Institute of Technology and Science

Abstract: *The conventional energy resources are depleting day by day. Non-conventional energy is considered the energy of the future. Considering the benefits of non-conventional energy generation, many countries have started producing the large scale wind energy generating system.*

The output power generated by wind energy source is ac power and is converted to dc through rectification process and voltage obtained by this process is attached to the dc grid.

The failure of one generator does not affect the overall system performance i.e., the generators will be capable to balance the lagging power. The fuzzy logic controller is the most appropriate for the human decision making mechanism, providing the operation of an electronic system with decision of experts. The main objective is to keep up the voltage across the dc grid which has to be controlled for parallel operation of several wind generators without the need to synchronize the voltage, frequency and phase, thus allowing the wind generators to be turned ON or OFF anytime without causing any disruptions. A dc grid-based wind power generation system with fuzzy controller is used to reduce the total harmonic distortion and improves the power quality. Simulation results are carried out by using MATLAB software.

Keywords: *Wind power generation, dc micro grid, Fuzzy logic controller*

1. INTRODUCTION

This document is a template. For questions on paper guidelines, please contact us via e-mail. Now-a-days there is great rise in the generation of power from renewable energy sources. Generation of power from wind energy is one of the important concept and role in our country. By using the wind power there is drop of demand on the grid. Generally in wind farms the wind speed is not constant. The variation of wind speed in wind farms depends upon the environmental and climate conditions. Thus, the production of power due to wind speed variation and related issues that affect the reliability of power supply and power balance in system connected grid. In recent times the research attention on dc grids has been increasing due to technological advancements in power electronics and energy storage devices. The explore on dc micro grids has conducted to facilitate the integration of different distributed energy systems and energy storage systems.

A dc micro grid based wind plant architecture in which each wind energy conversion unit consisting of a matrix converter, a high frequency transformer and a 1- Φ ac/dc converter. The recommended architecture improves the system since as three stages of conversion are essential. In this wind farm architecture the wind turbines are gathered into four groups every group is connected to a converter. Through the existing architecture the failure of functioning of one converter results in unsuccessful operation of all four wind turbines of the group.

The research works are mostly focused on the development of different distributed control strategies to synchronize the operation of various distributed energy systems (DES) and energy storage systems in dc micro grid. The research works generally focused to overcome the challenge of attaining a decentralized control operation using only local variables.

The DES of dc micro grid is robustly coupled to each other and to keep the minimum level of co-ordination among the DES and controllers.

The hybrid ac/dc grid architecture consists of both ac and dc networks connected to bidirectional converter. Hierarchical control algorithms are used to ensure efficient power transfer among the ac micro grid and the dc micro grid in different operating conditions. The failure of bidirectional converter results in the separation of dc micro grid from ac micro grid.

The dc grid based distribution network allows the ac outputs of the wind generators are rectified to dc voltage across the dc grid. The advantage of this system is that the only voltage at the dc grid have to be controlled for parallel operation of multi connected wind generators without the requirement of synchronizing the voltage, frequency and phase, as a result allows the wind generators to be turned ON or OFF anytime without cause in any disruptions of power. But the study work on designing the controllers for the control of inverters in a micro grid for the duration of grid-connected and islanded operations. Usual control scheme consists of an inner voltage loop, current loop and an external power loop to control the output voltage and power flow of the inverters. The control scheme uses separate controllers for inverters for the duration of grid-connected and islanded operations.



PID and PID-Fuzzy controllers for BLDC motor in Electric Vehicles

H. Prajapati, N. Moha Jadhav¹

PG Scholar, EEE Department, G. Narayanaiah Institute of Technology and Science, Hyderabad, TS, India
(prajapati.h@gnits.ac.in)

Professor, EEE Department, G. Narayanaiah Institute of Technology and Science, Hyderabad, TS, India
(nmohajadhav@gnits.ac.in)

Abstract: In present days to obtain the desired characteristics of Electric vehicles, the speed control of electric motor is necessary. This paper mainly concentrates on the fuzzy logic based speed loop speed control of BLDC motor. As the main advantage of BLDC motor has discussed characteristics, high torque performance, wide speed range, longer life, low maintenance, its speed regulation and have used in Electric vehicles and many industrial process. The BLDC motor drive with the better characteristics requires a good speed controller like fuzzy logic controller or the PID controller. The speed of the BLDC motor can be controlled under dynamic load conditions and varying an speed or reference speed using fuzzy based PID controller. The PID-Fuzzy controller shows better performance than conventional PID controller and fuzzy controller maintains the characteristics of conventional PID controller. The results are compared between conventional PID controller and PID-Fuzzy controller by carrying out the simulated process using MATLAB SIMULINK software.

Keywords: Electric vehicle (EV), Brushless DC (BLDC) motor, Proportional-Integral-Derivative (PID) controller, Fuzzy logic controller (FLC).

1. Introduction

In recent years, Permanent Magnet motor are widely been used in electric vehicle (EV), particularly BLDC motor is the best motor, used due to its various beneficial features. BLDC motor has many applications in Robotics, Aerospace, Industrial, Automotive and other many more. One of the main of speed control and availability of wide speed range for Conventional DC motor are used in electric vehicle but there is problem with brushless DC electric motor and fluxes. Hence there is an option for switching to Brushless DC motor which are low in maintenance, operationally convenient, wide speed range, high torque and high efficiency, etc.

The conventional PID controller provides conventional control for the speed control of BLDC motor which has well-known characteristics [1]. It is an equivalent PID controller with simple algorithm and it is robust and its (PID) used almost in various control in industry [2]. Beyond knowledge is required in order to tune the gains of PID controller for given system to obtain better performance. On the other hand, modeling of BLDC motor and speed technique involves is very difficult and gives the

best mathematical model of system is not necessary to implement the fuzzy logic and PID controller gains are in equivalent according to the requirement [3].

By using PID controller we can control the system only after the error occurrence but not instantly. In control system, the control technique very complex and difficult and has poor transient response and speed range is very narrow. Even though the cost difference is very high for the linear time control it is not preferred in many of the system due to its drawbacks. Hence the best choice of BLDC motor are excited by the converter based on the zero position which is excited by the Hall Effect sensor available on the motor of BLDC motor.

The PID control can be replaced with fuzzy logic controller (FLC) [4][5] due to its simplicity and it provides better efficiency, but it also have dynamic the task is dynamically and robustness of the control. With the combination of PID and fuzzy logic controller both the control can be combined that in speed control can be modified manual modification can be avoided, robustness of the system, etc. For a particular speed range using conventional PID controller we can have the speed control in that value of K_p , K_i and K_d gain. For wide speed range it is not

Common Mode Voltage Eliminating in ML-ANPC Inverter Using Modern PWM

P.V.S.S.A Parimala

Assistant professor,

Electrical and Electronics Engg.

G.Narayammma Institute of Technology &
Science

Shankpet,Hyderabad

V. Ramesh

Assistant professor,

Electrical and Electronics Engg.

Bandari Srinivas Institute of Technology,
Chevella, RR district

Abstract—In this paper we proposed ML-ANPC inverter are operate at fundamental frequency. A Modern pulse width modulation (MPWM) scheme for tumbering the common-mode voltage (CMV) in the Multi-level lively neutral-point clamped (ML-ANPC) inverter for the machine drive systems is proposed. This MPWM scheme can significantly reduce the common-mode voltage without the augment of switching loss and total harmonic distortion (THD) of the output voltages compared with the conventional one to investigate relationship between the average neutral-point current and zero sequence voltage. A finest zero-sequence voltage is calculated to regulate the neutral-point potential. The voltage across the flying capacitor is too regulated by adjusting the switching duty cycles. The DC-link capacitor and flying capacitor voltages can also be restricted for balancing. Each switching-period operation time of redundant switch states are varied.

Keywords: Active neutral-point clamp (ANPC), capacitor voltage balancing, multilevel converter.

1. Introduction

Multilevel topologies give a clever way of connecting switches in series, thus enabling the processing of voltages that are senior than the device rating. The industry need for medium voltage drive has triggered considerable research in this field, in which most applications consist of drives for pumps, blowers, compressors, conveyors, and the like. In general, multilevel converters are efficient means of reducing harmonic distortion and dv/dt of the output voltages, which makes this technology appropriate to utility interface and drives. Multilevel converters have turn into popular in recent years due to their high-voltage and high-power ability. They

Artificial Neural Network to Control the Grid Integration of Solar Photovoltaic and Wind Systems

V.Supriya¹, CH. Leela Krishna²

¹PG-Scholar, Dept of EEE, G. Narayanamma Institute of Technology & Sciences (For women), Shaikhet Hyderabad, TS, India

²Assistant Professor, Dept of EEE, G. Narayanamma Institute of Technology & Science (For Women), Shaikhet Hyderabad, TS, India

(E-mail: supriya19@gmail.com, leelakrishna907@gmail.com²)

Abstract—Renewable Energy Sources (RES) play an active role in standing against global warming and reduction of dependency on conventional energy sources. So in this project, the combination of solar (PV) and wind system is used. It consists of boost converter, three phase inverter, DFIG and solar PV system and wind turbine. For solar PV system Maximum Power Point Tracking (MPPT) controller is implemented to track the maximum power. From solar PV system, the output voltage is given to the boost converter and it is connected to inverter. Output of inverter is connected to grid. The pitch angle controller is used for wind turbine because to accelerate wind turbine faster and connected to reduce harmonics, increase the efficiency and performance of the system.

Keywords—PV panel, Doubly Fed Induction Generator (DFIG), Wind energy conversion system (WECS), Rotor Side Control (RSC), Grid Side Control (GSC), Artificial Neural Network (ANN), MATLAB.

I. INTRODUCTION

Renewable Energy Sources (RES) are solar (PV) and wind energy systems as input sources. As name we said these sources are regenerated, i.e., supply is unlimited also called as "In-exhaustible sources of energy" because from them generate indefinite energy. These sources constitutes energy from sun, energy from wind, flowing of water, ocean waves etc. Renewable energy source are non-fossil sources, because environment is non-toxic.

In this project using solar and wind energy systems. Integrating the solar and wind systems [1], to reduce the need of fossil fuel leading to increase in the sustainability of the power supply. In today's world increasing the population, then need of electricity increases. It causes to decrease non-renewable energy sources like coal, water, etc. Integration of RES is probably the biggest thrust for a smart grid deployment in India.

Solar and wind energy sources are crucial and primary factors of a cleaner and greener energy future. Smart Grid (SG) superior capability of introducing new sources of energy to the grid clearly signifies the more distributed generation can be integrated into it.

Various advantages of solar is pollution free, it is directly converted to electricity from sun light. From solar getting DC voltage it is given to the input of boost converter to boosting voltage. DC is converted into AC by using inverter and it is fed to grid. From wind directly getting AC voltage it is directly connected to grid.

The double fed Induction generator is used in wind systems, to produce the constant Amplitude and Frequency even at varying wind speed. It has variable speed constant frequency operation. It allows a speed range of 30% around the synchronous speed [2].

Artificial Neural Network control technique [3] is used in the output of inverter to reduce the harmonics, it leads to increase the efficiency and performance of the system.

In this paper, the performance of an ANN to control the grid integration of solar and wind system is analyzed. The complete system is simulated in MATLAB Simulink.

The paper comprised following parts they are, the system introduction is covered in section I, followed by system description in section II, in section III system modeling is presented, in section IV, ANN modeling presented and in section V simulation results and total harmonic distortion is presented. In last concludes the paper in section VI.

II. SYSTEM DESCRIPTION

The block diagram of proposed system is shown in figure 1.

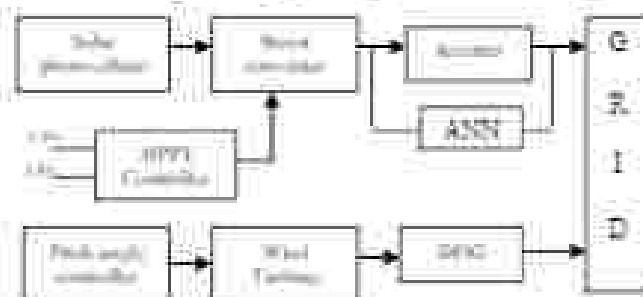


Figure 1. Block diagram for proposed system

It consists of mainly three parts: 1) Solar PV system, 2) Wind turbine and 3) ANN controller.



IJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 7 **Issue:** VI **Month of publication:** June 2018

DOI: <http://doi.org/10.22214/ijraset.2019.6350>

www.ijraset.com

Call: ☎ 08813907089

E-mail ID: ijraset@gmail.com

A Non Isolated Buck Boost Converter using Fuzzy Logic Controller

Divyanshu Prasad¹, R. Nagaraj Rao²

^{1,2}M Tech, Dept of EEE, G. Narayanaswami Institute of Technology and Science

Abstract: The buck boost converter is a dc-dc converter which produces output voltage that is either greater or less than that of input voltage magnitude. A buck boost converter is used in many industrial applications, fuel cells and photovoltaic cells. Due to global warming use of clean form of energy sources like fuel cells and photovoltaic cells has increased rapidly in the past few decades. As both the sources are low voltage sources there is a need to boost the voltage.

Traditional buck boost converter has disadvantages such as limited voltage gain, discontinuous and continuous output currents. To overcome the above mentioned disadvantages a non-isolated buck boost converter came into existence. The operational modes of the converter are presented. In this paper the output results of the PI controller and fuzzy logic controller are compared. **Keywords:** Buck Boost Converter, Non Isolated buck boost converter, Fuel cells, Photovoltaic cells, Voltage gain.

I. INTRODUCTION

The buck boost converter is a dc-dc converter in which produced output voltage is either greater or less than that of the input voltage magnitude. The converter is nothing but a fly-back converter using an inductor instead of a transformer. When the switch is on, the inductor absorbs the energy from the source. When the switch is in off mode the inductor supplies the energy to the load. If the size of the inductor is large the output current of the converter will be continuous. The efficiency of the buck boost converter is very high compared to buck and boost converters.

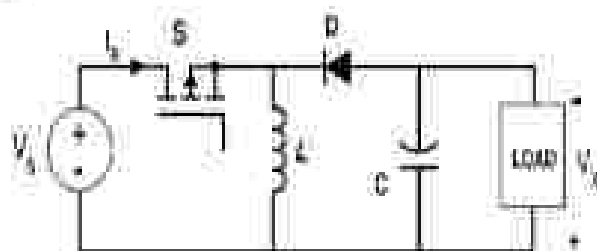


Fig 1. Conventional Buck Boost Converter

The buck boost converters are mainly employed in fuel cells, photovoltaic cells, battery power systems and many more. With the increase in pollution, global warming and green house effect have become burning issues. In order to reduce carbon dioxide emissions, clean form of energy is to be produced. Photovoltaic cells and fuel cells provide clean form of energy. Fuel cells and photovoltaic cells come under the category of low voltage sources. The output of the fuel cells unit is not steady and for applications that need a steady output voltage a buck boost converter is employed.

Theoretically boost and buck boost converters can be employed to produce high voltage gain but usage of conventional buck boost converter is limited by discontinuous input and output currents and not so expected high efficiency. So non-isolated buck boost converters came into existence. A Non isolated circuit does not employ a transformer as an isolated circuit. This reduces the size of the circuit and switching losses when compared with the isolated circuit.

II. NON ISOLATED BUCK BOOST CONVERTER

The structure of the converter is simple. Control of the converter is also simple. In this converter only one switch is used. Three diodes D1, D2 and D3, three inductors L1, L2 and L3, and five capacitors C1, C2, C3, C4 and C5. The converter is operated in continuous conduction modes and discontinuous conduction modes. For simple analysis the capacitance employed are large enough in size so that the voltage across capacitors are assumed to be constant. The main switch is assumed to be ideal and parasitic capacitance of the switch of the switch is also neglected.

COMPARATIVE ANALYSIS OF 3 LEVEL AND 5 LEVEL FLYING CAPACITOR BASED MULTI LEVEL INVERTER

Dr. G. Annapurna P. Siva Prasad

Abstract: As conventional two level inverter has limited power handling capability and high harmonic distortion in the output voltage. Multilevel inverter concept is growing as the new class of power converters for high and medium power applications. Multilevel inverter synthesizes a near sinusoidal voltage from several levels of dc voltages with less ripples and harmonic distortion. In present days, for control of multilevel inverter, Carrier Based Pulse Width Modulation (CBPWM) technique gained importance because of simplicity in expansion to higher levels and can be applied to Sinusoidal and Space Vector modulation schemes. This paper discusses about adaptation of Carrier Based Sinusoidal Modulation technique for 3 and 5 Level Flying Capacitor Multi Level Inverter (FCMLI). A comparative study of the performance of Three and Five level FCMLI is presented in terms of THD in the inverter voltage. Simulations are carried out using MATLAB/SIMULINK to validate effective suppression of harmonics when higher level inverter is adapted.

Index Terms: Flying capacitor, multilevel inverter, CBPWM.

I INTRODUCTION

Multilevel inverters have advantages like less voltage stress on switches, absence of EMI problems, less dv/dt ratio, high efficiency and less common mode voltage. Also they are suitable for high current and high voltage applications. The number of levels corresponds to the number of voltage steps in the output phase of the inverter. In multilevel inverters, effective harmonic elimination and voltage control is possible as the switches are controlled individually. Use of buffer snubber circuits can be avoided as the switches are operated from a fractional voltage of total dc link voltage.

An inverter with output voltage level greater than two is considered as multilevel inverter. The inverter voltage synthesized from increased levels is closer to sinusoidal wave shape with less harmonic content. Higher voltage levels can be achieved without device sharing problem as the voltages are summed by series devices. But, due to complex control circuit and circuit layout, the number of voltage levels is restricted.

At present, three benchmark topologies are available such as (i) Diode or Neutral Clamped multilevel inverter (ii) cascaded H-bridge inverter and (iii) flying or clamped capacitor multilevel inverter [1]. Diode Clamped multilevel inverters have limitations viz. several blocking voltages of diodes, turn diodes clamped indirectly and unbalanced dc link voltage. In cascade H-bridge inverter, more number of inverters are required to suppress the harmonics. Also these inverters require complex dc voltage regulation loop. The flying capacitor multilevel inverter does not have such limitations imposed in above inverters [2]. However, the capacitor clamped inverters have advantage of splitting the voltage equally on several devices of smaller ratings connected in series. Another advantage is that several switch combinations are possible for a given voltage level which is useful for charging and discharging the capacitors. In this paper, a comparative study on three phase three and five level clamping capacitor multilevel inverters is analyzed with different modulation techniques.

A. Flying Capacitor Multilevel Inverters

In 1992, Meynard and Foch proposed that capacitor clamped as flying capacitor inverter. It involves in series connection of clamped capacitors. In this configuration the voltage on each capacitor is differed from one another. The size of the output voltage is given from the voltage increment between two adjacent capacitors.

It requires bulk capacitors to clamp the voltage [7] [8]. The voltage rating of each capacitor is almost equal to the main power switch. In a m-level Flying capacitor inverter will require $(m-1)*(m-2)/2$ number of clamping capacitors per phase along with $(m-1)$ dc bus capacitors [5] [6].

A wavelet based protection scheme for micro-grid with multiple distributed generations and Static Var Compensator

K.V.Dhana Lalithini¹

Asst Professor

S.S.Tulasi Ram²

Professor & Dean

G.Vamsi Priya³

PG Student

^{1,2}G.Narasayamma Institute of Technology and Science for Women, Hyderabad³National Institute of Technology, Goa.

Abstract— Microgrid technology can effectively integrate the advantages of distributed generation, and also provide a new technical way for large scale application of grid-connected generation of new energy and renewable energy. Microgrid combines distributed power, load, energy storage devices and control devices, forming a single and controllable power supply system. Protection must respond to both utility grid and microgrid faults. If the fault is on the utility grid, the desired response may be to isolate the Microgrid from the main utility as rapidly as necessary to protect the Microgrid loads. If the fault is within the Microgrid, the protection coordinator isolates the smallest possible section of the Microgrid to eliminate the fault. In order to cope with the bi-directional energy flow due to large numbers of micro sources, new protection schemes are required. This paper proposes a protection scheme for microgrid with multiple distributed generations and Static Var Compensator using Wavelet based multi-resolution analysis is used to find the detailed coefficients of the signals to calculate the fault index. Fault indices of all phase currents at each terminal are obtained by analyzing the detail coefficients of current signals using the 1.5 mother wavelet. The approximate decomposition of the current signals is utilized to detect and discriminate the faults from their respective terminals. This scheme is tested for various types of faults in the proposed system and it is found effective for detection of faults with various fault inception angle, the fault impedance at different distances with and without static var compensator.

Index Terms— Microgrid, SVC, renewable energy sources, solar PV, wind and solar PV system, wavelet, Protection scheme.

1. INTRODUCTION

In recent years, the distributed generation (DG) and the Micro-grid (MG) system, represented by photovoltaic generation and wind power generation [1]. The most widely accepted definition of micro-grid is states that one of the key features of the MG is its capability to raise the utilization rate of new energy sources and to enhance the power supply reliability of critical loads. The power system components with the highest fault incidence rate, since they are exposed to the environment, faults may have very serious consequences. Therefore, faults must be removed from the system as rapidly as possible. The function of power system protection is to detect and remove faults from the system as rapidly as possible while minimizing

The disruption of service [2]. Micro-grid protection scheme implementation poses great technical challenges, such as the protection system for micro-grid which must respond to both main grid and micro-grid faults. Using the techniques demonstrated in this paper for determining the currents in different parts of the system model under faulted condition, and the short circuit analysis are performed.

The applications of wavelet transform were improved from past few years for the improvement of fault analysis in the power system. Though, the work rarely indicates about the microgrid with multiple distributed generations several riding algorithms have different solutions and techniques being proposed [3-5].

The objective of FACTS controllers is to improve the power transmission capability and the control of the power flow over chosen transmission routes from generators to the loads. The SVC come into Shunt Controllers group and it function as a fast generators so as to control precise parameters of the electric power systems [6,7]. The SVC consists of a Thyristor Controlled Reactor (TCR) and a fixed

Capacitor (FC) bank. The TCR is a Thyristor controlled inductor whose effective reactance is varied in a continuous way by partial conduction control of thyristor valve. The increasing demand for conventional energy sources like coal, natural gas and oil is forcing people towards the research and development of renewable energy sources or non-conventional energy sources. Renewable energy is catching up faster pace in the present community [12]. The increase in demand for renewable energy sources like wind, solar etc are now well developed, cost effective and extensively used. A wind turbine converts mechanical energy into electrical energy and it produces ac output voltage and this ac output voltage is converted to dc by the help of ac to dc converter or rectifier. A PV cell converts the light energy into electrical energy and produces dc output voltage.

The solution of over current related failure problems is to limit the magnitude and fault can be detected within the prescribed time. Wavelet based ANN approach has been adopted in [8,9] for fault detection and classification of a two terminal network.

The proposed algorithm describes the protection scheme for micro-grid with PV and wind source compensated with Static Var Compensator using wavelet analysis. An operating current signals are identified and then sum of the detailed coefficients are calculated by make use of the 1.5 mother wavelet at each terminal. This is compared to a threshold value of current signal in order to provide protection against short circuit faults. The test results can clearly shows that the variation in the value of fault index of the healthy phase is below the threshold value of all the terminals by varying fault inception angle, distance and fault resistance.

II. PROPOSED SYSTEM MODEL AND DESCRIPTION

The micro-grid is connected to utility grid is more reliable

Mitigation of Harmonics in Grid Connected Hybrid Renewable Energy Sources at The Distribution Level

K. Durga Priyanka¹, P. Suresh²

¹G. Narayanaiah Institute of Technology & science

²G. Narayanaiah Institute of Technology & science

(E-mail: priyankahdada1991@gmail.com, pullo.suresh@gmail.com)

Abstract—Renewable energy resources are the important part of the power systems. These resources reduce the emission of greenhouse gases and also add flexibility by decreasing our dependence on fossil fuels. Renewable energy sources (RES) include solar and wind energies. The present power distribution system contains nonlinear loads that causes power quality issues like harmonics in source current, sag and swell in voltages etc. The main objective of the proposed project is to eliminate source current harmonics and improve THD (Total Harmonic Distortion) in grid connected hybrid renewable energy conversion system. The Voltage Source converter (VSC) will be controlled to perform multiple functions. The VSC can thus be utilized as: 1) power converter to inject power generated from RES to the grid, and 2) shunt APF to compensate current harmonics. All of the above functions may be done either individually or simultaneously. In this project fuzzy logic controller will be implemented to reduce the harmonic content of hybrid Renewable Energy conversion system (HRECS) integrated on the electric grid. When the hybrid system is integrated to the grid, due to conversion (from DC to AC in solar and AC to DC in wind) and due to change in solar energy intensity, the generated power from the wind is variable due to the variations in wind speed, the electric utility shall experience undesired harmonics, so that will impact the quality of service to the customers connected to the grid. To improve THD in grid connected hybrid system a fuzzy logic controller will be implemented to control VSC. A comprehensive modeling and simulation will be carried out in MATLAB/SIMULINK to verify the proposed analysis.

Keywords—Shunt active power filter (SAPF), grid interconnection, distribution system, fuzzy controller, renewable energy.

1. INTRODUCTION

Electric utilities and the users of electric power energy are increasingly day by day, seventy percent of total global energy is distributed by the fossil fuels, but recent days due to increasing global warming and air pollution add sound pollution and cost also one of the reasons to move towards alternative resources like renewable energy sources as a future solution for energy. Since the past decade, many other countries interest in renewable energy to generate the power.

And one of the common problem is there renewable energy sources are connected to the grid it must consists of one interface unit between them because whenever the renewable energy is connected to the grid it can inject the harmonics that may cause power quality problems [1].

The nonlinear load is connected to grid then the reactive power will be increased so that the power losses also increased in the power system. Because of the nonlinear loads increases current harmonics in transmission lines, transformers, and rotating parts, and harmonics can reduce the harmonic currents by using shunt active power filter(SAPF).

This paper introduces a new method in that it consists of shunt active power filter it can simultaneously reduce the problems like current harmonics and current imbalance and power factor and also it can be injecting the power generated by the renewable energy source with low total harmonic distortion(THD).

And also there is no power or energy available from the renewable power source (when no sun and no wind is there) the SAPF (shunt active power filter) can still operate, and also it will increase the power quality of the grid, here a dc-dc converter is used to adjust the output voltage value of the renewable energy source to the value of voltage in dc side capacitor of SAPF (shunt active power filter), then that available energy is managed by the shunt active power filter controller [2].

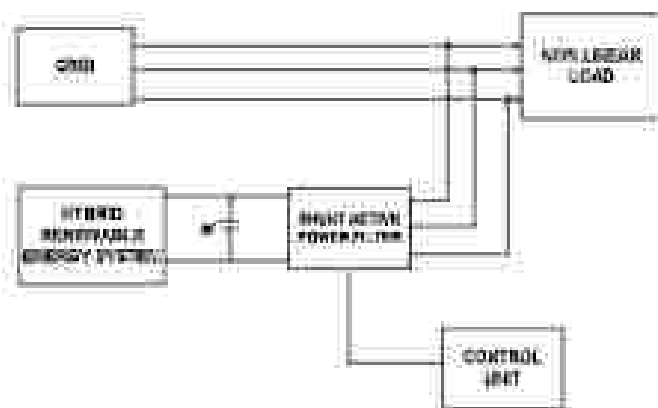


Fig. 1 Block diagram of the system



G Ramana Reddy

Design and control of H-bridge cascaded STATCOM with PV cell integration

Authors: B. Anila, G. Srinivas Reddy

Publication date: 2018-12

Journal: International Journal of research

Volume: 7

Issue: 33

Pages: 1226-1233

Keywords: International Journal of research

Report Abuse

from Rs4,132

Mumbai to Dubai

from Rs14,491

HOME / Documents / GRID CONNECTED DOUBLY FED INDUCTION
 _/PUBLISHER.COM/GALLERY/207-DECEMBER-2018.PDFGRID CONNECTED DOUBLY FED INDUCTION



REAL TIME CONTROL DOCUMENTS



CROWSBAR SYSTEM DOCUMENTS



DOUBLY FED INDUC DOCUMENTS



MODELLING AND CO DOCUMENTS



MODELLING AND CO DOCUMENTS



FUZZY CONTROL OF DOCUMENTS



DOUBLY FED INDUC DOCUMENTS



DIRECT POWER COX DOCUMENTS

International Journal of Research

IJR

GRID CONNECTED DOUBLY FED INDUCTION GENERATOR ENERGY CONVERSION SYSTEM INTEGRATED WITH PV

(K. KALYANI, Pg Student)

(Mr. P. BALNIRANJAN KUMAR, Assistant Professor)

Department of Electrical and Electronic Engineering

G-NARAYANAMMA INSTITUTE OF TECHNOLOGY & SCIENCE (For women)

ABSTRACT

Wind is an inexhaustible and non-polluting energy source. The technology of wind has gained up prominence over the most recent couple of years and chiefly, valued for providing power for residential requirements. Presently, wind is also the most broadly utilized greenest energy resource over 1400 in the South American continent. The DFIG is a unique kind of synchronous machine with two independent rotors. One rotor is connected to the DFIG rotor to the network, and the second rotor is

connected to power source (DC) to draw wind turbine have been utilized with various in the field of synchronous machine as well as to large power wind turbine to the extent of their efficiencies along with (4). By using two rotors in the generator equipped with a double rotor, the generator, consequently, is able to get more up stream of wind speed better in than control electric conversion. It

GRID CONNECTED DOUBLY FED INDUCTION
 _/PUBLISHER.COM/GALLERY/207-DECEMBER-2018.PDFGRID CONNECTED DOUBLY FED INDUCTION
 GENERATOR FOR WIND ENERGY CONVERSION SYSTEM
 INTEGRATED WITH

Download PDF

140549
 views

Views
 33

Report

Download





Artificial Intelligence and Evolutionary Computations in Engineering Systems pp 609–619

[Home](#) > [Artificial Intelligence and Evolutionary Computations in Engineering Systems](#) > Conference paper

Optimal Placement and Sizing of DG in a Distributed Generation Environment with Comparison of Different Techniques

[T. C. Subramanyam](#)  [S. S. Tulasi Ram](#) & [J. B. V. Subrahmanyam](#)

Conference paper | [First Online: 20 March 2018](#)

1159 Accesses | 2 Citations

Part of the [Advances in Intelligent Systems and Computing](#) book series (AISC, volume 668)

Abstract

This area proposes about the optimal location for firing fuel cells in a distribution system by an innovative technique. The innovation of this method is the combined performance of the Genetic



Artificial Intelligence and Evolutionary Computations in Engineering Systems pp 585–596

Home > [Artificial Intelligence and Evolutionary Computations in Engineering Systems](#) > [Conference paper](#)

Comparative Analysis of Fault Diagnosis in Distribution System with the Aid of DWT-FNN and DWT-RBFNN

T. C. Srinivasa Rao  S. S. Tulasí Ram & J. B. V. Subrahmanyam

Conference paper | [First Online: 23 March 2018](#)

1153 Accesses

Part of the [Advances in Intelligent Systems and Computing](#) book series (AISC, volume 668)

Abstract

In this paper, the fault location and types of them are recognized and analyzed in the distributed system by using wavelet and feed-forward neural network and radial basis function neural network. When fault occurring in the system, the system behaviors are examined and signals are measured which can be seen as distorted waveforms. These distorted waveforms are self-possessed of different frequency components and are needed to be represented

Department of EEE, JNTU, Hyderabad, India

S. S. Tulasi Ram

TKREC, Hyderabad, India

J. B. V. Subrahmanyam

Corresponding author

Correspondence to [T. C. Srinivasa Rao](#).

Editor information

Editors and Affiliations

Electrical and Electronics Engineering, SRM Engineering
College, Kattankulathur, Tamil Nadu, India

Prof. Dr. Subhransu Sekhar Dash

Department of Electrical and Electronics Engineering,
Madanapalle Institute of Technology and Science,
Madanapalle, Andhra Pradesh, India

Dr. Paruchuri Chandra Babu Naidu

Department of Electrical and Electronics Engineering,
Gazi University, Ankara, Turkey

Dr. Ramazan Bayindir

Indian Statistical Institute, Kolkata, India

Swagatam Das

Rights and permissions

[Reprints and Permissions](#)

Copyright information

© 2018 Springer Nature Singapore Pte Ltd.

A New Topology for Buck-Boost Converter Using Fuzzy Logic Control

Ghisepalli Sushma¹, P. Siva Prasad²

¹M.Tech, Dept. of EEE, G.Narasimma Institute of Technology and Science (for Women), Hyderabad, Telangana

²Asst. Professor, Dept. of EEE, G.Narasimma Institute of Technology and Science (for Women), Hyderabad, Telangana

Abstract: Two switch Buck-boost converter is a dc-dc converter provides an output voltage that may be less than or greater than the input voltage. The output voltage polarity is same as that of the input voltage polarity. Hence it can also be known as non-inverting regulator. This output voltage is controlled by tuning the gate pulses given to the switches. The basic conventional Two switch buck boost converter is modified by connecting the sources of two switches to common ground. This paper deals with the open loop analysis and the closed loop analysis using Fuzzy Logic control of the modified Two switch Buck boost converter and the results are compared.

Keywords: Conventional Two switch Buck boost converter, Modified Two switch Buck boost converter, open loop, Fuzzy Logic control

1. INTRODUCTION

In many industrial applications, renewable power generation, it is required to convert a fixed DC voltage to variable DC voltage. A DC-DC converter converts directly from dc to dc. Like a transformer, it can be used to step down or step up the DC voltage source. DC converters widely used in automobiles for traction motor control, trolley cars, marine hoists, regenerative braking of DC motors. The Two switch Buck boost converter takes the voltage from a DC source and converts into another DC voltage level. The converter is used to buck or boost the voltage level. In this paper, the input dc voltage 36V or 72V is converted to 48V i.e., the input voltage 36V is converted to 48V in boost and buck boost(step up) modes, the input voltage 72V is converted to 48V in buck and buck boost(step down) modes. The basic conventional buck-boost converter circuit is shown in Fig.1 The values of L and C are 150uH and 830uF taken respectively [1].

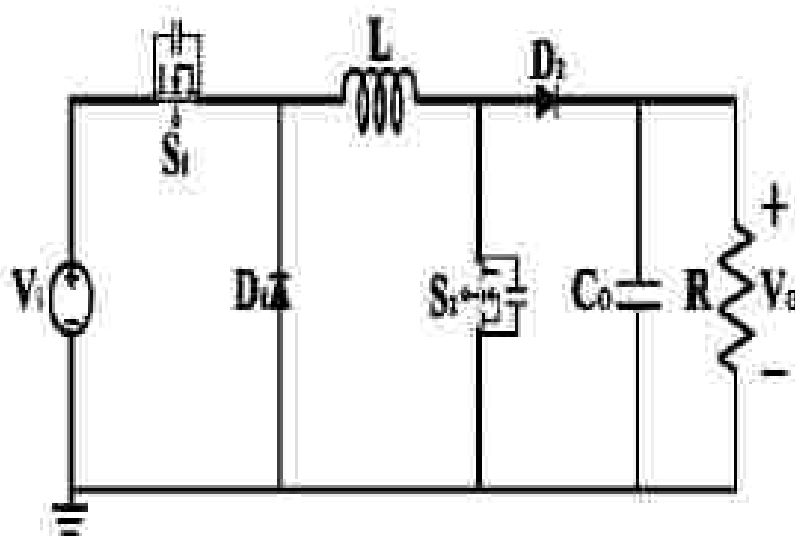


Fig.1. Conventional Two Switch Buck Boost Converter

Conventional two switch buck boost converter operates in 3 modes namely: buck mode, boost mode, buck boost mode. In buck mode, S1 switch is on and S2 switch is off. In boost mode, S1 switch is always on and S2 is switching i.e., during first interval, S1 and S2 are on; next interval the load is supplied with S1 and D1. In buck boost mode, both switches are simultaneously switching [4]. This modes are tabulated in Table1 [1].

Article

Fault Analysis in Unbalanced radial distribution system without and with Distributed Generator

June 2020

Authors:

Teguh Tujawan
G. Mangroveka Institut of Technology and ScienceGustawan Sujatha
G. Mangroveka Institut of Technology and Science

Request Full-text

Download citation

Copy link



To read the full-text of this research, you can request a copy directly from the authors.

Citations (7)

References (14)

Abstract

The distribution system and playing a vital role in the design of our systems, ground systems, direct busbars, substation equipment, routing machines and more in planning and operation of distribution system. This paper surveys the unbalanced fault (phase-to-ground short-circuit) fault type and is developed based on the predicted mal-operation of distribution systems. Two methods IBC and IBCW, namely the bus impedance to branch current matrix and the branch current to bus voltage matrix method, are derived from the topological characteristics of distribution network, can be used to resolve the power flow problem. In this proposed fault analysis the impact of distributed generators will be studied, as distributed generators emerged in distribution system. The results of the short-circuit fault analysis without DG and with DG can be used for distribution adaptive relay coordination. The proposed fault analysis will be implemented for IEEE 12-bus unbalanced distribution system by using MATLAB software.

Discover the world's research

1000+ million members

8000+ journals

20 million+ citations

Join for free

See full-text

Request full-text

Add to library

No full-text available



To read the full-text of this research, you can request a copy directly from the authors.

Request Full-text PDF

Citations (7)

References (14)

... For 2 phase fault in systems, there are various control strategies for smart redundancy control. Sliding mode control-based STATCOM, ANFIS, ICS-based control, synchronous

Study on EEG Signal Processing and Feature Extraction Techniques

P.Mamta¹, Dr. S.V.A.V Prasad,
School of EEE², Lingaya's University, Bangalore³
E-mail: mamta.cmpu@rediffmail.com, prasad.svm@gmail.com

Abstract- The brain is the focal point of all activities performed in the human body, the state of which can be monitored by recording the related signals. The electrical signals generated by the brain named electroencephalogram, which shows the effective functions of various organs and further mental turmoil. EEG readings stress upon certain diagnostic applications for example to detect Epilepsy, sleep disorders etc. A brain computer interface (BCI) is communication system which associates the outside world using EEG signals. In this paper we discuss about a portion of work related on various techniques like signal acquisition, feature extraction and signal classification.

Keywords: BCI, EEG signals, Epilepsy, Feature Extraction, Signal processing

1. INTRODUCTION

The human brain has been studied since the time of ancient Egyptian to 19th century scientific research on neurons. In this 21st century neuroscience is advancing in technologies possibilities of the human brain. EEG records the electrical activity of the brain by capturing signals with neuron activity. EEG is an instantaneous and continuous indicator of brain function, which has led to its extensive use in the field of biomedical signal processing [1].

A brain computer interface (BCI) is communication system in which a person can use their generated EEG signal to control the external environment. A BCI system comprises of four parts: signal acquisition, signal pre-processing signal, signal classification and computer interface.

2. SIGNAL ACQUISITION

Brain electrical signals are obtained by using various non-invasive techniques like EEG, MEG, fMRI and FNIRS.

2.1. Electroencephalogram (EEG)

EEG was recorded on animal brain in 1875 by Richard Caton. It absolutely was 1st recorded on human brain by Hans Berger in 1929. EEG is used for signal acquisition technique attributable to the high temporal resolution, safety and an easy use. 10-20 standard electrode is employed in EEG signal acquisition. EEG has low spatial resolution and is non-stationary in nature. EEG signals are vulnerable to artifacts caused by eye blinks, eye movements, muscular activities and the power line interference.

2.2. Magneto-encephalography (MEG)

MEG is a non-invasive brain imaging technique based on magnetic fields. MEG measures magnetic signals generated by electrical activities in the brain [2]. MEG provides wide range of frequency and exceptionally maintain spatiotemporal resolution. MEG equipment is expensive and heavy sized.

2.3. Functional magnetic resonance imaging (fMRI)

fMRI is a hemodynamic based technique. fMRI uses BOLD (Blood Oxygenation Level Dependent) methodology to observe the level of hemoglobin or Oxygenation fluctuations due to cerebral brain activities. In 1995, BOLD fluctuations were investigated since oxygenation patterns are identified in blood flow [3]. It has high temporal and spatial resolution depending upon the time required to acquire signal pixels.

2.4. Functional Near infrared spectroscopy (FNIRS)

FNIRS measures the brain activity through hemodynamic based technique. FNIRS is combined with EEG to construct hybrid BCI i.e. low cost and produce low noise signals [4]. FNIRS also utilizes BOLD to obtain signal data. This technology has low temporal resolution.

3. SIGNAL PROCESSING TECHNIQUES

Signal preprocessing occurs after the signal is acquired. When EEG signals are acquired, they are contaminated at many points during recording and

IMPLEMENTATION OF UNIFIED POWER QUALITY CONDITIONER FOR MULTI FEEDER SYSTEMS USING MULTILEVEL CONVERTERS

¹SURYA PRAKASH THOTA, ²SATISH KUMAR PEDDAPELLI

¹ASSISTANT PROFESSOR, DEPARTMENT OF EEE, GNES, VOORLEKAVU, TELANGANA, INDIA
²ASSOCIATE PROFESSOR, DEPARTMENT OF ELECTRICAL ENGINEERING, UNIVERSITY COLLEGE OF
ENGINEERING, OSmania UNIVERSITY, HYDRABAD, TELANGANA, INDIA

E-mail: ¹thotaprasad@gnec.ac.in, ²satishk@ucoe.ac.in

Abstract This paper presents implementation of unified power-quality conditioning system, capable of simultaneous compensation for voltage and current in multi-bus-multi-feeder systems for Power Quality Improvement in the configuration with the help of one shunt voltage-source converter (shunt VSC) and two series VSC's, load current imperfections in one feeder and supply-voltage imperfections on both the feeders are compensated. The proposed system can be used for simultaneous compensation of voltage and current imperfections in the feeders by sharing power compensation capabilities between two adjacent feeders. The Proposed System performance is analyzed by simulation results using MATLAB/SIMULINK.

Keywords - Power Quality, Harmonic, system, Power conditioning.

1. INTRODUCTION

There is a growing interest in equipment for mitigation of power quality disturbances, especially in newer devices based on power electronics called "custom power devices", which will be able to deliver customized solutions to power quality problems. Modern solutions for active power factor correction can be found in forms of active rectification or active filtering [1]-[3].

The UPQC [4] is a combination of shunt and series compensation, designed to cater for multiple power quality problems. The main advantage of multi-feeder devices is that if any power quality problems occur in one feeder, other adjacent feeder supplies power for compensating that problem. Therefore the multi-feeder PQ devices[6]-[10] secure superior performance than single feeder PQ devices. In this paper, UPQC is implemented using multilevel converters for multi-feeder system.

Multilevel converters are preferred to conventional two level inverters due to many advantages such as reduced harmonic distortion in the output voltage, lower electromagnetic interference and good electromagnetic compatibility, reduced switching losses, etc. There are several topologies of multilevel inverters. They are classified into three main categories: diode clamped inverters, flying capacitor inverters, and cascaded inverters.

II. PROPOSED SYSTEM

This system is capable of simultaneous compensation for voltage and current in multi bus-multi-feeder systems for Power Quality Improvement.

In this configuration, one shunt voltage-source converter (shunt VSC) and two series VSCs can be applied to adjacent feeders to

compensate for supply-voltage and load current imperfections on both the feeders. In the proposed configuration, all converters are connected back to back on the dc side and share a common dc-link capacitor. Therefore, power can be transferred from one feeder to adjacent feeders to compensate for sag/swell and Current-Voltage Harmonics. The proposed topology can be used for simultaneous compensation of voltage and current imperfections in both feeders by sharing power compensation capabilities between two adjacent feeders.

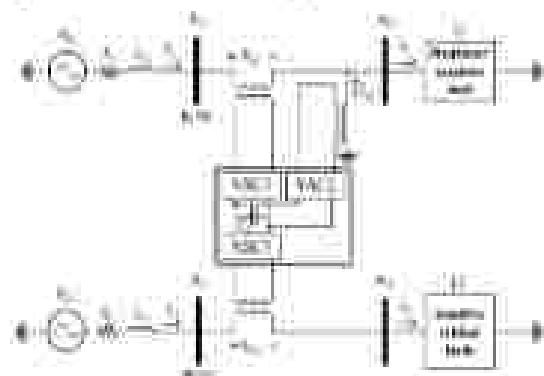


Fig.1: Proposed system

In the proposed configuration, two VSCs are connected in series with BUS1 and BUS2 and one VSC is connected in parallel with load L1 at the end of Feeder1. As shown in Fig.1, all converters are supplied from a common dc-link capacitor and connected to the distribution system through a transformer. Secondary (distribution) sides of the series-connected transformers are directly connected in series with BUS1 and BUS2 and the secondary (distribution) side of the shunt-connected transformer is connected in parallel with load L1.

DVR BASED INTERFACE FOR MICROGRIDS TO ENHANCE POWERQUALITY

K.Raja Rageshwar, M.Tech Student, EEE-Dept, GNITS Hyderabad
 P.Suresh, Assistant Professor, EEE-Dept, GNITS Hyderabad

Abstract:

This paper deals with the interconnection between the microgrid and main network. The Dynamic Voltage Restorer (DVR) is interfaced between the main network and microgrid in order to improve reliability and limit fault currents. The performance of DVR is demonstrated during fault conditions in two different locations, firstly in the main grid and then within the microgrid. The DVR injected a voltage during a fault in the main grid isolating the microgrid from the fault and performs normal operation. Secondly, a novel technique is proposed, magnetizing inductance of the DVR series transformer in order to reduce the contribution of the grid currents during a fault within the microgrid. The proposed technique is evaluated using MATLAB SIMULINK.

INTRODUCTION:

Power quality is playing a major role in power system in which it consists of electrical, electronic and power electronic devices used in commercial and industrial purpose. Power quality occurs due to harmonics, sag, swell and increase/decrease of loads. It became more important in devices which are sensitive to the quality of power may cause damage to the equipment.

Here voltage sag is considered, custom power devices are used to solve the problem. Among them Dynamic Voltage Restorer (DVR) is most efficient device used in distribution side because of its low cost, small in size and dynamic response is fast. From large power systems, the electric power is delivered from distribution system for each consumer. The end of the power system is distribution system which is directly connected to customers where the power quality depends on distribution system.

Microgrid connected to national grid and operated independently. It is a network designed to provide power for small communities. It connected to both generating units and utility grid preventing from power cuts. Microgrid can operate independently from main grid if required. Microgrids consist of renewable sources such as solar and wind etc., this increases the reliability of the power system

when there is a failure in main grid. By using microgrids the usage of renewable resources increases, emission of carbon dioxide is reduced, large lands usage are avoided.

Fossil fuels such as Coal, Oil, and Gas are reducing because to increase generation to satisfy the demand. According to Global Carbon dioxide emission, Carbon-dioxide (Co₂) was increased up to 6.81% per year because of using of fossil fuels for generation of electric power. By these harmful gases will cause damage to Ozone layer and pollutes the environment directly.

DVR INTERCONNECTION:

A number of papers have been issued introducing different kinds of bi-directional fault current limiters (FCL) which will lower the short circuit current level in the microgrid as well as in the main grid during faults in one of two sections.

Use of superconducting materials that have current dependent characteristics as fault current limiters is a spreading analysis field.

Others have suggested hybrid results utilizing solid state devices and semiconductor switches to obtain the same. One of the drawbacks of such solutions is that the amount of regulation over the



Performance Comparison Of Hybrid Multilevel Inverter Based DVR With SPWM And SVPWM Modulation

S. BHAVANI,

M.Tech, Dept. of EEE, G. Narayana Institute of technology and science (for women), Hyderabad, Telangana, India gorchbhavani@gmail.com

Dr. G. ANNAPURNA,

Assistant professor, Dept. of EEE, G. Narayana Institute of technology and science (for women), Hyderabad, Telangana, India goorjannid@gmail.com

Abstract: A new 7-level Hybrid Multilevel Inverter based dynamic voltage restorer is presented in this paper. The new multilevel inverter is a combination of the capacitor clamped and the cascaded H-bridge type multilevel inverters. This new topology provides different levels of output voltages and high modularity. In this paper two new control strategies using PI controller with SPWM and SVPWM are presented. The sags or swells are detected in a transmission line and the voltage is injected from the multilevel inverter through a boost transformer. Use of Space Vector Pulse Width Modulation (SVPWM) helps in obtaining low THD values at the load side parameters. Simulation results in Matlab show that the performance of the new Hybrid Multilevel inverter using SVPWM is better than using a SPWM and also these Hybrid Multilevel inverters have the advantages like absence of the filter compared to the traditional inverters.

1. INTRODUCTION

Faults at either the transmission or distribution level may cause voltage sag or swell in the entire system or a large part of it. Also, under heavy load conditions, a significant voltage drop may occur in the system. Voltage sags can occur at any instant of time, with amplitudes ranging from 10 - 90% and a duration lasting for half a cycle to one minute [1]. Voltage swells are not as important as voltage sags because they are less common in distribution systems. Voltage sag and swell can cause sensitive equipment (such as found in semiconductor or chemical plants) to fail, or shutdown, as well as create a large current imbalance that could blow fuses or trip breakers. These effects can be very expensive for the customer, ranging from minor quality variations to production downtime and equipment damage [3].

There are many different methods to mitigate voltage sags and swells, but the use of a custom Power device is considered to be the most efficient method. The concept of custom Power was introduced by N.G. Hingorani in 1995. Like Flexible AC Transmission Systems (FACTS) for transmission systems, the term custom power pertains to the use of power electronics controllers in a distribution system, especially, to deal with various power quality problems. Each of Custom Power devices has its own benefits and limitations. Dynamic Voltage Restorer (DVR) is one of the most effective types of these devices.

There are numerous reasons why the DVR is preferred over the others. A few of these reasons are presented as follows. The Static Var Compensator (SVC) pre-dates the DVR, but the DVR is still preferred because the SVC has no ability to control active power flow [5]. Another reason is that the DVR costs less compared to the Uninterruptible power supply (UPS) [6, 7]. Other reasons include that the DVR has a higher energy capacity and lower costs compared to the Energy storage device [5]. Furthermore, the DVR is smaller in size and costs less compared to the DSTATCOM [5]. Based on these reasons, it is no surprise that the DVR is widely considered as an effective custom power device in mitigating voltage sags [8].

Multilevel power conversion was first introduced over 20 years ago. The general concept involves utilizing a higher number of semiconductor switches to perform the power conversion in small voltage steps. In general, multilevel power converters can be considered as voltage synthesizers, in which the output high voltage is synthesized from many discrete smaller voltage levels [9]. In comparison with the traditional two-level converters and by increasing the number of dc voltage sources (levels), small voltage steps lead to the production of high power quality waveforms, lower harmonic components, lower voltage ratings of devices, lower

POWER QUALITY IMPROVEMENT BASED ON PSO ALGORITHM INCORPORATING UPQC

B.Mahesh Babu¹, L.Ravi Srinivas² and S.S.Tulasi Ratu³

¹ Department of Electrical and Electronics Engineering, Godavavalluru Engineering College, A.P, India.

² Department of Electrical and Electronics Engineering, Godavavalluru Engineering College, A.P, India.

³ Department of Electrical and Electronics Engineering, Jawaharlal Nehru Technological University, Hyderabad, Telangana, India.

ABSTRACT

The usage of the term power quality is increasing day by day with extensive usage of large capacity loads and nonlinear loads. The major power quality issues are voltage disturbances and current disturbances in the present-day power systems. Today, with the advent of power semiconductor devices, these power quality issues are solved to a great extent. The unified power quality conditioner is one such power semiconductor device which utilizes active filtering methodology to deal with the concerned power quality issues. Here an attempt is made to control and generate the reference currents and voltages for a unified power quality conditioner with the optimal tuned synchronous reference frame theory. The particle swarm optimization is employed to evolve gains of the proportional-integral controller. The unified power quality conditioner is a combination of shunt and series voltage source converters. The hysteresis band current controller for series and the pulse width modulation current controller for the shunt active filter are used for generation of gating pulses required by the switches of the voltage source converters in the unified power quality conditioner. The performance evaluation of multi-objective convergence fitness function (dealing the voltage sag, the source current variations, and the load voltage variations) with unified power quality conditioner based on particle swarm optimization algorithm is performed. The efficacy of the proposed work is validated by conducting simulations in MATLAB SIMULINK software environment.

KEY WORDS: Power Quality (PQ); Unified Power Quality Conditioner (UPQC); Optimal Tuned Synchronous Reference Frame (OTSRF) Theory; Hysteresis Band Current Controller (HBCC); Pulse Width Modulation (PWM) Current Controller; Particle Swarm Optimization (PSO)

1.0 INTRODUCTION

The term power quality is particularly related to performance and economic aspects of the electric power system. The electric power phenomenon such as voltage, current and frequency are usually affected due to the usage of large electric loads and nonlinear loads.

*Corresponding Email: basam0319@gmail.com

T.C. Srinivasa Rao*, S.S. Tulası Ram and J.B.V. Subrahmanyam

Fault Signal Recognition in Power Distribution System using Deep Belief Network

<https://doi.org/10.1515/jisys-2017-0005>

Received October 3, 2017; previously published online March 13, 2018.

Abstract: Nowadays, electrical power system is considered as one of the most complicated artificial systems all over the globe, as social and economic development depends on intact, consistent, stable and economic functions. Owing to diverse random causes, accidental failures occur in electrical power systems. Considering this issue, this article aimed to propose the use of deep belief network (DBN) in detecting and classifying fault signals such as transient, sag and swell in the transmission line. Here, wavelet-decomposed fault signals are extracted and the fault is diagnosed based on the decomposed signal by the fifth model. Further, this article provides the performance analysis by determining the types I and II mistakes and root mean square error (RMSE) measure. In the performance analysis, it compares the performance of the DBN model to various conventional models like linear support vector machine (SVM), quadratic SVM, radial basis function SVM, polynomial SVM, multilayer perceptron SVM, Levenberg-Marquardt neural network and gradient descent neural network models. The simulation results validate that the proposed DBN model effectively detects and classifies the fault signal in power distribution system when compared to the traditional model.

Keywords: Classification, deep belief network, fault signal, power distribution system, wavelet decomposition.

1 Introduction

Since the demand for power is rising, lack of power generation is a predominant problem in today's era. Under such a circumstance, it is essential to make the best use of existing power transmission potential in a power system. In an electrical power distribution system, there are usually several faults that affect the system. In fact, the fault factors like shortage of maintenance, equipment breakdown, fire, animals, trees, etc. are the main sources of these failures in a power system. Therefore, optimal diagnosis of the faulty phase, its location, and classification of signals is an essential task in the case of power transmission maintenance. In fact, determination of fault location is necessary for the clearance of fault and the transmission of power restoration. Initially, recognizing the type of fault is needed, and it is classified as line-to-line, single line-to-ground, multi-location, transformer and type-line faults.

Accurate fault location recognition and categorization of fault signals have been done by several techniques in the distribution network [1, 10, 11]. Those techniques include artificial neural network (ANN)-based fault phase selection scheme [1], ANN-based fault location scheme [10], fuzzy schemes [4, 21] and combined fuzzy wavelet schemes [12, 16], particle swarm optimization [25] and decision tree-based method [9]. Moreover, the introduction of multi-objective fault detection techniques using combined adaptive fuzzy inference system with wavelet [20, 27] has been sustained as a major contribution. However, the above-mentioned methods have suffered from several limitations such as less classification accuracy, dependence on large input space, existence of multiple optimal solutions, time-consuming and computational complexity.

*Corresponding author: T.C. Srinivasa Rao, Research Scholar, J.N.U. College of Engineering, Hyderabad, India; and Associate Professor, Department of EEE, Vardhaman College of Engineering, Afzalnagar Hill, R.R. District, Telangana, India.

e-mail: srinivasarao@vce.ac.in

S.S. Tulası Ram, Department of EEE, J.N.U. College of Engineering, Hyderabad, India.

J.B.V. Subrahmanyam, J.N.U. Engineering College, Meerpet, Hyderabad, India.

Generalized Scalar PWM Algorithms for VSI Fed Direct Torque Controlled Induction Motor Drives

B.R.C. Poo, G.V. Manjunath

[vishnu.org](#)

Abstract

SHOW MORE ▾

☆ Save 59 Citations Related articles All 2 versions

Showing the best result for this search. [See all results](#)

IMMEDIATE ACTION: Submit to book no orders as you think

SCORE

No items

<https://www.examinia.edu/paper.pdf>



Bibliography

[PDF] [CITE]

1. Einstein, A., B. Podolsky, and N. Rosen. 1935. "Can quantum-mechanical description of physical reality be considered complete?". *Phys. Rev.* 47, 777-800.

RESEARCH ARTICLE

Denoising and segmentation of MR images using fourth order non-linear adaptive PDE and new convergent clustering

Sreeshar Kollem  Katta Rama Linga Reddy, Duggirala Srinivasa Rao

First published: 04 December 2018

<https://doi.org/10.1002/ijts.1001>

Citations: 18

Abstract

At present, digital image processing plays a vital role in medical imaging areas and specifically in magnetic resonance imaging (MRI) of brain images such as axial and coronal sections. This article mainly focused on the MRI brain images. The existing methods such as total variation (TV), parallel MRI, modified pyramidal dual-tree direction filter, adaptive dictionary selection algorithm, classifier methods, and fuzzy clustering techniques are poor in image eminence and precision. Thus, this article presents a novel approach consisting of denoising followed by segmentation. The objective of these proposed methods was visual eminence improvement of medical images to examine tumor extent using an adaptive partial differential equation (APDE)-based analysis with soft threshold function in denoising. The fourth order, nonlinear APDE was used to denoise the image depending on gradient and Laplacian operators associated with the new adaptive Haar-type wavelet transform. A second approach was the new convergent K-means clustering for segmentation. The convergent K-means procedure diminishes the summation of the squared deviations of structures in a cluster from the center. The significance of these proposed methods was to compute their performances in terms of mean squared error, peak signal-to-noise ratio, structure similarity, segmentation accuracy, false hit, missed-term, and elapsed time. The results were analyzed with the MATLAB software.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this article.

REFERENCES



Compact Lightweight Cryptographic Algorithm for Optimization of Resources

Sunitha Tappari, K. Sri Devi, Durga Rao Jenjeti

Abstract: The study of Lightweight cryptography has been one of the increasing aspects in symmetric cryptography in the recent years. Lightweight symmetric cryptos has gained interest due to the increasing demand for security services in constrained computing environments, such as in the Internet of Things (IoT). Through the prospects of light weight in IoT providing more security in various applications, resource utility is more in key generation, key scheduling, permutation layer and substitution key layer operations. More resource usage made possible the high utilization of power and overhead of area. In this paper, a novel method is proposed to decrease the quantity of resources, which follows register verification scheme. The resource verification is coordinating with the delay in substitution permutation Network (SPN). Our design is compared using area, throughput, power, and latency as metrics.

Keywords: Symmetric light weight cryptography, Resource optimization, Register verification, Cryptography testing.

I. INTRODUCTION

The world over in the environment computing can be embedded. Nowadays, the broadband Internet is generally accessible to any user and its cost of connectivity is also reduced, more sensors and gadgets are getting connected to it [1]. There are many research works focusing on complexities around the IoT [2]. For each valuable transmitting data, the sophisticated sensors are implanted in the subnanoequipment adjacent to it. The devices itself start the sharing process of large data which should communicate with IoT with more security.

The IoT is taking the mobile network, conventional internet and sensor network to a different level where connected to the internet. IoT is further susceptible to serious threats of security than available network, the reason for that it includes resource constrained objects, assorted nature, open environment employment, lively behavior. Security in IoT environment should assure accurate implementation of confidentiality, integrity, authentication, non-repudiation, and access control [3].

A key element of secure communication of the system is Cryptography [4]. Conventional cryptography is not suitable for resource constrained devices. The majority of these devices use limited power sources to the point where it is required to rely on energy harvesting [5], power optimization techniques [6], and novel transmission technologies [7]. Therefore it is difficult to provide cryptographic solutions for constrained environments. Lightweight Cryptography (LWCRYPT) is a new region of research that will reach the requirements by smart devices. In this, cryptography methods have to work with minimum amount of vital resources of required objects. "Lightweight" term represents algorithm with less consumption of energy, and less computational power requirement. LWCRYPT is a cryptography technique, customized for less resource requirement devices.

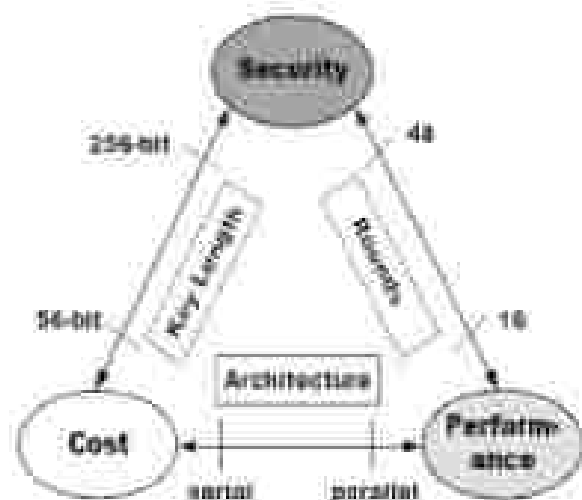


Fig 1. Scaling measures among Performance, Security and Cost. The key length is decreased to 56-bits from 256-bits; the processing rounds count is reduced to 16 from 48 in the logic of encryption; the mode of architecture shifts from parallel to serialized as indicated in Fig 1. In addition, requirement memory is decreased to Kilo bytes from Giga bytes and processing speed comes down from GHz to KHz.

One of the classification of LWCRYPT technique [8] is symmetric cryptographic algorithms Vs asymmetric cryptographic algorithms. Due to the hardware-friendly nature, symmetric cryptography is suitable for constrained devices. Which implies minimization of supplementary computational cost and consumption of power.

Received Manuscript Received on December 11, 2018.

Corresponding author:
Sunitha Tappari, Dept. of Electronics and Information Engineering
GITCE, Hyderabad, PIN: 501302, India.
K. Sri Devi, Dept. of VLSI, GITAM (Deemed to be University),
Vidyanagar, India.
Durga Rao Jenjeti, Dept. of VLSI, GITAM (Deemed to be University),
Vidyanagar, India.



International Journal of Computers and Applications

Volume 44, 2022 > Issue 12: Artificial Intelligence for Sustainable Internet Research, Guest Editors: Dr. H. Anandakumar, Dr. Muhammad Sharif and Dr. Sri Devi Ravana

104 / 12

0

[View CrossRef citations to date](#) in [Athletic](#)

Articles

Encryption-based steganography of images by multiobjective whale optimal pixel selection

Ambika  [Rajkumar L. Biradar](#) & [Vishwanath Burkipalli](#)

Pages 1140-1148 | Received 23 Jun 2019, Accepted 06 Nov 2019, Published online 21 Nov 2019

 [Cite this article](#)  <https://doi.org/10.1080/1206212X.2019.1693442>

 [Check for updates](#)

Sample our
Engineering & Technology
Journals

or [Sign up now](#) to save your words
to the latest two volumes for 14 days

 [Full Article](#)

 [Figures & data](#)

 [References](#)

 [Citations](#)

 [Metrics](#)

 [Reprints & Permissions](#)

[Read this article](#)

Reprints and Corporate Permissions

Please note: Selecting permissions does not provide access to the full text of the article, please see our help page [How do I view content?](#)

To request a reprint or corporate permission for this article, please click on the relevant link below:

[Order Reprints](#)

[Request Corporate Permissions](#)

Academic Permissions

Please note: Selecting permissions does not provide access to the full text of the article, please see our help page [How do I view content?](#)

Research of Optimization Algorithms used in MIMO-OFDM Systems



Shaik Zubiyx Hashmi, M. Vijaya Lakshmi

Abstract: Orthogonal Frequency Division Multiplexing (OFDM) technology is used to split large amount of data into several parallel narrowband channels with different frequencies orthogonally such that interference is reduced. Multiple Input Multiple Output (MIMO) technology uses diversity technique such that capacity of the system and data throughput can be improved. Thereby combining both the technologies as MIMO-OFDM achieves great spectral efficiency and it is the most advanced technology in broadband wireless communication. The channel estimation techniques like Least Square Estimation (LSE) algorithm is used to estimate the channel and the performance of MIMO-OFDM system is evaluated on the basis of Bit Error Rate (BER) and Mean Square Error (MSE) by using MATLAB simulation. Further enhancements can be achieved by applying optimization algorithms, in this paper to find the optimum solution Particle Swarm Optimization (PSO) is utilized when the pilots are placed randomly. Simulation results show that PSO algorithm outperforms the LSE when random pilots are used for MIMO-OFDM systems.

Keywords: Bit Error Rate (BER), Least Square Estimation (LSE), Mean Square Error (MSE), Multiple Input Multiple Output-Orthogonal Frequency Division Multiplexing (MIMO-OFDM), Particle Swarm optimization (PSO)

1. INTRODUCTION

OFDM technology is a multicarrier system in which the signals are placed orthogonal to each other and transmitted over a narrowband channel with different frequencies so that the system can transmit large amount of data streams without interference thereby accommodating large number of users. Also by using OFDM technology crosstalk can be reduced. Another technology MIMO is used in modern communication systems in which diversity technique is implemented where two or more antennas are used both at the transmitting side and receiving side such that fading problems can be reduced and also channel capacity and data throughput can be improved. So, by considering the advantages of both the technologies MIMO-OFDM technology is implemented and is used in 4G and 5G broadband wireless communications.

In wireless communications "Channel State information" (CSI) is the most important parameter. This information helps to know about the propagation of the signal through the channel also describes about the distortion occurred and the delay caused by the signal from the transmitter to the receiver. The estimation of channel is based on some known information, which is known at the transmitter and the receiver. This method of estimating the channel helps to reconstruct the signal at the receiver end. Generally, the channel can be estimated by the usage of pilot symbols known both to the transmitter and the receiver, which employs different interpolation techniques such that the channel response of the subcarriers between the pilots can be estimated. Training signal or the training signals along with the data signals can be used for the estimation of the channel. Different channel estimation techniques like Blind channel estimation, semi-blind channel estimation, Training symbol based channel estimation are used. Blind channel estimation scheme uses the properties of the received signals and the channel is estimated without the usage of the pilot symbols. Blind channel estimation technique has the benefit of less overhead but needs large number of received signals to reconstruct the signal. Semi-blind channel estimation scheme can improve the accuracy of the channel estimation by not only using the training or pilot symbols but also by using the unknown data symbols. This technique uses the detected or reconstructed signal as the feedback system to track the channel also uses that detected signal as the reference signal for the upcoming data. Training symbol based channel estimation provides good performance but the transmission efficiencies are reduced due to overhead of the "pilot symbols" which are transmitted along with the data symbols. When training symbols are used LS and MMSE techniques are used for the channel estimation thereby improving the system performance by minimizing the BER.

In Training symbol based channel estimation insertion of pilots is the important factor. So, the allocation of pilots can be done in different ways such as "Block type", "Comb type" and "Lattice type". In Block type pilot scheme, the transmitted symbols along with the pilots are transmitted using all the subcarriers from the transmitter. Here time domain interpolation is done. In Comb type pilot arrangement each transmitted symbols has the pilot tones at periodically placed subcarriers. Here frequency domain interpolation is done. In Lattice type of pilot arrangement both the time and frequency axis is used and by inserting pilots along the time and frequency axes in the given symbol period. Here both time and frequency interpolation is done.

Manuscript published on 30 September 2019.

* Corresponding Author (s)
Shaik Zubiyx Hashmi, M.Tech Degree, Assistant Professor, Department of Electronics and VLSI, Government Engineering College of Technology and Training, the name of Institution, Telephone Number, Email Address, Address etc.
M. Vijaya Lakshmi, M.Tech Degree, Assistant Professor, Department of Electronics and VLSI, Government Engineering College of Technology and Training, the name of Institution, Telephone Number, Email Address, Address etc.

© The system. Published by the IJEAT (International Journal of Engineering and Advanced Technology), The IJEAT (www.ijeat.org) ISSN: 2240-8955 (Online) www.ijeat.org



Resource Optimized Security Coding In Light Weight Security Protocol



Sunitha Teppari, K. Srivedi

Abstract: The overhead for resource utilization in the round coding operation of security coding is large. Though lightweight protocols are used as a measure of provisioning, higher level of security in many real time applications, the need of key scheduling, key generation and s-box operation leads to large resource utilization. This resource consumption issue leads to large power consumption and area overhead. To minimize the resource utilization in this paper, a new resource optimization technique following resource reallocation scheme is proposed. The resource utilization is synchronized by the delay from instruction application in cryptographic coding.

Index Terms: Security coding, resource optimization, resource reallocation, light weight coding.

I. INTRODUCTION

Security in many applications has a critical requirement aspects with secure passwords. Applications such as secure payments, communications, storage, etc., demands for a high degree of security coding. Cryptography is a key element of secure communication. But existing cryptography approaches essential for secure applications, are not self-efficient. Cryptography is used as an approach to writing secret data in encrypted form. In various applications of usage ranging from diplomatic secret documents to critical war plans. Not surprisingly, the widespread development of computer communications has given evolution to new forms of cryptography.

Cryptography is essential when information and telecommunication is communicated over an unreliable media especially the Internet. From the evolution many approaches have been developed for security coding in cryptography application. [1] provides an overview of a security coding in wide area computing and is a real application used by the Public Key Infrastructure (PKI). In [2] to interact with the intermediate level semantic translation architecture, the interval between immediate linguistic languages and the low-level processes that humans use directly are used. Research activity in an insight on how to promote cooperation among service providers is presented in [3].

In [4] a secure unknown authentication system for distributed services, is suggested by group signature based identity, allowing users to prove access to data without revealing their identity. [5] presented a public auditing scheme using the Third Party Auditor (TPA), which performs data auditing for secure and efficient data exchange. [6] introduces a computable model of service based on dependencies recommended for business computing. The benefit of this specific model is ideal for advanced Dynamic Trust specifications for advanced Computing. It blocks the failure of single point and selects the appropriate service provider for service provisioning. [7] describes an authorization and approval protocol that indicates the main features of anonymous communication in the wide area network. The solution improves the current criteria to make the existing standards easier to synchronize. In order to ensure specialized security in cryptographic environment, [8] suggested the work of a intermediate approach to introduce a trusted third party. A trust-overlay network [9] provides multiple data units for performing a reputation coding of trust between service providers and data source. An article describing the features of security coding is outlined in [10]. [11]. An authentication protocol described in [12] imitates the main features of anonymous communications in distributed networks. Where in various service level and software level security measure were developed the hardware design are need to be improved. With the objective of developing a new security approach for cryptographic applications, hardware architectures using PRESENT [1] are developed in the recent past. The processing resource overhead is however large as count as observed.

To minimize resource overhead in this paper a new resource sharing approach with latency control is proposed. The existing PRESENT [1] architecture is modified with a register arithmet unit, resulting in improved performance. The rest of this paper is outlined in 6 sections, presenting the existing light weight approach in section 2. The proposed resource utilization is presented in section 3. Section 4 outlines the simulation results, concluding in section 5. The provision of security coding is, however, limited by resource constraints. To optimize the resource utilization in this paper, a new coding approach of resource utilization based on resource reusing is proposed.

Manuscript published on 29 August 2019.

Sunitha Teppari, Dept. of Electronics and Telecommunication Engineering, Government Institute of Technology and Science, MITM, Hyderabad, India.

K. Srivedi, Assistant Professor, Dept. Of ECE, GITAM, Institute of Technology, Hyderabad, Telangana, India.

© The Authors. Published by Blue Cross Intelligent Engineering and Science Publishers (BCIESP). This is an open access article under the CC BY 4.0 International license.



Different Types of Channel Estimation Techniques Used in MIMO-OFDM for Effective Communication Systems

Rakshit Govil¹

¹Department of Electronics and Communication Engineering
Vellore Institute of Technology, Vellore
Vellore, India

Abstract— A Modern wireless broadband system of MIMO-OFDM (multiple input multiple output, orthogonal frequency division multiplexing) is more popular because of good data transmission rate and its robustness against multipath fading & good spectral efficiency. This system provides reliable communication & wide coverage. A main challenge in MIMO-OFDM system is retrieval of the channel state information (CSI) accurately and synchronization between the transmitter & receiver. The channel state information is retrieved with the help of various estimation algorithm such as training based, blind and semi blind channel Estimation. This paper describes the basic introduction of OFDM, MIMO-OFDM system and explains the different channel estimation algorithms, optimization techniques and their utilization in MIMO system for 4G wireless mobile communication systems.

Keywords— Channel Estimation, Channel State Information, LS Estimator, MMSE Estimator, MIMO-OFDM, Pilot Carrier, Mean Square Error, Spectral Efficiency.

INTRODUCTION

Fourth Generation Mobile system (4G) has very good features than previous generation networks such as 2G & 3G. Data transmission speed is very high when compared with previous generation mobile systems. It can fully supports multimedia services with extreme quality, audio, video files, wireless internet and other broadband services with superior quality. This technology provides the user to select any desired service with more freedom & flexibility. Mobile communication systems transmit information by changing the amplitude at phase of radio waves. In the receiving side of mobile system, amplitude or phase can vary widely. This causes degradation in the quality of system since the performance of receiver is highly dependent on the accuracy of estimated instantaneous channel.

In a wireless link, channel state information (CSI) provides the known channel properties of the link. It provides the detail of signal propagation between transmitter and the receiver and tells about the effects of scattering, fading. The CSI can incorporate current channel conditions with transmission data for achieving reliable communication. This CSI should be estimated at the receiver and fed back to the transmitter. The channel state information can be obtained through different types of channel estimation algorithms. This estimation can be done with a set of well-known sequence of unique bits for a particular transmitter and the

same can be repeated in every transmission burst. Then the channel estimator estimates the channel impulse response for each burst separately from the well-known transmitted bits and corresponding received samples. This paper describes the fundamentals of MIMO-OFDM system and study of various channel estimation techniques and their performance.

ORTHOGONAL FREQUENCY DIVISION MULTIPLEXING (OFDM)

A. Overview of OFDM

Orthogonal Frequency-Division Multiplexing (OFDM) is a type of Frequency Division Multiplexing (FDM) method which can be used as a digital multi-carrier modulation technique. The unique property of the OFDM is orthogonality among the subcarriers, which are obtained by splitting the carrier into closely spaced orthogonal subcarriers or channels. Each sub-carrier is modulated by digital modulation techniques such as quadrature amplitude modulation (QAM) or Quadrature phase-shift keying (QPSK) at a low symbol rate, maintaining total data rates similar to conventional single-carrier modulation schemes in the same bandwidth. The Modulator outputs are combined and the resulting signal is transmitted.

In OFDM the large data stream to be transmitted is divided into parallel data streams. These data streams are fed to the orthogonal carriers at lower rate. Each sub-carrier is modulated by using any one of the digital modulation schemes such as Binary Phase Shift Keying (BPSK), Quadrature Phase Shift Keying (QPSK) and Quadrature Amplitude Modulation (QAM). The data rate for each channel is low compared to the conventional data rate for a single-carrier modulation. However, the overall data rate is superior or comparable to the single-carrier modulation. Hence this scheme finds it's applications in most of the modern wireless broadcasting systems namely 802.11a (WiFi), WiMAX, LTE and Ultra Wide Band (UWB) system.

B. Features

In OFDM, the sub-carriers are orthogonal to each other. It avoids the interference between the sub-channels and hence no need of guard bands. Therefore the design of both the transmitter and receiver becomes easy. Unlike conventional FDM, a separate filter is not necessary for each sub-channel.

TRUST SENSING BASED SECURE ROUTING FOR WIRELESS SENSOR NETWORKS

D.Meghana¹,K. Ramalinga Reddy²

1. Student, Branch of WMC, G.Narayanaamma Institute of technology and science, Hyderabad, India

2.Head of the Department, Dept. of ETM, G.Narayanaamma Institute of technology and science, Hyderabad, India.

ABSTRACT: A trust sensing based mostly secure routing mechanism (TSSRM) with the light-weight characteristics and also the ability to resist several common attacks at the same time is planned because of the intense result of the typical network attacks which are caused by the limited energy and the poor deployment environment of wireless sensor network (WSN) on data transmission. On the other hand, route selection algorithm of security is also optimized by taking the trust degree and QoS metrics into account. TSSRM can progress the security and effectiveness of Wireless sensor network. The behavior of the sensor nodes is by analyzed including the movement and energy consumption of sensor nodes. The trust sensing based secure routing mechanism for wireless sensor network is proposed to solve the network overhead and the security of multi-hop information transmission. When network entities do not have much awareness how to trust one other, they either naively believe in the good intentions of other entities. Without trust, a network entity has to delegate a task, such as sending data to a destination, to someone who may not be trustworthy. This could cause failures of important network functions like routing. The proposed routing algorithm is applied to secure routing mechanism to achieve the efficient and reliable transmission of data and to further ensure the security of data transmission. The Extension of the trust sensing based secure routing is that whenever the malicious nodes gets identified depending on the trust degree it sets a multipath routing by which the network overhead can be reduced and there will be an increase in the packet delivery ratio.

KEYWORDS: Malicious nodes, QoS requirements, reliable data transmission, wireless sensor network, multipath communication, network overhead.

1. INTRODUCTION

Internet of Things (IoT) supports cloud computing, social network frequently and construction of smart city[1,2]. The characteristics of Wireless sensor networks such as low cost, self-organization and rapid deployment plays an important role in simplifying the services of smart city. Smart cities that depend on different types of distributed intelligent devices can provide urban residents with a wide range of applications such as environmental monitoring, traffic management, and social entertainment. The wide ranging sensor nodes can both collect the physical information of urban environment and control the public and private facilities in the situation of smart urban environment.

There is a serious effect on data and information security as the multi-hop routing is unprotected to various types of attacks due to the open, distributed and dynamic characteristic of WSN[3-4]. The existing secure routing algorithms at present are not suitable for the multi-hop distributed and energy-constrained WSN as usually they are directed against specific harmful or selfish behavior attacks, since they mainly depend on encryption algorithms and authentication mechanisms. Trust management (TM) is an helpful way to solve the security problems of WSN as defined [5-6], however, the common routing protocol based on trust is difficult to ensure the security of multi-hop information transmission, for which the reasons are given as follows. Primarily, new risks may also be prompted even though the method depending on trust can manage the natural attacks in WSN. On the other hand, the trust is

Controlling Appliances Through Google Assistant Using NODE MCU

Harini Haridasaram

M. Tech, Wireless and Mobile Communications
G. Narayanaswami Institute of Technology & Science
Hyderabad, India

Dr. K. Rama Linga Reddy

HOD, ETM department
G. Narayanaswami Institute of Technology & Science
Hyderabad, India

Abstract – This paper proposes a design of home automation using Google Assistant and Node MCU. The main objective of the proposed design is to reduce the cost and to provide an efficient home automation system. There are many home automation systems using GSM, web page based systems, hand gesture based systems. ZigBee, Google Home, Alexa, Amazon Echo are some devices in market. But the cost of the proposed system is very less than these systems. Google Assistant and Node MCU (ESP8266) are the prime components in this design. The protocol used is MQTT (Message Queuing and Telemetry Transport), IP TTY (If This Then That) application and Arduino MQTT application are used to implement the system.

Index Terms – Home Automation, Google Assistant, Node MCU, MQTT, IP TTY, Arduino MQTT.

1 INTRODUCTION

Home automation gives you access to control devices in our home from a mobile device anywhere in the world. It is a part of "Internet of Things". The path how devices and appliances can be networked together to provide a seamless control over all aspects of our home and more. Home automation has been around for many decades in terms of controlling simple appliances. Recent technology depicts the idea of the interconnected world at the touch of our fingertips or a simple voice command to Siri, Alexa and Cortana. With home automation we can decide how a device should respond, when it should respond and why it should respond.

All the things will become easier and helpful if a voice command can change the environment around us. The voice commands are given to Google Assistant which indeed transfers these commands to the Node MCU [1] to which our devices and appliances are connected. In this system Node MCU, Google assistant [2], IP TTY application [3], Arduino MQTT application [4], Relay board and driver and LED bulbs are used.

A. NODE MCU

Node MCU (Node Micro Controller Unit) is an open-source, interactive, programmable, low cost, simple, smart, Wi-Fi enabled Arduino like hardware IC. It is an advanced API for hardware IO, which can dramatically reduce the redundant work for configuring and manipulating hardware. It is coded like Arduino, but interactively as Lua script. It is an event driven API for networking applications, which helps developers to write code running on a 1mm*1mm sized MCU in Node.js style. It greatly speeds up the IoT application developing process. It is less than \$3 Wi-Fi MCU-ESP8266 integrated and easy to prototyping development kit.

Node MCU has powerful processor than the Arduino's Atmega328, the flash memory is 4MB and it has much more RAM. It is very similar to UNO and has additional features. It has less GPIO, ADC and PWM options than the Arduino

UNO, but it supports serial communication protocols. Node MCU is not as powerful as the Raspberry Pi, since the Pi is an actual computer and the Node MCU is just an embedded microprocessor system on chip. The best advantage that it has over a Raspberry Pi is the price, allowing it to be a perfect choice for specific IoT applications.



Figure 1. Node MCU

B. RELAY

Relays are switches that open and close circuits. Relays can control one electrical circuit by opening and closing contacts in another circuit. Relay operates in only two modes, they are NO and NC. When the relay is not powered then if it is in normally open (NO) mode then the relay contacts are open and if the relay is in normally closed (NC) mode that the relay contacts are closed. By applying electrical current in both the modes the state of relay can be changed. Most widely used relay modules are 5v 12v. Using relays is safer as there is no any physical contact between Node MCU and the devices connected.

C. RELAY DRIVER

ULN 2803 is the relay driver used which is a high voltage and high current Darlington array IC. These ICs are used while driving a wide range of loads and are used as relay drivers and display drivers, line drivers etc.

D. GOOGLE ASSISTANT

Google Assistant is a virtual assistant developed by google which is an artificial intelligence based product. It is a mobile application which can be incorporated into smart home devices. The Assistant can engage in two way communication which is the main difference between its previous version Google Now.

Google Assistant which is the advanced version of Google Now has the ability to search the internet, it helps in scheduling events and alarms, it is used to adjust hardware settings on the user's device, and display information from the user's account. The assistant works on the natural language processing algorithm. The special feature of assistant is that it will support a keyboard for typed input and visual responses, support identifying objects and gather visual information through the device's camera, and support purchasing products and sending money.

VGDRA: A Virtual Grid-Based Dynamic Routes Adjustment Scheme for Mobile Sink-Based Wireless Sensor Network

V. Manisha¹, G. Krishna Reddy²

¹ Student, Branch of VJSS, G. Narayanamma Institute of Technology and Science, JNTUH Hyderabad, India

² Associate Professor, Dept. of ETE, G. Narayanamma Institute of Technology and Science, JNTUH Hyderabad, India

ABSTRACT: In wireless sensor networks, nodes energy decadence can be managed by exploiting the sinks mobility. Due to the dynamic network topology caused by the sinks mobility, distribution of information to sink node is considered as a challenging task. In order to reduce energy consumption by nodes, nodes need to reconstruct their route to the latest location of mobile sink and that result in efficient data delivery. The main aim of this paper is to reduce reconstruct cost of the sensor nodes by maintaining minimal route to the latest location of sink node. In order to reduce energy consumption and route reconstruction cost, sets of communication rules are proposed. These rules governs route reconstruction process thereby requiring only few nodes to readjust their route to the latest location of mobile sink.

KEYWORDS:—Route reconstruction cost, energy consumption, sink mobility, wireless sensor network

1. INTRODUCTION

A Wireless sensor networks can be used to sense data from various fields such as environment, healthcare, military operation and that sense data will be sent to centralized processing units such as base station or sink nodes for processing. Wireless sensor network consists of enormous amount of sensor nodes sense the change in physical parameters from the sensing range and forward the information to the mobile sink. Uniform distribution of nodes exhibit n-to-1 communication that means observed information is sent to single sink. Sensor nodes are placed at different points of interest based on application. In an intelligent transport system sensors are placed at junctions, carparks, these can provide early warning to mobile sink. The topology of the

network is dynamic as sink nodes moves from one location to another. In order to provide efficient data delivery nodes need to reconstruct their route to the latest location of mobile sink. As scant energy resources are available propagation of sink's mobility updates should be reduced as it consumes more energy. In the virtual infrastructure based data distribution schemes, only few nodes present in the sensor field need to keep track of sink's location. These selected nodes will gather information from nodes present in the vicinity and they send the gathered information to sink node. this can be done proactively or reactively. Virtual grid based dynamic routes adjustment is proposed for periodic collection of data from wireless sensor network. In existing techniques multiple mobile sinks were deployed in order to improve network performance and also to improve data delivery ratio of nodes. In the proposed technique only single mobile sink is considered as it aims to minimize the trade-off between data delivery performance and energy consumption.

The proposed technique permits sensor nodes to maintain a minimal route to the latest location of the mobile sink. The sensor field is divided into k equal sized cells and constructs a virtual backbone network, which consists of all cell-headers. Nodes present at the midpoint of cells are considered as cell-headers. Cell-header are responsible for collecting data from the member nodes present in the cell, and then delivering the data to the sink node by using virtual backbone structure.

The main goal of constructing virtual structure is to minimize energy consumption and also to reduce route-reconstruction cost by setting only few nodes to construct their route to latest location of sink. VGDRA also sets up communication routes such that the end-to-end delay and energy cost is minimized in the data

[Home](#) > [Analog Integrated Circuits and Signal Processing](#) > [Article](#)

PUBLISHED: 28 JUNE 2019

An effective hybrid approach for PAPR reduction in MIMO-OFDM

[M. Vijayarajkumari](#) & [K. Ramalinga Reddy](#)

Analog Integrated Circuits and Signal Processing 102: 145–153 (2020)

360 Accesses | 5 Citations | [Metrics](#)

Abstract

Multi-input multi-output (MIMO) frameworks in blend with orthogonal frequency division multiplexing (OFDM) have drawn huge consideration for the next generation broadband multimedia applications because of their capability of giving high information rate, robustness to fading channels and reliable communication. There are many advantages of using OFDM like robustness and high spectral efficiency against ISI yet at the same time there are a few inconveniences. The fundamental issue that emerges in OFDM frameworks is high PAPR. There are numerous methods accessible for lessening of PAPR like tone reservation (TR), clipping and filtering, partial transmit sequence (PTS), active constellation scheme, interleaving and selected mapping. The main aim of this research is to

16. Dakhli, M. C., Zayani, R., & Bouallegue, R. (2014). BER analysis and compensation for the effects of polynomial HPA non-linearity in MIMO OFDM systems over fading channel. *Wireless Personal Communications*, *81*(1), 133–149.

Author information

Authors and Affiliations

Department of Electronics and Telematics, GNITS,
Shaikpet, Hyderabad, Telangana, 500008, India

M. Vijayalakshmi & K. Ramalinga Reddy

Corresponding author

Correspondence to [M. Vijayalakshmi](#).

Additional information

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Rights and permissions

[Reprints and Permissions](#)

About this article

Cite this article

Vijayalakshmi, M., Ramalinga Reddy, K. An effective hybrid approach for PAPR reduction in MIMO-OFDM. *Analog Integr Circ*

A Novel Lightweight Compact Encryption Algorithm for Embedded Security

SP. Ayesha Taleem¹, T. Sunilraj²

¹AI Tech Scholar, Branch of ECE, G.Narayanaiah Institute of Technology & Science, JNTUH Hyd. India
²Assistant Professor, Dept. of ECE, G.Narayanaiah Institute of Technology & Science, JNTUH Hyd. India

Abstract—Lightweight cryptography is an interesting field, ideal as a cryptographic algorithm for resource constrained devices that operate using less power and area/pace. Lightweight cryptographic algorithms aim is in providing higher throughput and compactness utilizing less power and cost without compromising with the security. The lightweight encryption algorithms discussed in this paper are PRESENT-GRP and Chaotic image encryption algorithm. GRP is a bit permutation instruction which is combined with PRESENT which is a substitution-permutation block cipher that combines to produce a novel lightweight encryption algorithm. Drawbacks of PRESENT-GRP algorithm led towards the designing of a new lightweight ID chaotic image encryption algorithm. The proposed algorithm is a simple, improved and efficient chaotic system developed by taking the difference between the output sequences of the two same existing ID maps and to reduce the linear-nonlinear conversion to shorten the encryption time. The experimental results show the comparison between the existing and the proposed system representing the better encryption algorithm with the encryption of types of data being shared between devices.

Keywords—PRESENT-GRP, image encryption algorithm, chaotic system, ID-chaotic maps, LFSR, S-box

I. INTRODUCTION

The day to day utilization of pervasive devices[1] for transmitting data across the globe has raised the concern for information security in information communication. These devices deal with irregular phenomena such as illegal copying and misinterpretation of data through illegal/unauthorized personalization and thus the secure utility of data becomes an important issue. In embedded systems, a fully fledged cryptographic system is difficult to be implemented due to the constraints like area, power depletion and cost. All these concerns guide towards using lightweight cryptographic algorithms[2] that operate using less power without compromising with security. There are various variants of lightweight ciphers out of which the best suited for embedded security is PRESENT[3] lightweight block cipher which is a substitution-permutation based network comprising of 30 bit or 128 bit key size and 44 bit block size and performs iterations for upto 31 rounds for one time encryption process. PRESENT algorithm is a secure algorithm which utilizes less

memory, space and power and fits best for resource constrained devices such as embedded security, IoT, pervasive devices, etc. The permutation layer of PRESENT algorithm is not as secure as the substitution layer since the permutation layer is mostly subjected to attacks. To increase the strength of PRESENT algorithm, it is combined with a bit permutation instruction set known as GRP (group operation) which is a compact bit permutation instruction set with adequate security and is very complex in nature and comprises of very good diffusion property. Amongst all the bit permutation instructions set, GRP[4] aims to operate using less memory and fast encryption speed compared to the existing permutation instructions. GRP algorithm is able to perform permutation of 64 bit data including control bits within 13 instructions only which means that it is able to provide more security to the data with few instructions (reducing the computational cost) which makes it best suitable for embedded security. PRESENT and GRP algorithms are combined to form a new lightweight cryptographic algorithm that collectively produces an adequate security cryptographic algorithm for embedded security.

The advancement of information technology deals with lots of digital contents/text data, images, videos) been transmitted and stored between devices. The data not only being text data but also digital data needs to be secured across the network.

Digital data such as images differ from normal text data in its intrinsic features such as big size, strong correlation between neighbouring pixels and high redundancy of data. PRESENT-GRP algorithm is suitable for text data but becomes slower while operating with image data. Image data requires strong real-time property with fast encryption speed and high security. One such image encryption algorithm suitable for embedded devices is chaotic image encryption algorithm.

Chaotic image encryption algorithm[5] is a chaos based image encryption algorithm, the system is based on two parts: (i) first part is generation of the security key (ii) performing encryption process using the security key.

The security keys are generated using maps which are categorized into two types: 1-dimensional and multi-dimensional maps. ID map is easy to implement and have low computational cost making them fit for embedded system application. ID map exhibit some disadvantages such as limited chaotic behavior range and non-uniform distribution of chaotic sequences output. These parameters led towards proposing an improved ID-chaotic map[6] with increased

Pilot based Channel Estimation of OFDM aided with KGMO Algorithm

P. Sreesudha¹, Dr B.L. Malleswari²

¹Assistant Professor, Department of Electronics & Telecommunication Engineering, GNIT, Hyderabad, India

²Principal, Department of Electronics & Communication Engineering, Sri Devi Women's Engineering College, Hyderabad, India

Corresponding Author: P.Sreesudha

Abstract: Now a days there is a huge demand for wireless communications. To accommodate huge number of users, new methods are required. Orthogonal Frequency Division Multiplexing (OFDM) is one of the promising technology for modern wireless communications. In this paper, OFDM system performance is investigated by estimating the channel with the help of Kinetic Gas Molecule Optimization (KGMO) algorithm. Comb type pilot arrangement is used for estimating the channel with Least Square (LS) estimation method. Results are simulated with Matlab and shown at the end of the paper.

Keywords: OFDM, Channel Estimation, Least Square Estimation, Optimization Algorithm.

Date of Submission: 13-06-2019

Date of acceptance: 18-06-2019

I. INTRODUCTION

In OFDM the data is transmitted using several carriers. Each carrier is separately modulated that means the bandwidth is shared by several carriers. OFDM is same as FDMA and the difference between OFDM and FDMA is, OFDM uses orthogonal carriers. Because of orthogonal carriers, OFDM provides high spectral efficiency [1]. In mobile communication system when the signal is propagated through free space its strength varies due to the presence of obstacles. In order to combat these difficulties channel must be equalized perfectly. For equalizing the channel receiver must have Channel State Information (CSI). And the performance of wireless system highly depends on channel characteristics. To detect the original transmitted signal, receiver must have the knowledge of channel information. For estimating the channel various techniques are introduced.

One such technique is pilot based channel estimation. Pilot based channel estimation is called training based channel estimation. Where the training sequence is known to both transmitter and receiver. As compared to blind channel estimation, training based channel estimation provides better performance [2]. Placement of pilots and number of pilot tones are also major issues in channel estimation.

Recently nature inspired algorithms are used for solving many optimization problems. Since these algorithms provides optimum solution for any complex problem. Channel Estimation is one of the complex problems in mobile wireless communication system. In the proposed system pilots are optimally placed with the help of optimization algorithm. There are many optimization algorithms and they are classified in to several types. All the algorithms are divided into four categories depending upon the source of inspiration, namely Swarm intelligence based, Bio-inspired based, Physics-Chemistry based, and others.

Several types of optimization algorithms are used for channel estimation. Particle Swarm Optimization (PSO) is one popular optimization algorithm, provides optimum solution with simple equations. In [3], OFDM system channel estimation carried out using LS-PSO algorithm. Kinetic Gas Molecule Optimization (KGMO) is a type of meta-heuristic optimization algorithm works based on heat-transfer search [4]. And KGMO is inspired by the law of thermodynamics and heat transfer. In this, search agents are gas molecules that interact with one another as well as with the surrounding to attain thermal equilibrium state. KGMO also works similar to PSO. The position update of gas agents is similar to PSO and in KGMO the kinetic energy parameter is used for measuring the performance. One advantage of KGMO is its quick convergence toward global optima.

In section II, OFDM system model discussed. In section III, proposed channel estimation method is discussed. Section IV is about simulation results finally the paper is concluded in section V.

II. SYSTEM MODEL

[Home](#) > [Analog Integrated Circuits and Signal Processing](#) > [Article](#)

PUBLISHED: 28 JUNE 2019

An effective hybrid approach for PAPR reduction in MIMO-OFDM

[M. Vijayalakshmi](#)  & [K. Ramalinga Reddy](#)

[Analog Integrated Circuits and Signal Processing](#) **102**: 145–153
(2020)

360 [Accesses](#) | 5 [Citations](#) | [Metrics](#)

Abstract

Multi-input multi-output (MIMO) frameworks in blend with orthogonal frequency division multiplexing (OFDM) have drawn huge consideration for the next generation broadband multimedia applications because of their capability of giving high information rate, robustness to fading channels and reliable communication. There are many advantages of using OFDM like robustness and high spectral efficiency against ISI yet at the same time there are a few inconveniences. The fundamental issue that emerges in OFDM frameworks is high PAPR. There are numerous methods accessible for lessening of PAPR like tone reservation (TR), clipping and filtering, partial transmit sequence (PTS), active constellation scheme, interleaving and selected mapping. The main aim of this research is to

16. Dakhli, M. C., Zayani, R., & Bouallegue, R. (2014). BER analysis and compensation for the effects of polynomial HPA non-linearity in MIMO OFDM systems over fading channel. *Wireless Personal Communications*, *81*(1), 133–149.
-

Author information

Authors and Affiliations

Department of Electronics and Telematics, GNITS, Shaikpet, Hyderabad, Telangana, 500008, India

M. Vijayalakshmi & K. Ramalinga Reddy

Corresponding author

Correspondence to [M. Vijayalakshmi](#).

Additional information

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Rights and permissions

[Reprints and Permissions](#)

About this article

Cite this article

Vijayalakshmi, M., Ramalinga Reddy, K. An effective hybrid approach for PAPR reduction in MIMO-OFDM. *Analog Integr Circ*

A Review of Image Denoising and Segmentation Methods Based on Medical Images

Sreedhar Kollam, Katta Rama Lings Paddy, and Duggirala Srinivasa Rao

Abstract—Image denoising and segmentation are required to use in digital image processing. For researchers' point of view, still, these two methods are challenging task in medical images. At present, image denoising and segmentation take part in real-world applications such as computer graphic, computer vision, satellite, and medical fields. These two methods are analyzed by using different images but mainly concentration on medical images, such as computed tomography, single photon emission computed tomography, magnetic resonance imaging, positron emission tomography. Medical images can break into noise, major research has created solutions to this complication, various techniques are being proposed. Image segmentation is a widespread and active area not only for medical imaging but also for computer vision and satellite imaging. The foremost plan of image segmentation remains to segment images into different components, which are used to give more information about the medical image. Here is an overview of the different methods after a brief introduction. These methods are classified as the basis for the techniques used.

Index Terms—Image denoising, image segmentation, performance parameters, derivative based image denoising, clustering methods.

I. INTRODUCTION

Digital image processing requires a computer to work with images, so it is fit aimed at image investigation, pattern recognition, together with human reflection. By means of computer knowledge, digital image processing has several applications over different industries such as face recognition, medical imaging, computer vision, remote sensing and medical sciences.

Medical images such as computed tomography, single photon emission computed tomography, magnetic resonance imaging, positron emission tomography contain rich information, both anatomy, and functionality that can be used to diagnose, plan, and investigate operations. These images can be either a two-dimensional image or a three-dimensional image, which is solved in terms of both time and non-time.

A large amount of information on these pictures can be evaluated with simple visualization, but for quantitative measurements, the object must be divided into segments. Possible quantitative measurements such as organ size, heart infarct size, muscle weakness, tumor size, as well as tumor

progression or regression or other developmental disorders [1].

Medical imaging analyzes image denoising and segmentation. First, Image Denoising [2] stays regular process in digital image processing. It remains a pre-processing period to eradicate certain unidentified such as Additive White Gaussian noise (AWGN) from an image to get a clean image used in favor of image processing, such as image segmentation. Image segmentation is an alternative outlet of the image. A representative instance of the image processor is image denoising prototypical. This method incorporates a disintegrated prototypical giving to some prior information of a corrupted image. To reestablish the distorted image in favor to obtain an auspicious result.

In this instance, v , tells about noisy medical image and w is an original, nevertheless usually known or unknown image [3].

$$v = Dw + n \quad (1)$$

in which D is a linear or non-linear operator representing the distortion and n is additive noise.

Second, segmentation is the most important technique for image processing to identify image objects. Image segmentation stays a progression which splits images into different sections or objects originate into a number of features such as intensity, color or location of the pixels. Segmentation of images is a central theme of analysis about medical image because there are many different types of images and the solution to this problem is different from the application. Some segmentation methods often have poor results, as they do not use previous information about objects containing elements to be segmented [3]. Finally, the image segmentation depends on the image denoising. In recent years, many techniques have been implemented in both image denoising and segmentation. Here is an overview of some techniques, including simple methods that have improved the results in this area. The techniques were explained sequentially in the next section.

The rest of the article is prepared into several sections: i) Literature survey on image denoising and image segmentation methods are offered in Section II, ii) Data availability is introduced in Section III, and iii) Lastly, the conclusion in Section IV is represented.

II. LITERATURE SURVEY

A. Image Denoising Method:

Image denoising is a key issue of image processing applications, such as computer vision and medical science. The performance of the image denoising method is measured

Manuscript received December 2, 2012; revised April 11, 2013.
Sreedhar Kollam is with the PVTU University, Chittoor, India and also Dept of CE, SV Engineering College, Sunkaleswaram, West Godavari District, India (skollam@pvtu.ac.in).

K. Katta Rama Lings Paddy is with G. Narayanaiah Institute of Technology and Science, (G.N.I.T.S), Tadipatri, Tadipatri, India. He is also with the Department of ETC, SVKM's Institute of Technology, (svkmit.ac.in).

D. Duggirala Srinivasa Rao is with the ECE Department, NITTH College of Engineering, Tadipatri, Tadipatri, India (srinivasarao@nitth.ac.in).

RESEARCH ARTICLE

Modified transform-based gamma correction for MRI tumor image denoising and segmentation by optimized histon-based elephant herding algorithm

Sreashar Kollem  Katta Rama Linga Reddy, Duggirala Srinivasa Rao

First published: 06 April 2020

<https://doi.org/10.1002/ijima.1229>

Citations: 17

Abstract

Medical image processing is typically performed to diagnose a patient's brain tumor prior to surgery. In this study, a technique in denoising and segmentation was developed to improve medical image processing. The proposed approach employs multiple modules. In the first module, the noisy brain tumor image is transformed into multiple low- and high-pass tetrolet coefficients. In the second module, multiple low-pass tetrolet coefficients are applied through a modified transform-based gamma correction method. Generalized cross-validation is used on multiple high-pass tetrolet coefficients to obtain the best threshold value. In the third module, all enhanced coefficients are applied to the partial differential equation method. In the final module, the denoised image is applied to Atanassov's intuitionistic fuzzy set histon-based fuzzy clustering method with centroid optimization using an elephant herding method. Accordingly, the tumor part is segmented from the nontumor part in the magnetic resonance imaging brain images. The method was assessed in terms of peak signal-to-noise ratio, mean square error, specificity, sensitivity, and accuracy. The experimental results showed that the suggested method is superior to traditional methods.

CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

REFERENCES

1. Mahesh M, Ranjit A. Multiclassifier for severity-level categorization of glioma tumors using multimodal MRI brain images. *Int J Imaging Syst Technol*. 2019; 30(1):134-151.

[Home](#) > [Journal of Medical Systems](#) > [Article](#)

[Mobile & Wireless Health](#) | [Published: 23 March 2019](#)

Adaptive Risk Prediction and Anonymous Secured Communication in MANET for Medical Informatics

[Ambalal Nasseria](#)  & [Katta Rama Linga Reddy](#)

[Journal of Medical Systems](#) 43, Article number: 115 (2019)

187 Accesses | 2 Citations | [Metrics](#)

Abstract

Location-based services (LBS) and information security is a major concern in communication system. With the increasing popularity of location based services more attention is paid to preserve location information to protect the data. In order to protect and preserve the MANET and location based services, there are various existing location based anonymity protocols such as k-anonymity location based, but these protocols are more overhead due to the dynamic mobility nature of ad-hoc networks. In this paper we proposed an Adaptive Risk Prediction and Anonymous Secured Communication protocol to predict the risk before processing anonymous communication. The proposed protocol estimates the risk against adjacent nodes and estimates the vulnerability paths using hidden markov

29. Network simulator <<http://www.isi.edu/nsnam/ns>>.

30. Liu, H., Li, J., and Guizani, M., Secure and efficient data transmission for cluster-based wireless sensor networks, *IEEE Trans. Parallel Distrib. Syst.*, 25(3):759–761, 2014.

Author information

Authors and Affiliations

G. Narayanamma Institute of Technology and Science, Hyderabad, India

Ambidi Naveena & Katta Rama Linga Reddy

Corresponding author

Correspondence to [Ambidi Naveena](#).

Additional information

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This article is part of the Topical Collection on *Mobile & Wireless Health*

Rights and permissions

[Reprints and Permissions](#)

About this article

Efficient Approach for Steganography Using DWT and RSA Algorithm

Ambika, Rajkumar L Biradar, Vishwanath Burkuppalli

Abstract: Steganography is the mechanism of hiding (i.e. hiding) the available data in other transmission area or achieve secure and secret transmission of data. Steganography is much secured technique and can also be applied for various file formats (i.e. Image, Video, Audio, text etc.). Several steganographic mechanisms are available for secret data or information hiding utilizing images. Steganography is one of the best data transmission method including security and privacy and it is utilizing in so many applications. In these applications, few applications require complete secret data availability and some applications require a big secret message hiding. This steganographic technique make the secret or private data not the cover image. Transmission of secret information securely without data loss in the communication system inspired us to develop a proposed communication system. This proposed technique mainly comprises of two sections i.e. data transmission section and data extraction section. In data transmission section, sensitive data (i.e. secret data) is pre-processed and encrypted utilizing RSA technique or algorithm. Meanwhile preprocessing of cover image is performed and length map technique is utilized as make path for length. Finally encrypted sensitive (secret) information or data is embedding with cover image utilizing DWT (Discrete Wavelet Transform). Similarly in the receiver section i.e. data extraction section, data is extracted by applying inverse transformation and RSA algorithm, hence resulting in secure communication.

Index Terms: Image Steganography, Encryption, Cover Image, DWT, RSA Image Image.

I. INTRODUCTION

In a recent era the communication between two systems or multiple networks is achievable due to internet technology. The technologies which are related to internet and its applications [1-5] are increasing day by day, where as effective progress in cyberspace will directly increase amount of sensitive data utilized to send or receive over the communication network. Increase in the communication lead will lead to the multiple network challenges like data integrity, data authenticity, network attack and mainly data security.

Manuscript published on 30 June 2019
*Corresponding Author is
Ambika*, Assistant Professor, Department of CEM, APJ A Institute of Technology and Education, Kalambur, 561112 Karnataka, India.
Dr. Rajkumar L. Biradar, Professor, Department of Information Technology, Government College of Engineering, Dharwad, Karnataka, India.
Dr. Vishwanath Burkuppalli, Professor, Department of IT, JSS College of Engineering, Kalambur, Karnataka, India.
© The Author. Published by Blue Eyes Intelligent Engineering and Systems Publisher (BIIESP). This is an open access work under the CC BY-NC-ND license <http://www.ijea.com>

Cryptography is one of the traditional data encryption methods, where its application is reducing gradually due to its insecure data transmission [6]. This technical challenge is overcome by utilizing data masking or hiding technology. In which confidential data/media information is embedded or implanted over another media object hence confidential data is invisible to unknown person or attacker. Data security, data capacity and data clarity are the major functional characteristics of the data masking (hiding) technique. This data embedding or data hiding method is also termed as "Steganography". Depending on the required cover object, steganography is secured into multiple sections i.e. Image steganography, Text, Audio, Video and Protocol steganography. In image steganography, any one of the media is utilized as a transport object for data hiding. The basic functional diagram of the simple steganography is represented in Figure 1.

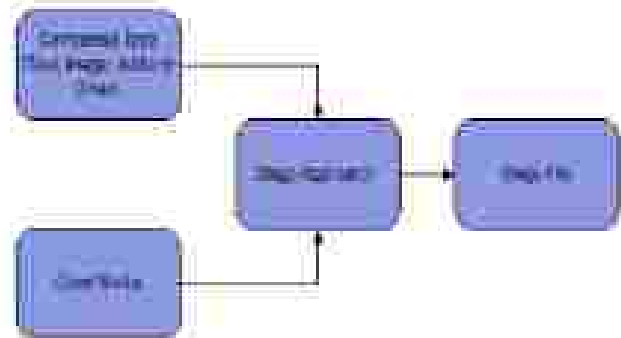
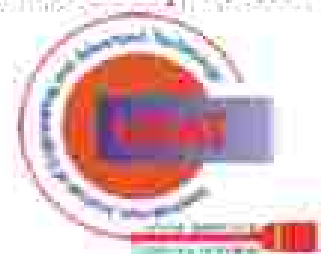


Figure 1: Steganography Module

In this proposed work effective image based information or data embedding system module is presented. To meet the efficient functional algorithm a set of research articles are studied, the referred research articles are summarized in section 2.

II. LITERATURE SURVEY

Vijayesh Babu et al [7] has presented an efficient approach the universal distortion based steganography module. The referred system is designed by using BOSS-bas version 1.01 dataset, which includes 512*511 grey scale sample images. Each image is presented with 1 bit. This data base include 10000 data sample which are captured from eight multiple cameras. In the referred steganography module the system designer considered a compressed cover



A FUZZY BASED CROSS LAYER PROTOCOL FOR TRUST ERECTION IN WIRELESS SENSOR NETWORKS

K. Anusha¹, A. Narsena²

1. Student, Branch of VLSI, G.Narayanaswami institute of technology and science, JNTUH, Hyderabad, India.

2. Assistant Professor, Dept of ETM, G.Narayanaswami institute of technology and science, JNTUH, Hyderabad, India.

ABSTRACT:- The cross layer model is used to admit synchronization, exchange by overstepping multiple layers and joint improvement of procedures holds the key purpose of primary layers. It enables elasticity, reliability and efficiency in communication method. The fuzzy logic system(FLS) is employed to implement node selection mechanism to offer an effective transmission. Amongst these instances, this model entails a problem with security attacks in a network. To diminish these threats in a network, The Trust based fuzzy implicit cross layer protocol (TruFLX) which is a Trust based cross layer model, T-XLM based protocol is used to allow and grip inter layer data exchange to adapt traffic streamness and develop system form. The enhancement of TruFLX is proposed protocol to overcomes the problem of malicious node during transmission by choosing an substitute route. By taking into account with simulation results, proposed protocol was compared with FUGEF and TruFLX which shows an increment in the packet delivery ratio(PDR) and throughput of the system.

KEYWORDS:- Cross layer approach, Fuzzy logic system, wireless sensor networks, malicious node, forced fairness approach.

I. INTRODUCTION

Wireless sensor network(WSN) groups of interconnected sensing element first communicate wirelessly to gather information regarding the surrounding atmosphere. As sensor node has fixed energy assets, so smaller amount of energy must be expended to increase the efficiency of the scheme. An enhancement in energy and quality of service(QoS) is attained by cross layer protocols[1] than conventional layered protocols. In cross layer approach most of the methods are unsuccessful in considering the notion of complete security phenomenon to disapproval its value in existing systems and communication procedures. To offer security in this protocols they tried in transporting security at less than three layers, which consumes constraints to establish security mechanisms which tend to exploit significantly on resources. These conditions in a network tend to face the difficulty of raised delay, minimum lifetime and null delivery due to drain nodes. The trust worthy systems are implemented to overcome these problems to afford secure data delivery.

Trust is definiteness of honesty among two entities which are convoluted in communication and is attained by accepting credible evidence from prior events

and renovated to give a statement to handle future nodes settings. The super-imposed layout of node is not able to create a code which is capable of mitigating all threats in a network. The TruFLX protocol which is employed based on two frameworks and the enhancement of this protocol is proposed protocol embraces a modified IEEE 802.11 Distributed Coordinated Function(DCF) Media access Control and utilizes FLS to plant a report mechanism to distribute tranquil transmission mechanism. Among the simulation interpretations held, the guaranteed performance of suggested protocol among TruFLX and FUGEF was related in the existence of malicious node and attained better performance.

II. LITERATURE SURVEY

DWBSGF[2] transmitting protocol improves enactment an election mechanism of BSGF[1] protocol by selecting malicious nodes using collection window duration which rises its window period vigorously to built time shift in protocol versions. This protocol uses data link layer and routing layer functionalities. FUGEF [3] is employed to choose a sending candidate node that observes significant packet failures in network and afford improved security in system. It has low PDR and spatio-temporal calculations are not conceivable. The FUGEF exceeds DWBSGF in terms QoS performance, energy depletion and complete presentation of security facility, when exposed to black hole occurrences. When endangered to Sybil attacks no outcomes were shown as DWBSGF and FUGEF are modified only to black hole attacks.

The TruFLX[4] protocol embraces an altered IEEE 802.11 DCF MAC and two FLS to improve a response method to certify protected directing process. This is executed centered on XLM Framework and T-XLM Framework. The FLS are implemented in both the channel arrangement phase for reformed initiative determination and packet replacement phase for the reputation build-up. This protocol outdoes problem if it identifies malicious node in the broadcast, as it halts the transmission of data which reduce the PDR and throughput of the network.

III. PROPOSED METHOD

The proposed protocol an enhanced trust based fuzzy implicit cross layer protocol is applied based on two frameworks.

A Multipath based Energy Efficient Path Approach for Internet of Things in Smart Cities

Saaha¹ V.Vikas²

¹PG Scholar, Department of Wireless and Mobile Communication, GNITS Shaikpet, Hyderabad, India.

²Assistant Professor, Department of Electronics and Telematics Engineering, GNITS, Shaikpet, Hyderabad, India.

Abstract: Enabling the electronic gadgets to share essential data and to communicate with the server and one another is carried out by Internet of Things (IoT). On a daily basis, devices are added gradually to the network of IoT by the progression in the technology. The amount of data that is being transmitted in the period of smart cities is huge. On the basis of significance like medical and fire safety data, the system has to prioritize the delivered data when transferring such an immense quantity of information. Inappropriate delivery of emergency packets and the system functionality rupture is caused by the deficiency of effective programming procedures. Moreover, the information has to resist attacks over the channel which was transmitted through the network. Every packet has the deadline before which it must reach the sink and a description of its significance in the existing EARS. Simple identification of the emergency node is enabled by it. Additionally, a Multipath based energy efficient path algorithm is proposed so that the overall sum of transmissions in the network is reduced. Consuming least correlation with the communication interference in the course of congestion, the normal data as well as emergency data packets are transmitted over an alternative path. The network congestion will be reduced by this. The existing state of the art methods and the proposed technique is compared the existing approaches are outperformed by the produced outcomes.

Keywords: Data emergency, EARS, TDMA, MBEEP, Time scheduling, IoT.

I. Introduction

Internet of Things is the popularly known Innovative phenomena of this century. It has gained a number of reputations with the improvements inside the internet generation. IOT is a platform in which the person can join normal matters embedded

with electronics, software and sensors to the internet, permitting them to gather and change statistics.



Figure1: IoT overview

Internet of Things essentially expands interdependence of persons to interact, make a contribution and collaborate to matters around us. Sophisticated sensors as well as chips are implanted in the physical matters used each day, every transmitting precious data.

This record ends in an improved understanding of how things work and work in partnership. Diverse records are brought together by Internet of factors platform, and to communicate with one another, common language for the gadgets as well as applications are offered.

With the devices themselves, the method is initiated that communicate securely with the Internet of Things stage. In order to share the extreme prized information using the applications that deals with the desires of industry-specific, this platform applies analytics and integrates the records from several devices. The producer additionally makes use of the platform for creating and manipulating programs which resolve specific troubles. There are 3 important concerns even in organizing in the IoT system.

- **Connect:** For the IoT system, to work with that one should ensure the right net connectivity. All the gadgets inside the community (network) need to be related in order to share the information.



Withdrawal Notice

WITHDRAWN: Performance enhancement of MIMO OFDM using FEC codes

G. Krishna Reddy,^a A. S. Adali Jayathil,^b A. S. G. Madhu Sheeba,^c

^a ETE Dept, G. Narayansamma Institute of Technology & Science, Hyderabad, India;

^b Wireless and Mobile Communications, G. Narayansamma Institute of Technology & Science, Hyderabad, India;

^c School of EEE, Sathyabama Institute of Science and Technology, Chennai, India

Show less

Share Cite

<https://doi.org/10.1016/j.matpr.2020.11.499>

Under a Creative Commons license

[View article](#)

This article has been withdrawn: please see Elsevier Policy on Article Withdrawal (<https://www.elsevier.com/about/our-business/policies/article-withdrawal>).

This article has been withdrawn as part of the withdrawal of the Proceedings of the International Conference on Emerging Trends in Materials Science, Technology and Engineering (ICMSTE2K21). Subsequent to acceptance of these Proceedings papers by the responsible Guest Editors, Dr S. Sakthivel, Dr S. Karthikeyan and Dr L. A. Palani, several serious concerns arose regarding the integrity and veracity of the conference organisation and peer review process. After a thorough investigation, the peer review process was confirmed to fall beneath the high standards expected by Materials Today: Proceedings.

The veracity of the conference also remains subject to serious doubt and therefore the entire Proceedings has been withdrawn in order to correct the scholarly record.

[Home](#) > [Health and Technology](#) > [Article](#)

Original Paper | Published: 16 January 2020

Secure medical image steganography through optimal pixel selection by EH-MB pipelined optimization technique

[Ambika](#)  & [Rajkumar L. Bhatnagar](#)

Health and Technology 10, 231–247 (2020)

263 Accesses | 16 Citations | [Metrics](#)

Abstract

In today's world, transmission of information over the channel is not secure for example patient records and other sensitive information. In order to protect this sensitive information, it is coded within the image, audio or text files which is decodable only with the help of a particular key.

To enable security to the covert communication and safeguarding the information for securing medical data to avoid medical related cybercrimes, we have proposed a method for medical image steganography using Elephant Herding-Monarch Butterfly (EH-MB) Optimization algorithm for effective selection of pixels for embedding the secret message (i.e. image/text medical report data) in the cover image. Initially, the cover is converted to frequency domain using multilevel DWT, where, the pixel selection is

27. Feng Y, Wang G-G, Deb S, Liu M, Zhao X-J. Solving 0-1 knapsack problem by a novel binary monarch butterfly optimization. *Neural Comput & Applic.* 2017;28(7):1619–34.

28. Virupakshappa. Amarapur B (2018) A segmentation approach using level set coding for region detection in MRI images. In: Nandi A, Sujatha N, Menaka R, Alex J (eds) *Computational signal processing and analysis. Lecture Notes in Electrical Engineering*, vol 490. Springer, Singapore

Author information

Authors and Affiliations

**Department of Computer Science & Engineering,
Appa Institute of Engineering & Technology,
Kalaburagi, Karnataka, India**

Ambika

**Electronics & Telematics Department, G
Narayanamma Institute of Technology & Science,
Shaikpet, Hyderabad, 500008, India**

Rajkumar L. Biradar

Corresponding author

Correspondence to [Ambika](#).

Ethics declarations

Conflict of interest

The authors declare that they have no conflict of interest.

Article

Design of multiple 3D printed memory elements for minimal and reduced applications

January 2018

Authors

 **S. Krishna Kumar**  **Anshu Subramanian**
C. Sankaranarayanan Institute of Technology and Science

[Request full-text](#) [Download citation](#) [Copy link](#) [Share](#)

 To read the full-text of this research, you can request a copy directly from the authors.

[Citations \(0\)](#) [References \(0\)](#)

Abstract

A novel integrated configuration of a different 3D printed memory elements is designed to meet the current requirements of a 3D printed memory array of 4 x 4 bit. The substrate thickness is maintained at 400 μ m. The applications are high speed (the novel) non-volatile memory and reduced requirements. The key parameters are thickness, 1000 μ m, density, high speed, and 3D printed substrate using high speed substrate (see system). The experimental data are presented with their using the 3D printed substrate and their 3D printed substrate using high speed substrate. These 3D printed substrate are the important data (information) of the experimental data and their data (information) are presented with their 3D printed substrate.

Keywords

- 3D printed substrate
- 3D printed substrate
- 3D printed substrate
- 3D printed substrate
- 3D printed substrate

Subject area

Journal pre-proof

 NO ACCESS

Adaptive priority-based fair-resource allocation for MIMO-OFDM multicast networks

Vorugani Hindumathi and Katta Rama Linga Reddy

Published Online: December 10, 2018 - pp.73-89 - <https://doi.org/10.15388/IJNO.2019.236633>

Abstract

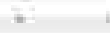
In MIMO-OFDM multicast networks, sub-carrier allocation for real-time and non-real time users is complex due to delay and throughput issues. In order to overcome these issues, in this paper, we propose to develop a priority-based fair-radio resource allocation for MIMO-OFDMA-based multicast system. Initially, the multicast groups are classified as RT, NRT and BE. Then priorities are assigned for the groups based on the QoS requirements such as delay tolerance, packet dropping rate and transmission rate. When the priority value of a group is greater than the priority threshold, then the resource is allocated to the relevant group as per fair resource allocation technique. Overall this technique improves the sub-carrier allocation for real-time and non-real time users in terms of spectral efficiency and fairness. By simulation results, we show that the proposed technique enhances the average throughput, spectral efficiency, sub-



[Journal Home](#) | [Current Issue](#) | [Previous Issues](#)



[Previous Article](#)



[Next Article](#)

RESEARCH ARTICLE

Denosing and segmentation of MR images using fourth order non-linear adaptive PDE and new convergent clustering

Sreashar Kollem  Katta Rama Linga Reddy, Duggirala Srinivasa Rao

First published: 04 December 2018

<https://doi.org/10.1002/ijst.22302>

Citations: 18

Abstract

At present, digital image processing plays a vital role in medical imaging areas and specifically in magnetic resonance imaging (MRI) of brain images such as axial and coronal sections. This article mainly focused on the MRI brain images. The existing methods such as total variation (TV), parallel MRI, modified pyramidal dual-tree direction filter, adaptive dictionary selection algorithm, classifier methods, and fuzzy clustering techniques are poor in image eminence and precision. Thus, this article presents a novel approach consisting of denoising followed by segmentation. The objective of these proposed methods was visual eminence improvement of medical images to examine tumor extent using an adaptive partial differential equation (APDE)-based analysis with soft threshold function in denoising. The fourth order, nonlinear APDE was used to denoise the image depending on gradient and Laplacian operators associated with the new adaptive Haar-type wavelet transform. A second approach was the new convergent K-means clustering for segmentation. The convergent K-means procedure diminishes the summation of the squared deviations of structures in a cluster from the center. The significance of these proposed methods was to compute their performances in terms of mean squared error, peak signal-to-noise ratio, structure similarity, segmentation accuracy, false hit, missed-term, and elapsed time. The results were analyzed with the MATLAB software.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this article.

REFERENCES





Review on lightweight hardware architectures for the crypt-analytics in FPGA

Smitha Tappari¹*, K. Anil²

¹U. Srirangam Institute of Technology and Studies

Coimbatore

²Corresponding author E-mail: smitha.tappari@psit.edu

Abstract

Internet of Things (IoT) plays a vital role in the Wireless sensor networks (WSN), which is used for many applications, such as military, health, and environmental. Security is the major concern and it is very difficult to achieve because of a different kind of attack in the network. In recent years, many nations have introduced different Hardware Architectures to solve these security problems. This paper has discussed about a review of various Hardware Architectures for the lightweight Crypt-analytics methods and the comparative learning of various Crypt-analytics and implementations systems carried out. The comparative study reveals showed that the lightweight algorithms have good performance compared to the conventional Crypt-analytics algorithm in terms of memory requirement, operations, and power consumption.

Keywords: IoT, Internet of Things, Security, Privacy, Cryptanalytics, Online, Supervised Learning.

1. Introduction

With an ever-growing world of technology and communication, the amount of information shared with the rest of the digital network is constantly increasing. The IoT is a method of connecting computing devices like digital machines, mechanical machine and objects. All these things contain some unique identifiers, which converted into digital data and transfer the data through the same network (Net) without any human intervention [1]. IoT provides different kind of facilities such as automation, controlling the sensors, cameras, actuators, etc. [2]. Nowadays, most of the applications development and research depend on IoT. WSNs are one of the major parts of the IoT technology and it used for IoT requests [3]. WSN ordinarily used to monitor the real-time ecological factors like humidity, pressure, sound, temperature, etc. The ecological factors collected and transmitted (wirelessly) to a sink node [4]. The Information security and the IoT cloud distribute these risks to the conventional Internet, which is the major limitation of the IoT and WSN [5].

The major reason for the limitation is the large amount of sensitive data on the Net such as financial, military, health care, etc. The computing devices in the Net has limited computational capabilities, which are more vulnerable to the physical attacks. These limitations considered while designing the gateway and security solutions of an IoT [6]. Subsequently typical devices in IoT (i.e., sensor nodes in a WSN) are provided with lower and micro-controllers with small memories and slow operations, software-enabled lightweight primitives require. However, the representative devices in IoT like the RFID tags that do not have a software-programmable processor, requires building a Crypt-analytics-based resistance – only through hardware implementations. The security requirements can achieve without provided by hardware-based Crypt-analytics solutions

[7]. Crypt-analytics classified into two different types such as Asymmetric and symmetric [8]. Symmetric Crypt-analytics also named as shared key Crypt-analytics. In this mechanism, the sender and Receiver share a common Key for both Encryption (Enc) and Decryption (Dec) [9]. The asymmetric Crypt-analytics are also named as the Public Key (PK) Crypt-analytics. In this technique, the sender uses a PK of the destination for Enc and the destination of PK used for decrypting the Message (Msg). The concept of self-authentication is shared here through Digital signatures (DS) used to verify the Key. This method is more convenient and provides better authentication. Most of the embedded devices require Shared Key Crypt-analytics because of the nature of operations [10].

The paper organized as follows. Section II provides a brief description of the Crypt-analytics Mechanism. Section III focus on shared key and public key crypt-analytics. Section IV discussed about Comparative analysis of recent technique and its performance. In section V gives a summary of this paper.

2. Crypt-analytics mechanism

Crypt-analytics is a strategy for putting away and transmitting information in a specific form, at the time of receiving receiver can read and process it. Usually the scrambling Plain text (PT) Msg converted into cipher-text by using secret Key value; this process named as Enc. Reverse process of Enc is Dec. There are three sorts of Crypt-analytics phase: symmetric Key (or shared Key) Crypt-analytics, public Key (or Public Key) Crypt-analytics and both works those commonly used to achieve these objectives.

Delay Aware Optimal Resource allocation in MU MIMO-OFDM using Enhanced Spider Monkey Optimization

Hindumathi, Voruganti; Reddy, Katta Rama Linga. **International Journal of Communication Networks and Information Security; Kohat** Vol. 10, Iss. 2, (Aug 2018): 410-418.

You might have access to the full article...

Try and log in through your institution to see if they have access to the full text.

[Log in through your library](#)

[Full Text](#)

[Translate](#) 

Headnote

Abstract: In multiple users MIMO- OFDM system allocates the available resources to the optimal users is a difficult task. Hence the scheduling and resource allocation become the major problem in the wireless network mainly in case of multiple input and multiple output method that has to be made efficient. There is various method introduced to give an optimal solution to the problem yet it has many drawbacks. So, we propose this paper to provide an efficient solution for resource allocation in terms of delay and also added some more features such as high throughput, energy efficient and fairness. To make optimal resource allocation we introduce optimization algorithm named spider monkey with an enhancement which provides the efficient solution. In this optimization process includes the scheduling and resource allocation, the SNR values, channel state information (CSI) from the base station. To make more efficient finally we perform enhanced spider - monkey algorithm hence the resource allocation is performed

Image Denoising by using Modified SGHP Algorithm

Sreedhar Kollam¹, K. Ramalinga Reddy², D. Sreenivasa Rao³

¹Department of Electronics and Communication Engineering, SR Engineering College, Warangal, Telangana, India

²Department of Electronics and Telecommunication Engineering

³G. Narayana Murthy Institute of Technology and Science (Hyderabad), Telangana, India

⁴Department of Electronics and Communication Engineering, JNTU(HCI), Kukatpally, Hyderabad, Telangana, India

Article Info

Article history:

Received Sep 20, 2017

Revised Dec 27, 2017

Accepted Jan 7, 2018

Keyword:

Gradient histogram

Noise estimation

Principal component analysis

PSNR

S-GHP

SSIM

ABSTRACT

In real time applications, image denoising is a predominant task. This task makes adequate preparation for images tasks processing. But there are several denoising algorithms and every algorithm has its own distinctive attributes based upon different source images. In this paper, we proposed a perspective that is modified procedure in S-Gradient Histogram Preservation denoising method. S-Gradient histogram preservation is a method to compare the structure gradient histogram than the noisy observation by taking different noise standard deviation of different images. The performance of this method is measured in terms of peak signal to noise ratio and structural similarity index of a particular image. In this paper, mainly focus on peak signal to noise ratio, structural similarity index, noise reduction and a measure of structure gradient histogram of a given image.

Copyright © 2018 Institute of Advanced Engineering and Science. All rights reserved.

Corresponding Author:

Sreedhar Kollam

Department of Electronics and Communication Engineering

SR Engineering College

Warangal, Telangana, India

Email: ksreedhar446@gmail.com

1. INTRODUCTION

Images affected by unwanted noise from different sources like traditional film cameras and digital cameras. These noise elements will create some serious issues for further processing of images in practical applications such as computer vision, artistic work or marketing and also in many fields. So, different classification of noises like salt and pepper, Gaussian, shot and quantization. In salt and pepper noise, all the images are constructed with pixels in a two-dimensional array. In that pixel to pixel, the difference is observed when the image is affected by noise that is in terms of intensity of neighbouring pixels. So, it is identified pixels and neighbouring pixels only the small number of pixels is affected in an image. The salt and pepper noise is clearly identified in an image by it contains black and white speckles. When we viewed an image which is affected by salt and pepper noise, the image contains black and white dots, hence it terms as salt and pepper noise.

In Gaussian noise, noisy pixel value will be a small change of the original value of a pixel. A diagram consisting of rectangles whose area is proportional to the frequency of a variable or PSNR and whose width is equal to the different noise standard deviations is a histogram. Other Gaussian models are present mainly depends upon the central limit theorem shows that addition of different noises from different sources is associated with Gaussian distribution.

Denoising of an image involves the manipulation of the image data to produce a visually high-quality image. There are numerous models that have been published so far which are used for denoising an image [1]. Sparse representation for image restoration [2], [3], Total variation model [4], Wavelet-based model [5], BM3D [6] model and histogram preservation algorithms [7] are some of them. Each method has its own characteristics, benefit and its demerit. Two major classes of denoising methods are (a) model based

[Reprints & Permissions](#) [Read this article](#)

Information Security Journal: A Global Perspective

Volume 27, 2018 - Issue 2

104 0
Views CrossRef citations to date Altmetric

Original Articles

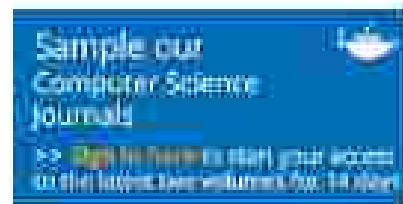
Malicious node prevention and mitigation in MANETs using a hybrid security model

Ambidi Naveena  & Katta Rama Linga Reddy

Pages 32-101 | Received 18 May 2017, Accepted 23 Nov 2017, Published online 20 Mar 2018

[Create this article](#) <https://doi.org/10.1080/19393555.2017.1415399>

[Download full article](#)



ABSTRACT

Mobile ad-hoc network (MANET) has got tremendous success and attention due to its self-maintenance and self-configuration properties or behavior. Based on wired and wireless networks, the network topology of MANETs changes rapidly by means of routing attacks. Hence, providing security to this infrastructure-less network is a major issue. The routing protocols for ad-hoc networks cope well with the dynamically changing topology but are not designed to accommodate defense against malicious attacker. Malicious nodes have opportunities to modify or discard routing information or advertise fake routes to attract user data to go

through themselves. In this article, we discuss a hybrid technique using anonymity, one-way traodoor protocol, hash functions, and elliptic curve cryptography to mitigate attacks in the

[Reprints & Permissions](#) [Read this article](#)

Q KEYWORDS: [Anonymity](#) [ECC](#) [Hash functions](#) [mitigation](#) [pseudonymity](#) [trapdoor function](#)

[Previous articles](#)

[View issue table of contents](#)

[Next article](#)

Additional information

Notes on contributors

Ambidi Naveena

Ambidi Naveena at present is working as Assistant Professor in ETM Department, G. Narayanaamma Institute of Technology and Sciences, Hyderabad. She completed B.Tech from G. Narayanaamma Institute of Technology and Sciences, Hyderabad, M.E. from Osmania University, Hyderabad. At present, she is pursuing Ph.D. from JNTUH. She has 12 years of teaching experience.

Katta Rama Linga Reddy

Dr. Katta Rama Linga Reddy is working as Professor and Head of the Department in Electronics and Telematics (ETM) in G. Narayanaamma Institute of Technology and Science. He completed his B.E. from Vasavi Engineering College in 1989, M.Tech from SVU Engineering College in 1991, and Ph.D. from JNTU, Hyderabad. He has 24 years teaching experience (16 years in GNITS and 8 years in CBIT). He has 40 research papers in his credit. He is the BOS member and Research Review Committee member for JNTUH (ECE Department) and BOS member of ECE department for many engineering colleges.

Title

Analysis of SAR in Human Bone Tissue and Vascular due to Mobile Phones at 20 MHz, 1500 MHz and 3400 MHz

Nov 2018 - International Journal of Applied Electromagnetics Research | 2018-2018

DOI: 10.17778/IJAEER.18.04.1132-1137

Author



W. Saha
Ran



S.S.M.
Srinivas
Saha



Dr. Suresh Sundale
Dr. Suresh Sundale, Institute of Technology and Science

To access the full text of this document, please request a copy directly from the author.

Category 11

Reference 12

Request the author's consent

- 1. 2018 journal reference
- 2. 2018 journal reference (journal)
- 3. 2018 journal reference

Get the file

Document name

Get full text of this



To read the full text of this document, please request a copy directly from the author.

Request full text

Learn More

Done

104 0
Views CrossRef citations to date Altmetric

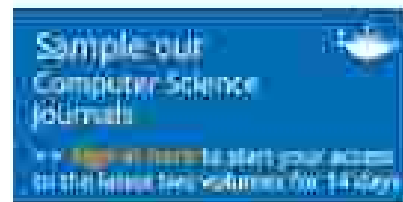
Original Articles

Malicious node prevention and mitigation in MANETs using a hybrid security model

Ambidi Naveena  & Katta Rama Linga Reddy

Pages 32-101 | Received 18 May 2017, Accepted 23 Nov 2017, Published online 20 Mar 2018

 [Cite this article](#)  <https://doi.org/10.1080/19393555.2017.1415339>  [Check for updates](#)



 [Full Article](#)  [Figures & data](#)  [References](#)  [Citations](#)  [Metrics](#)

 [Reprints & Permissions](#) [Read this article](#)

ABSTRACT

Mobile ad-hoc network (MANET) has got tremendous success and attention due to its self-maintenance and self-configuration properties or behavior. Based on wired and wireless networks, the network topology of MANETs changes rapidly by means of routing attacks. Hence, providing security to this infrastructure-less network is a major issue. The routing protocols for ad-hoc networks cope well with the dynamically changing topology but are not designed to accommodate defense against malicious attacker. Malicious nodes have opportunities to modify or discard routing information or advertise fake routes to attract user data to go

through themselves. In this article, we discuss a hybrid technique using anonymity, one-way trapdoor protocol, hash functions, and elliptic curve cryptographic to mitigate attacks in the

USD 94.00

₹ Add to cart

*Local tax will be added as applicable.

Additional information

Notes on contributors

Ambidi Naveena

Ambidi Naveena at present is working as Assistant Professor in ETM Department, G. Narayanamma Institute of Technology and Sciences, Hyderabad. She completed B.Tech from G. Narayanamma Institute of Technology and Sciences, Hyderabad, M.E. from Osmania University, Hyderabad. At present, she is pursuing Ph.D. from JNTUH. She has 32 years of teaching experience.

Katta Rama Linga Reddy

Dr. Katta Rama Linga Reddy is working as Professor and Head of the Department in Electronics and Telematics (ETM) in G. Narayanamma Institute of Technology and Science. He completed his B.E. from Vasavi Engineering College in 1989, M.Tech from SVU Engineering College in 1991, and Ph.D. from JNTU, Hyderabad. He has 24 years teaching experience (16 years in GNITS and 8 years in CBIT). He has 40 research papers in his credit. He is the BOS member and Research Review Committee member for JNTUH (ECE Department) and BOS member of ECE department for many engineering colleges.

Related Research

People also read

Recommended articles

Cited by

Improved QoS and avoidance of Malicious node attacks in MANET using trust detection framework >

Role of Social Media in Teaching – Learning Process

Dr. K.Symala Devi, E.Gouthami, V.Vijaya Lakshmi

¹Asst. Professor, ²Asst. Professor, ³Asst. Professor

Department of Basic Sciences

G.Narayanaswami Institute of Technology & Science (for Women), Hyderabad, India

Abstract – Social media are becoming the most important tools for interaction among people, where everybody can share, exchange, comment, discuss and create information and knowledge in a collaborative way. Social media tools are rapidly changing the communications landscape; their emergence has impacted significantly how students learn and the way instructors teach. In today's higher education settings, instructors, students and others collaborate on the tasks of knowledge construction. The definition of social media is "the relationships that exist between network of people". The influence of social media on teaching and learning environment is growing every year and its applications can reinforce class materials, positively influenced discussion, collaborative work, etc. The educators and researchers experimenting the social media technologies to stimulate collaboration, knowledge constructions and thinking skills.

The increasingly widespread use of social network sites to expand and deepen one's social connections is a relatively new but potentially important phenomenon that has implications for teaching and learning and teacher education in the 21st century. The main aim of the paper is to find the gap of knowledge in adoption of social network sites in teaching and learning process in formal sites that can efficiently applied in educational system and provides direction for subsequent researches and as a guideline for future research in social network sites in education.

Index Terms - Social Networking Sites, Social Media, Pedagogy, ICTs

I. INTRODUCTION

The emergence of social network sites has revolutionized communication tools for facilitating teaching and learning activities. In recent years, social networking has become one of the most significant communication tools among people, in which exist through the internet that provides accessibility for tremendous number of people. Applying Social Networking Sites (SNS) in teaching and learning offer a positive impact on the adoption of SNSs and open the door to the new days of learning and teaching. Social network mainly focused on identity, network infrastructure, privacy concern, technological issues, and pervasiveness of its use as a tool for teaching and learning (Kevin, P. E., Lori B. H., and Bethany, V. E. (2010); Kim, G.D. (1993)).

Recent years have witnessed an increased interest in using social media social learning with courses in higher education. New technologies, most often referred to as Web 2.0 have created a growing phenomenon in public and academic use, changing the way organizations and people create, engage, and share existing or newly produced information through multi-way communication. With the use of social media interfering through computer and mobile devices becoming more prevalent, user interaction from the platform to face to face engagement is being promoted (Teclahammoud Hickman, 2011). Recent attention of students to social networks brings a privacy and safety concerns in educational environment (Grady, K. P., Holcomb, L. B., and Smith, B. V. 2010). The appearance of social networks that are focused on teaching and learning like Ning, Edg and Edmodo give an opportunity to students and lecturers to minimize the privacy and safety concerns (Kevin, P. E., Lori B. H., and Bethany, V. E. 2010).

II. REVIEW OF LITERATURE

Social media tools created a platform for the improvement of the educational process. To enrich the learning and teaching process with text, videos, and audio materials, the social media tools are useful, also it supports learning process of students and supports teachers in addition to the evaluation process (Uribe, M.A., Dong, Q. and Dey, K.D. 2006). College students have great interest in social media. For the purpose of the study, social media was defined as Facebook, YouTube, Blogs, Twitter, MySpace, or LinkedIn (Wang, Qingya, Chen, Wei, and Liang, Ya. 2011).

The social media sites, mostly public web-based services allow users to develop a personal profile, read and react on the postings on the site (Boyd, D.M. and Ellison, N.B. 2007). The individual users should restrict the information while posting on the media sites, also they should aware what information can be shared publicly. It includes favorite books, movies, birthdays, relationship status, etc. (Wheeler, S., Yasmani, P., and Wheeler, D. 2008). Students who may be reluctant to speak up in class or participating in book discussion blogs and writing for real audiences. There are new web tools emerging all the times that are enhancing learning (Rydzek, C. 2007). The relationship between Facebook and well-being appears to become positive over the college years, possibly because upper class students use Facebook to connect socially with their peers and participate in college life (Kaimowitz, M., Cozzit, D., and Merritt, J. 2011).

Educational institution believes that social media sites offer value in teaching. It is also believed that video, podcast, and wikis are valuable tools for teaching and a majority report that social media sites can be valuable tools for collaborative learning (Olike, Miron, Jeff Sennett, and Hester Tami-Kane 2011). Social media, throughout the communication world after 2005, has brought

Application of Natural Coagulants in Waste Water Treatment

O. Sagma, Dr. K. Sumanlatha Devi and M. Sreevall

Asst. Prof. of Chemistry, Asst. Prof. of ES and Asst. Prof. of Physics

Department of Basic Sciences,

G.Narayana Institute of Technology & Science (for Women), Shankar, Hyderabad - 104

Abstract: Coagulation is well known technique in water treatment process. Usually this process was done by adding chemicals, treatment methods are difficult and expensive. So there is an increase in demand for the innovative, low maintenance and energy efficient technology for water treatment. Natural coagulants show better results and are concerned by many researchers because of their abundant source, low price, multifunction and biodegradation. The advantage of the plant based coagulants is easily available as they are apparent, economically feasible, easily available and easy to store. The main objective of the present investigation is use of natural coagulants such as Neem seeds powder and Cactus leaves powder etc. After treatment the water samples were analyzed for different parameters like Turbidity, and hardness. Results indicated that cactus showed better influence in removal of physicochemical parameters such as turbidity, hardness etc. from waste-water. Application of these low cost plants -based coagulants are recommended for eco-friendly, non-toxic and for efficiency.

Index Terms - Azadirachta Indica (Neem) seeds, Cactus Latifaria leaves, water purification, coagulation, turbidity, hardness.

1. Introduction

The production of potable water from most raw water sources usually entails the use of a flocculation/ coagulation stage to remove turbidity in the form of suspended and colloidal material. Aluminum and iron salts are the chemicals most commonly used together with synthetic organic polymers. With aluminum salts, there is always the concern about residuals in the treated water [Miller et al., 1984] and Alzheimer's disease, strong carcinogenic properties in human beings.

Many conventional methods for removal of heavy metals, hardness, turbidity, pH, dissolved impurities etc from aqueous solution were found which includes chemical precipitation, reverse osmosis, solvent extraction, and ionexchange. The major disadvantage that we come across with these conventional processes is that the processes are expensive and not eco-friendly. Other disadvantage includes incomplete metal removal, high reagent and energy requirements generation of toxic sludge and other waste products that require careful disposal.

Therefore it is desirable to replace these chemical coagulants with natural coagulants to counteract the aforementioned drawbacks [Ragunivansi et al., 2002]. Natural coagulants have been used for domestic household for centuries in traditional water treatment in tropical rural areas. Some reports describe natural coagulants from Nirmali seed and Maize [Diaz et al., 1999]. Mesquite bean, Neem and Cactus latifaria, Tannins [Mpofo et al., 2003] and Moringa Oleifera seeds [Neisser and James, 2007] etc represents a vital development in 'grass roots' sustainable environmental technology since it focuses on quality of life for under developed communities. The main advantages of using natural plant-based coagulants as water treatment material are apparent, they are cost-effective, unlikely to produce treated water with suitable pH and highly biodegradable. Naturally occurring coagulants are usually presumed safe for human health [Vijayaraghavan et al., 2011]. The objectives of this study is to investigate the effect of natural coagulants on turbidity and hardness of water.

Application of Natural Coagulants in Waste Water Treatment

O. Sagma, Dr. K. Sumanlatha Devi and M. Sreevall

Asst. Prof. of Chemistry, Asst. Prof. of ES and Asst. Prof. of Physics

Department of Basic Sciences

G.Narayana Institute of Technology & Science (for Women), Shankar, Hyderabad - 104

Abstract: Coagulation is well known technique in water treatment process. Usually this process was done by adding chemicals, treatment methods are difficult and expensive. So there is an increase in demand for the innovative, low maintenance and energy efficient technology for water treatment. Natural coagulants show better results and are concerned by many researchers because of their abundant source, low price, multifunction and biodegradation. The advantage of the plant based coagulants is easily available as they are apparent, economically feasible, easily available and easy to store. The main objective of the present investigation is use of natural coagulants such as Neem seeds powder and Cactus leaves powder etc. After treatment the water samples were analyzed for different parameters like Turbidity, and hardness. Results indicated that cactus showed better influence in removal of physicochemical parameters such as turbidity, hardness etc. from waste-water. Application of these low cost plants -based coagulants are recommended for eco-friendly, non-toxic and for efficiency.

Index Terms - Azadirachta Indica (Neem) seeds, Cactus Latifaria leaves, water purification, coagulation, turbidity, hardness.

1. Introduction

The production of potable water from most raw water sources usually entails the use of a flocculation/ coagulation stage to remove turbidity in the form of suspended and colloidal material. Aluminum and iron salts are the chemicals most commonly used together with synthetic organic polymers. With aluminum salts, there is always the concern about residuals in the treated water [Miller et al., 1984] and Alzheimer's disease, strong carcinogenic properties in human beings.

Many conventional methods for removal of heavy metals, hardness, turbidity, pH, dissolved impurities etc from aqueous solution were found which includes chemical precipitation, reverse osmosis, solvent extraction, and ionexchange. The major disadvantage that we come across with these conventional processes is that the processes are expensive and not eco-friendly. Other disadvantage includes incomplete metal removal, high reagent and energy requirements generation of toxic sludge and other waste products that require careful disposal.

Therefore it is desirable to replace these chemical coagulants with natural coagulants to counteract the aforementioned drawbacks [Ragunivansi et al., 2002]. Natural coagulants have been used for domestic household for centuries in traditional water treatment in tropical rural areas. Some reports describe natural coagulants from Nirmali seed and Maize [Diaz et al., 1999]. Mesquite bean, Neem and Cactus latifaria, Tannins [Mpofo et al., 2003] and Moringa Oleifera seeds [Neisser and James, 2007] etc represents a vital development in 'grass roots' sustainable environmental technology since it focuses on quality of life for under developed communities. The main advantages of using natural plant-based coagulants as water treatment material are apparent, they are cost-effective, unlikely to produce treated water with suitable pH and highly biodegradable. Naturally occurring coagulants are usually presumed safe for human health [Vijayaraghavan et al., 2011]. The objectives of this study is to investigate the effect of natural coagulants on turbidity and hardness of water.

Application of Natural Coagulants in Waste Water Treatment

O. Sagma, Dr. K. Sumanlatha Devi and M. Sreevall

Asst. Prof. of Chemistry, Asst. Prof. of ES and Asst. Prof. of Physics

Department of Basic Sciences,

G.Narayana Institute of Technology & Science (for Women), Shankar, Hyderabad - 104

Abstract: Coagulation is well known technique in water treatment process. Usually this process was done by adding chemicals, treatment methods are difficult and expensive. So there is an increase in demand for the innovative, low maintenance and energy efficient technology for water treatment. Natural coagulants show better results and are concerned by many researchers because of their abundant source, low price, multifunction and biodegradation. The advantage of the plant based coagulants is easily available as they are apparent, economically feasible, easily available and easy to store. The main objective of the present investigation is use of natural coagulants such as Neem seeds powder and Cactus leaves powder etc. After treatment the water samples were analyzed for different parameters like Turbidity, and hardness. Results indicated that cactus showed better influence in removal of physicochemical parameters such as turbidity, hardness etc. from waste-water. Application of these low cost plants -based coagulants are recommended for eco-friendly, non-toxic and for efficiency.

Index Terms - Azadirachta Indica (Neem) seeds, Cactus Latifaria leaves, water purification, coagulation, turbidity, hardness.

1. Introduction

The production of potable water from most raw water sources usually entails the use of a flocculation/ coagulation stage to remove turbidity in the form of suspended and colloidal material. Aluminum and iron salts are the chemicals most commonly used together with synthetic organic polymers. With aluminum salts, there is always the concern about residuals in the treated water [Miller et al., 1984] and Alzheimer's disease, strong carcinogenic properties in human beings.

Many conventional methods for removal of heavy metals, hardness, turbidity, pH, dissolved impurities etc from aqueous solution were found which includes chemical precipitation, reverse osmosis, solvent extraction, and ionexchange. The major disadvantage that we come across with these conventional processes is that the processes are expensive and not eco-friendly. Other disadvantage includes incomplete metal removal, high reagent and energy requirements generation of toxic sludge and other waste products that require careful disposal.

Therefore it is desirable to replace these chemical coagulants with natural coagulants to counteract the aforementioned drawbacks [Ragunivansi et al., 2002]. Natural coagulants have been used for domestic household for centuries in traditional water treatment in tropical rural areas. Some reports describe natural coagulants from Nirmali seed and Maize [Diaz et al., 1999]. Mesquite bean, Neem and Cactus latifaria, Tannins [Mpofo et al., 2003] and Moringa Oleifera seeds [Neisser and James, 2007] etc represents a vital development in 'grass roots' sustainable environmental technology since it focuses on quality of life for under developed communities. The main advantages of using natural plant-based coagulants as water treatment material are apparent, they are cost-effective, unlikely to produce treated water with suitable pH and highly biodegradable. Naturally occurring coagulants are usually presumed safe for human health [Vijayaraghavan et al., 2011]. The objectives of this study is to investigate the effect of natural coagulants on turbidity and hardness of water.

Bio-Medical Waste Management Practices in India – A Review

Dr.K.Syamala Devi,¹ S.Rama Krishna

Asst.Prof. of Environmental Sciences,² Asst.Prof. of Physics

¹ Dept.of Basic Sciences

² G. Narayana Institute of Technology & Science, Hyderabad -104, India

Abstract: Economic development of India in last two decades has resulted in environmental pollution and waste generation in huge quantity in India. Today Waste Management is a very big headache problem even for developed countries like USA, Japan, and Canada. Biomedical Waste Management has become one of major issue of concern in India taking into account the rate of growth of population. Biomedical Waste Management is receiving greater attention due to recent regulations of the Biomedical Waste (Management & Handling) Rules, 1998. Inadequate management of Bio-Medical Waste can be associated with risks to healthcare workers, patients, communities and their environment. The present paper is review of Bio-Medical Waste Management Practices in India and recommended few measures to minimize the impacts of Hospital Waste on people and surrounding environment.

Index Terms: Bio-Medical Waste, MoEF, Treatment Methods

1 INTRODUCTION

Due to economic development in industrial, infrastructure, medical, information technology and agriculture sector of India in last two decades life of human being has become more content, lavish and comfortable. On the other hand due to this economic development the environment is badly affecting by Pollution, industrialization, urbanization, deforestation etc. In India huge amount of medical facility is available which are producing the Biomedical waste such as body parts, organs, tissues, blood and body fluids along with soiled linen, cotton, bandage and plaster. This waste is very infected and contaminated.

In developing countries such as India, the international policy that the generator of waste is responsible for the proper management, treatment and disposal of waste has remained on paper and is yet to be implemented. The notion that waste is the responsibility of the government authorities has not enabled waste generators to appreciate the negative impact of improper waste disposal. Although waste is generated from anywhere such as the home, office, industry, agriculture, school, living things and healthcare establishments, of more concern is that of healthcare waste due to its hazardous nature and disease transmission characteristics of some of the wastes.

Bio-medical waste is defined as waste that is generated during the diagnosis, treatment or immunization of human beings and are contaminated with patients' body fluids (such as syringes, needles, ampoules, organs and body parts, placenta, dressings, disposables plastics and microbiological wastes) (Das et al., 2001). Healthcare establishments generate wastes, byproducts of health care which can be classified into infectious and non-infectious wastes (Patil and Shelkar, 2001). Infectious wastes contain pathogens in quantities sufficient to transmit infectious diseases on exposure to them. A hazardous waste is one which may be toxic, genotoxic, corrosive, shock-sensitive, flammable, reactive, explosive, radioactive, containing infectious agents and/or sharps (Pruss et al, 1999).

The hospital waste, in addition to the risk for patients and personnel who handle these wastes, poses a threat to public health and environment (Singh et al, 1996). Keeping in view inappropriate biomedical waste management, the Ministry of Environment and Forests notified the Bio-medical Waste (Management & Handling) Rules, 1998. In accordance with these Rules (Rule 4), it is the duty of every "occupier" i.e. a person who has the control over the institution and/or its premises, to take all steps to ensure that waste generated is

DETERMINATION OF FERROUS IRON IN CEMENT SAMPLE- A COLORIMETRIC STUDY

M.Shant,¹ O.Sajna,² M.Sreevani³

¹Asst.Prof., ²Asst.Prof., ³Asst.Prof.

Basic Sciences,

G.Narayana Institute of Technology & Science, Hyderabad, India

Abstract - A simple, rapid and sensitive spectrophotometric method was developed for the determination of trace amounts of iron using as a chromogenic reagent. The proposed method was based on the reaction of iron with ammonium thiocyanate forming a complex having a maximum absorption at 450 nm. Iron was estimated colorimetrically, the results were found to be reproducible and the method was economical and less time consuming. The method was successfully applied to cement sample and results were found to be accurate and precise as the most sophisticated colorimeter was commonly used for ferrous determination.

Index Terms - Cement, ferrous iron, ammonium thiocyanate, colorimeter.

1. INTRODUCTION

Cement, as a binding material, is a very important building material[1,2]. Almost every construction work requires cement. Therefore, the composition of cement is a matter of great interest to engineers[3,4,5]. For understanding cement composition, one must know the functionality of cement ingredients[6,7]. By altering the amount of an ingredient during cement production, one can achieve the desired cement quality[8,6]. Ability to calculate composition of cements in terms of the amounts of the main compounds present provided a valuable new tool for explaining, or predicting, differences in engineering performance among Portland cements[10].

1.1 Composition of Cement

There are seven major ingredients of cement. The general percentage of these ingredients in cement is given below in Table 1.1

Table 1.1

Ingredient	Percentage in cement
Lime	60-65
Silica	17-20
Alumina	3-4
Magnesia	1-3
Iron oxide	0.3-6
Calcium sulfate	0.1-0.3
Sulfur Trioxide	1-2

Iron oxide (Chemical formula is Fe_2O_3)

- Iron oxide imparts color to cement.
- It acts as a filler.
- At a very high temperature, it imparts into the chemical reaction with calcium and aluminium to form tricalcium alumino-ferrite.
- Tricalcium alumino-ferrite imparts hardness and strength to cement.

Colorimetric measurements were made using a colorimeter and samples were analysed at 450 nm. The basis of spectrophotometric methods is the simple relationship between the absorption of radiation by the solution and the concentration of species in the solution. When monochromatic light passes through a transparent medium (coloured solution) the rate of decrease in intensity with the concentration and thickness of the medium is directly proportional to the intensity of the light. In order to determine a species or analyte in the solution spectrophotometrically, it is usually converted into a colored complex. Ammonium thiocyanate yields a blood red colour with ferrous iron and the colour produced is stable in nitric acid medium. The sample of cement was analysed with certain colouring reagent and optical density of the coloured compound is measured at 450 nm since

DETERMINATION OF FERROUS IRON IN CEMENT SAMPLE- A COLORIMETRIC STUDY

M.Shanki, O.Singra, M.Sreevani

1 Asst Prof, 2 Asst Prof, 3 Asst Prof

Basic Sciences,

G.Narayana Institute of Technology & Science, Hyderabad, India

Abstract - A simple, rapid and sensitive spectrophotometric method was developed for the determination of trace amounts of iron using as a chromogenic reagent. The proposed method was based on the reaction of iron with ammonium thiocyanate forming a complex having a maximum absorption at 450 nm. Iron was estimated colorimetrically, the results were found to be reproducible and the method was economical and less time consuming. The method was successfully applied to cement sample and results were found to be accurate and precise as the most sophisticated colorimeter was commonly used for ferrous determination.

Index Terms - Cement, ferrous iron, ammonium thiocyanate, colorimeter.

1. INTRODUCTION

Cement, as a binding material, is a very important building material[1,2]. Almost every construction work requires cement. Therefore, the composition of cement is a matter of great interest to engineers[3,4,5]. For understanding cement composition, one must know the functionality of cement ingredients[6,7]. By altering the amount of an ingredient during cement production, one can achieve the desired cement quality[8,6]. Ability to calculate composition of cements in terms of the amounts of the main compounds present provided a valuable new tool for explaining, or predicting, differences in engineering performance among Portland cements[10].

1.1 Composition of Cement

There are seven major ingredients of cement. The general percentage of these ingredients in cement is given below in Table 1.1

Table 1.1

Ingredient	Percentage in cement
Lime	60-65
Silica	17-20
Alumina	3-5
Magnesia	1-3
Iron oxide	0.5-6
Calcium sulfate	0.1-0.3
Sulfur Trioxide	1-2

Iron oxide (Chemical formula is Fe_2O_3)

- Iron oxide imparts color to cement.
- It acts as a filler.
- At a very high temperature, it imparts into the chemical reaction with calcium and aluminium to form tricalcium alumino-ferrite.
- Tricalcium alumino-ferrite imparts hardness and strength to cement.

Colorimetric measurements were made using a colorimeter and samples were analysed at 450 nm. The basis of spectrophotometric methods is the simple relationship between the absorption of radiation by the solution and the concentration of species in the solution. When monochromatic light passes through a transparent medium (coloured solution) the rate of decrease in intensity with the concentration and thickness of the medium is directly proportional to the intensity of the light. In order to determine a species or analyte in the solution spectrophotometrically, it is usually converted into a colored complex. Ammonium thiocyanate yields a blood red colour with ferrous iron and the colour produced is stable in nitric acid medium. The sample of cement was analysed with certain colouring reagent and optical density of the coloured compound is measured at 450 nm since

AIR POLLUTION - ITS IMPACTS ON HUMAN HEALTH

O.Sigana, M.Shanti, M.Sreevalli
Asst.Prof., Asst.Prof., Asst.Prof.

Basic sciences,

IG Nanyangunna Institute of technology & Science, Hyderabad, India.

Abstract - Air pollution is one of the biggest threats affecting all life forms including the environment. The major contribution to air pollution is introduction of harmful gases, particulates and biological molecules into the earth's atmosphere causing diseases, allergies and even death to humans. Air pollutants cause immediate health problems, including aggravated cardiovascular and respiratory illnesses, stress to heart and lungs, damaging the cells in the respiratory system and also causing harm to other living organisms and food crops. Both human activity and natural processes can cause air pollution. This paper presents the issue of air pollution and discusses the latest findings of fundamental research with regard to its consequences on human health. The nature and sources of air pollution are also discussed.

Keywords: Air pollution, Health effects, Pollutants, Prevention.

I INTRODUCTION

Air pollution refers to the condition in which the existence of toxic substances in the atmosphere, (generated by various human activities and natural phenomena such as volcanic eruptions), pose a threat to the welfare of human beings and the living environment. This is a very serious problem which is difficult to treat due to the nature of airborne particles. According to the World Health Organization (WHO), outdoor air pollution is classified into four main categories: particulate matter, ozone, nitrogen dioxide, and sulphur dioxide. This risk is a function of the hazard of the pollutant and the exposure to that pollutant [1, 2]. In addition, there are compounds (water vapour, carbon dioxide, methane, carbon monoxide, ozone, ammonia) whose concentrations vary with height. When the concentrations of the harmful gases and the particulate matter exceeds the threshold limit, it becomes a serious problem which has to be immediately addressed. Air pollution exposure can be expressed for an individual, for certain groups (e.g. neighbourhoods or children living in a country), or for entire population [3].

II SOURCES OF AIRPOLLUTION

There are six main categories of air pollutants recognized by the EPA (Environmental protection act) -Particulate matter, Ozone, nitrogen dioxide, sulphur dioxide, carbon monoxide and lead.

2.1Particulate matter

Particulate matter is composed of many components such as acids, organic chemicals, metals, soil, wood, and dust. Particulate matter pollution is classified primarily by particle size, with smaller particles being the cause of most health problems. The types of health problems are related to the relative size of the contaminants. Usually, contaminants are inhaled through the mouth and nose, affecting primarily the trachea and lungs. Conditions such as asthma and allergies can be enhanced when faced with this class of contaminants [4, 5].

2.2Ozone

Ozone can almost be viewed as a two-edged sword. When present in the sun's upper stratosphere, this is beneficial because it protects plants and animals from the sun's harmful UV rays. However, when present at ground-level, it is damaging to these same plants and animals. Ground level ozone is created when volatile organic compounds react chemically with nitrogen oxides through complex interactions. For animals, this harmful ozone can irritate the lung airways, causing inflammation. Also, ozone can promote asthma, reduce lung capacity, and increase the chances of getting pneumonia and bronchitis. For plants, ozone increases disease and insect susceptibility as well as increasing the effects of harsh weather and other pollutants [3, 4].

2.3Nitrogen dioxide

Nitrogen dioxide is formed naturally, but is primarily produced by automobiles, electric plants, and other sources that burn fuel at high temperatures. Health problems attributed to nitrogen dioxide can include respiratory illness induced by impairment of the defence system [5]. In a laboratory test, when inhaled by mice, phagocytic activity was impaired, reducing resistance to infection through a hindered immune system [6, 7].

2.4Sulphur dioxide

Sulphur dioxide is primarily produced by coal burning utilities and off-road vehicles running on high-sulphur fuel [8]. Sulphur dioxide is a respiratory, skin, and conjunctive irritant. When inhaled, it initiates formation of hydroxyl peroxide and free oxygen radicals which can damage numerous tissues due to their high reactivity. It also affects the antioxidant ability of erythrocytes and lipid peroxidation [9, 10].

Effect of Annealing Temperature on Structural, Morphological, Optical and Electrical Properties of Spray Deposited V_2O_5 Thin Films

Vijayakumar YELSANI^{1*}, Nagaraju POTHUKANURI¹, Uday Bhaskar SONTU²,
Veerarwany YARAGANI³, Ramana Reddy MUSKU VENKATA²

¹Department of Physics, CMR Technical Campus, Hyderabad, Telangana, India

²Thin Films and Nano Materials Research Laboratory, Department of Physics, Osmania University, Hyderabad, Telangana, India

³Institute of Aeronautical Engineering, Deccan, Hyderabad, Telangana, India

Received 16 July 2018; accepted 15 January 2019

Published 29 April 2019; accepted 11 January 2021

Nanostructured vanadium pentoxide (V_2O_5) thin films have been deposited by a simple and cost-effective spray pyrolysis technique (SP) at substrate temperature 300 °C and post annealed at atmospheric conditions in the temperature range from 300 °C to 500 °C at a constant rate of heating. The influence of post annealing heat treatment on the physicochemical of V_2O_5 thin film investigated. Films were characterized structurally by X-ray diffraction, morphologically by Scanning electron microscopy, optically using UV-Vis spectrophotometer, electrical characterization using Hall probe and Raman spectroscopy has been carried out for films annealed at X-ray diffraction analysis (XRD) revealed that as deposited film were amorphous structure with a preferred orientation along (0 0 1) direction. Moreover, it was observed that crystallite size increases from 22 nm to 56 nm with increase in annealing temperature. Optical properties of these samples were studied in the wavelength range 300–700 nm. Raman spectra confirms the layered structure of V_2O_5 thin film. Hall Effect measurement indicates that the change in carrier concentration with increase in annealing temperature. **Keywords:** V_2O_5 , annealing temperature, Raman spectroscopy, Layered structure.

1. INTRODUCTION

Vanadium pentoxide (V_2O_5) is the most stable phase in V-O system and it also exhibits intercalation, layered structure, wide optical band gap with good electrochemical and thermo chromic properties [1]. Especially, V_2O_5 in thin film form has attracted considerable interest due to their wide range of applications. Compared to bulk, V_2O_5 in nano thin film form substantially improve the performance of devices for energy storage and sensing due to their distinct physical and chemical properties because of their large surface area and with unique morphology [2]. The V_2O_5 thin films have been prepared by different techniques such as RF-sputtering [3], dc-magnetron sputtering [4], flash evaporation [5], spin coating [6], dip coating [7] and pulsed laser deposition [8]. However, a technique with a relatively low cost, good stoichiometry and large area, the spray pyrolysis has been used to prepare V_2O_5 thin films.

In the previous work [9], we have undertaken an extensive study of sprayed V_2O_5 thin films, i.e., optimization of the growth parameters, chemical composition, microstructural and optical properties. Annealing temperature critically affects the crystallinity and other material properties of the as-deposited films. When the films are annealed, three processes may take place, recovery, recrystallization and grain growth. To study the effect of annealing temperature, as-deposited films are treated at different annealing temperatures. This research deals with the effect of annealing temperature on

microstructural, optical and electrical properties of V_2O_5 thin films.

2. EXPERIMENTAL DETAILS

Ultra-sonically cleaned glass substrates (Sine star, India) were used to deposit V_2O_5 thin films with optimized parameters (Nozzle to substrate distance (NLE) = 30 cm, substrate temperature (T_s) = 300 °C, 0.1 M of ammonium vanadate and water as solvent) has been chosen for annealing treatment. This film was treated at different annealing temperatures such as 300 °C, 400 °C and 500 °C per one hour at a constant rate of heating 5 °C/min.

To examine the crystalline structure of the films, Bruker D8 Advance, USA X-ray diffractometer (XRD) using $Cu K\alpha$ radiation ($\lambda = 1.54059 \text{ \AA}$) was employed. The absorbance spectra of all the films were recorded by a UV-Vis 3000 spectrophotometer, Lab India Analytical Instruments. Raman scattering spectra were recorded at room temperature using Renishaw In Via micro Raman spectrometer in the wave number range 300–3000 cm^{-1} with a 532 nm laser. The surface morphology of the films was observed with scanning electron microscope (Carl ZEISS EVO 18, Germany). Carrier density and resistivity were measured with Hall Effect measurement system (HMS-3000, BOOPIA) under a magnetic field of 0.5 T at room temperature.

*Corresponding author. Tel.: +919849322007.

E-mail address: yelsani@cmr.edu.in (V. Yelsani).

Effect of Annealing Temperature on Structural, Morphological, Optical and Electrical Properties of Spray Deposited V_2O_5 Thin Films

Vijayakumar YELSANI^{1*}, Nagaraju POTHUKANURI¹, Uday Bhaskar SONTU²,
Veerarwany YARAGANI³, Ramana Reddy MUSKU VENKATA²

¹Department of Physics, CMR Technical Campus, Hyderabad, Telangana, India

²Thin Films and Nano Materials Research Laboratory, Department of Physics, Osmania University, Hyderabad, Telangana, India

³Institute of Aeronautical Engineering, Deccan, Hyderabad, Telangana, India

Received 16 July 2018; accepted 15 January 2019

Published 29 April 2019; assigned 11 January 2019

Nanostructured vanadium pentoxide (V_2O_5) thin films have been deposited by a simple and cost-effective spray pyrolysis technique (SP) at substrate temperature 300 °C and post annealed at atmospheric conditions in the temperature range from 300 °C to 500 °C at a constant rate of heating. The influence of post annealing heat treatment on the physicochemical of V_2O_5 thin film investigated. Films were characterized structurally by X-ray diffraction, morphologically by Scanning electron microscopy, optically using UV-Vis spectrophotometer, electrical characterization using Hall probe and Raman spectroscopy has been carried out for films annealed at X-ray diffraction analysis (XRD) revealed that as deposited film were amorphous structure with a preferred orientation along (0 0 1) direction. Moreover, it was observed that crystallite size increases from 22 nm to 56 nm with increase in annealing temperature. Optical properties of these samples were studied in the wavelength range 300–1000 nm. Raman spectra confirms the layered structure of V_2O_5 thin film. Hall Effect measurement indicates that the change in carrier concentration with increase in annealing temperature. **Keywords:** V_2O_5 , annealing temperature, Raman spectroscopy, Layered structure.

1. INTRODUCTION

Vanadium pentoxide (V_2O_5) is the most stable phase in V-O system and it also exhibits intercalation, layered structure, wide optical band gap with good electrochemical and thermo chromic properties [1]. Especially, V_2O_5 in thin film form has attracted considerable interest due to their wide range of applications. Compared to bulk, V_2O_5 in nano thin film form substantially improve the performance of devices for energy storage and sensing due to their distinct physical and chemical properties because of their large surface area and with unique morphology [2]. The V_2O_5 thin films have been prepared by different techniques such as RF-sputtering [3], dc-magnetron sputtering [4], flash evaporation [5], spin coating [6], dip coating [7] and pulsed laser deposition [8]. However, a technique with a relatively low cost, good stoichiometry and large area, the spray pyrolysis has been used to prepare V_2O_5 thin films.

In the previous work [9], we have undertaken an extensive study of sprayed V_2O_5 thin films, i.e., optimization of the growth parameters, chemical composition, microstructural and optical properties. Annealing temperature critically affects the crystallinity and other material properties of the as-deposited films. When the films are annealed, three processes may take place, recovery, recrystallization and grain growth. To study the effect of annealing temperature, as-deposited films are treated at different annealing temperatures. This research deals with the effect of annealing temperature on

microstructural, optical and electrical properties of V_2O_5 thin films.

2. EXPERIMENTAL DETAILS

Ultra-sonically cleaned glass substrates (Sine star, India) were used to deposit V_2O_5 thin films with optimized parameters (Nozzle to substrate distance (NTE) = 30 cm, substrate temperature (T_s) = 300 °C, 0.1 M of ammonium vanadate and water as solvent) has been chosen for annealing treatment. This film was treated at different annealing temperatures such as 300 °C, 400 °C and 500 °C per one hour at a constant rate of heating 5 °C/min.

To examine the crystalline structure of the films, Bruker D8 Advance, USA X-ray diffractometer (XRD) using $Cu K_\alpha$ radiation ($\lambda = 1.54059 \text{ \AA}$) was employed. The absorbance spectra of all the films were recorded by a UV-Vis 1000 spectrophotometer, Lab India Analytical Instruments. Raman scattering spectra were recorded at room temperature using Renishaw In Via micro Raman spectrometer in the wave number range 300–1000 cm^{-1} with a 532 nm laser. The surface morphology of the films was observed with scanning electron microscope (Carl ZEISS EVO 10, Germany). Carrier density and resistivity were measured with Hall Effect measurement system (HMS-3000, BOOPIA) under a magnetic field of 0.5 T at room temperature.

*Corresponding author. Tel.: +919849100007.

E-mail address: yelsani@cmr.edu.in; (V. Yelsani)

Hazardous Waste Management in India – A Review

Dr. K. Srinivas Devi, O. Suresh and Dr. T. Charan Singh

1. Asst. Prof., 2. Asst. Prof., 3. Sr. Asst. Prof.

Department of Basic Sciences,

Chaitanya Institute of Technology & Science (for Women), Hyderabad, India

Abstract - Hazardous waste is the waste that poses substantial or potential threats to public health and the environment. The sources of hazardous waste are basically agricultural and agro industries, medical facilities, commercial centers, household and the informal sector. Rapidly growing industries in the country have contributed in the production of large part of hazardous waste material. Therefore, to reduce environmental hazardous, proper attention is required during storage, segregation, transportation and disposal of waste, because it cannot be disposed of by common means like other by products of our daily lives. Hazardous waste management is an important issue in our country now days. Unscientific disposal of hazardous waste and only few secured landfill sites available in the country for disposal of hazardous waste in an environmentally sound manner posed serious risk to the environment system. Rapid industrialization in last few decades have led to the depletion of natural resources and increase in pollution in the country. In India though there are certain rules and regulation made by the central government for reduction of hazardous waste and for the minimization of hazardous effect on the environment still hazardous wastes are stored, transported, disposed or managed unsystematically causing health and environmental (air, water, soil) related problems. This paper is a review report about the hazardous waste management in India.

Index Terms - Hazardous Waste, Waste Minimization, 3R's, TSDF

I. INTRODUCTION

India is a developing country, and industries is a major source of hazardous waste in developing countries, but industrial hazardous waste sources presents greater risks in developing countries than in developed countries because of poor management and obsolete technologies. multinational companies often set their plants in developing countries so that they can use technologies banned in their home country. The accident at the Bhopal plant in India, which belonged to union carbide of USA is a prime example of this situation (Khan Danielle J). The major source of hazardous solid wastes in our country are industrial activities, agriculture and agro-industries, medical facilities, commercial centres, household and the informal sector. Small competitive and labour intensive businesses that are not regulated by government is the source of hazardous solid waste that is currently recognized as major problem in developing countries.

Hazardous waste in India has been defined as "any substance, excluding domestic and radioactive wastes, which because of its quantity and/or corrosive, reactive, ignitable, toxic and infectious characteristics causes significant hazards to human health or environment when improperly treated, stored, transported and disposed". Hazardous wastes refer to wastes that may, or tend to, cause adverse health effects on the ecosystem and human beings. These wastes pose present or potential risks to human health or living organisms, due to the fact that they are non-degradable or persistent in nature; can be biologically magnified; are highly toxic and even lethal at very low concentrations. To determine the nature of hazard, the criteria that would be followed is toxicity, phyto toxicity, genetic activity and bio-concentration of the substance.

II. CLASSIFICATION OF HAZARDOUS WASTES

Hazardous Wastes are Classified as F, K, P, and U lists

F-List: The F-list contains hazardous wastes from non-specific sources, that is various industrial processes that may have generated the waste. The list consists of solvents commonly used in degreasing, metal treatment baths and sludges, wastewaters from metal plating operations and dioxin containing chemicals in their precursors. Examples: Benzene (F005), Carbon tetrachloride (F001), Cresylic acid (F004) etc.

K-list: The K-list contains hazardous wastes generated by specific industrial processes. Examples of industries, which generate K-listed wastes include wood preservation, pigment production, chemical production, petroleum refining, iron and steel production, explosive manufacturing and pesticide production.



IMPACTS OF NANO TECHNOLOGY ON ENVIRONMENT- A REVIEW

K.Syamala Devi¹, A.Aishwariyana² and V.Vijaya Lakshmi³

^{1,2} Dept of Basic Sciences, G.Narasimamma Institute of Technology & Science, Hyderabad

³ Dept of Humanities & Mathematics, G.Narasimamma Institute of Technology & Science, Hyderabad

ABSTRACT

Nano sized particles have relatively larger surface area per unit mass which is the critical factor to enhance mechanical modulus and other physical and chemical properties. Nanotechnology increases the strength of many materials and devices, as well as enhances efficiency of monitoring devices, remediation of environmental pollution, and renewable energy production. In general, nano technology devices consume less energy, reduce material wastes, and helps in monitoring devices. Nanotechnology can also be used to reduce and prevent the toxicity of nanoparticles in environment more efficiently. Nanoparticles have higher surface area than the bulk material which can cause more damage to the human body and environment compared to the bulk particles. Therefore, concerns for the potential risk to the society due to nanoparticles has attracted national and international attention. The present paper discusses about the positive and negative impacts on nano – technology on man and environment.

Key Words: Nano Particles, Toxicity, Environment

Introduction:

"Nanotechnology" is the science of studying phenomena and the manipulation of materials at atomic, molecular and macromolecular scale. Use of the prefix 'nano' in this context refers to a nano metre (nm). A nanometer is one-billionth of a meter. A sheet of paper is about 1,00,000 nanometers thick; a single gold atom is about one third of a nanometer in diameter. Duspensoids between approximately 1 and 100 nanometers are known as the 'nanoscale'. Nanomaterials are generally defined as materials that are <100 nm (0.1 μ m) or less in dimension. This means that nanomaterials can be three-dimensional particles of almost any shape, ultrathin films (two-dimensional-like) or fine rods (essentially one-dimensional).

Ecological Perspective:

Ecologists have good reason to believe that even size-shape difference will play a big role in their environmental and specifically, their biological influences. But most importantly and far beyond this simple classification with respect to size, nanomaterials are so fascinating because their properties and therefore their environmental/biological behavior, depend on their size. This is to say that their chemical (reactivity, solubility etc), mechanical (elasticity, hardness etc), electronic (conductivity, redox behavior etc) and nuclear (magnetic) properties often change as a function of size. These changes can be and often are dramatic. Finally, through desertification, biomass burning, industrial combustion, engine exhaust, mining and other anthropogenic activities, humans have vastly increased the global supply and variety of incidental nanoparticles, that is those nanoparticles unintentionally produced by humans.

Role of Nano – Technology:

Nanotechnology has revolutionary changes in commerce will transform daily life of consumer products in many ways.

Hazardous Waste Management in India – A Review

Dr. K. Srinivas Devi, O. Suresh and Dr. T. Charan Singh

1. Asst. Prof., 2. Asst. Prof., 3. Sr. Asst. Prof.

Department of Basic Sciences,

Chaitanya Institute of Technology & Science (for Women), Hyderabad, India

Abstract - Hazardous waste is the waste that poses substantial or potential threats to public health and the environment. The sources of hazardous waste are basically agricultural and agro industries, medical facilities, commercial centers, household and the informal sector. Rapidly growing industries in the country have contributed in the production of large part of hazardous waste material. Therefore, to reduce environmental hazardous, proper attention is required during storage, segregation, transportation and disposal of waste, because it cannot be disposed of by common means like other by products of our daily lives. Hazardous waste management is an important issue in our country now days. Unscientific disposal of hazardous waste and only few secured landfill sites available in the country for disposal of hazardous waste in an environmentally sound manner posed serious risk to the environment system. Rapid industrialization in last few decades have led to the depletion of natural resources and increase in pollution in the country. In India though there are certain rules and regulation made by the central government for reduction of hazardous waste and for the minimization of hazardous effect on the environment still hazardous wastes are stored, transported, disposed or managed unsystematically causing health and environmental (air, water, soil) related problems. This paper is a review report about the hazardous waste management in India.

Index Terms - Hazardous Waste, Waste Minimization, 3R's, TSDF

I. INTRODUCTION

India is a developing country, and industries is a major source of hazardous waste in developing countries, but industrial hazardous waste sources presents greater risks in developing countries than in developed countries because of poor management and obsolete technologies. multinational companies often set their plants in developing countries so that they can use technologies banned in their home country. The accident at the Bhopal plant in India, which belonged to union carbide of USA is a prime example of this situation (Khan Danielle J). The major source of hazardous solid wastes in our country are industrial activities, agriculture and agro-industries, medical facilities, commercial centres, household and the informal sector. Small competitive and labour intensive businesses that are not regulated by government is the source of hazardous solid waste that is currently recognized as major problem in developing countries.

Hazardous waste in India has been defined as "any substance, excluding domestic and radioactive wastes, which because of its quantity and/or corrosive, reactive, ignitable, toxic and infectious characteristics causes significant hazards to human health or environment when improperly treated, stored, transported and disposed". Hazardous wastes refer to wastes that may, or tend to, cause adverse health effects on the ecosystem and human beings. These wastes pose present or potential risks to human health or living organisms, due to the fact that they are non-degradable or persistent in nature; can be biologically magnified; are highly toxic and even lethal at very low concentrations. To determine the nature of hazard, the criteria that would be followed is toxicity, phyto toxicity, genetic activity and bio-concentration of the substance.

II. CLASSIFICATION OF HAZARDOUS WASTES

Hazardous Wastes are Classified as F, K, P, and U lists

F-List: The F-list contains hazardous wastes from non-specific sources, that is various industrial processes that may have generated the waste. The list consists of solvents commonly used in degreasing, metal treatment baths and sludges, wastewaters from metal plating operations and dioxin containing chemicals in their precursors. Examples: Benzene (F005), Carbon tetrachloride (F001), Cresylic acid (F004) etc.

K-list: The K-list contains hazardous wastes generated by specific industrial processes. Examples of industries, which generate K-listed wastes include wood preservation, pigment production, chemical production, petroleum refining, iron and steel production, explosive manufacturing and pesticide production.



IJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 5 **Issue:** II **Month of publication:** February 2018

DOI:

www.ijraset.com

Call: ☎ 08813907089

E-mail ID: ijraset@gmail.com



Environmental Accounting Reporting Practices in India- Issues and Challenges

V. Vijaya Lakshmi¹, K. Syamala Devi²

¹Dept of Humanities and Mathematics

²Dept of Basic Sciences, G. Narayanaswami Institute of Technology & Science, Udupi, Karnataka

Abstract: Accounting and disclosure of environmental matters have been increasingly manifesting as an important dimension of corporate accounting and reporting practices. As the entire world continues its rapid move towards industrialization, it has seriously threatened human ability to maintain the ecological balance. Industrialization is the foundation stone of the development of any economy, while the unplanned industrialization and discharge of waste by industries is one of the major cause of environmental pollution. As corporate sectors in the global market, especially in India are becoming anxious about environmental degradation, depletion of resources etc. naturally more and more emphasis will be accorded to how environment-friendly the outcomes. Maintaining accounts of such environmental and natural resources in the country has become more urgent. Moreover, international awareness and acceptance of the importance of environmental issues has motivated the development of a branch of accounting called "Green Accounting" or "Environmental Accounting". But, as conventional accounting deals with mainly non-living things, the formulation of valuation, and measurement and accounting techniques for incorporating environment-related matters in the corporate financial statements sometimes creates problems for the accountant. In the light of this situation, the conceptual analysis of the study is concerned with the rationale of environmental accounting on the economy and society as a whole, and focuses the failures of the traditional accounting system. The present research paper concentrates on exploring the concept of Environmental/Green accounting, its practices and reporting in India. A modest attempt has been made to throw light on the environmental awareness in developing nations like India and discuss the problems associated with the implementation of environmental accounting.

Keywords: Environmental Degradation, Environmental Accounting, Social Responsibility, Environmental Reporting.

I. INTRODUCTION

Environmental Accounting is an important tool for understanding the role played by the business enterprises in the economy towards the environmental safety and welfare of the society. It provides data highlighting both the contribution of business enterprises to economic wellbeing and the costs imposed in the form of pollution or resource degradation. Every business has an overriding responsibility to make the fullest possible use of its resources - both human and material. An enterprise is a corporate citizen. Like a citizen, it is judged by its actions in relation to the environment and society of which it is a member as well as by its economic performance. As far as Indian corporate sector is concerned, it is sad but true that it has not been performing as a good citizen. There are many laws that have been enacted and amended from time to time to make the corporate sector to fulfil its social responsibility for better development of Indian environment and economy. Therefore, recent years have witnessed rising concern for environmental degradation which is taking place due to increasing industrial activities. It may be noted here that the environmental degradation and pollution spoil human health, reduce economic productivity and lead to loss of amenities. The mitigation of energy resource use without impairing the quality and functions of the organization rendered the multi-national companies to stay competitive.

The energy conservation in the firms brought cost reduction, cost leadership and market leadership. The western developed countries including USA, UK, France, Germany, Australia, Japan and New Zealand have recognized the concept of calculated energy consumption in their manufacturing and service sectors.

The International Accounting Standards Board (IASB) identified and recognized the measurement of energy conservation under the name and style of Green Accounting. The developing countries like India is facing twin problems of protecting the environment and promoting economic development.

A trade-off between environmental protection and development is required hence a careful assessment of the benefits and costs of environmental damages is necessary to find the safe limits of environmental degradation and the required level of development. It is known that there are limited resources available for the use of all species on the earth and the ancestral damage is done to the



Research article

Temperature dependent and applied field strength dependent magnetic study of cobalt nickel ferrite nano particles: Synthesized by an environmentally benign method

Saba Bhatia¹, S. J. Jeyarajagan², E. C. Cruz³, J. Ramakrishna⁴ &

S. S. M. S. S.

✉ S. S. M. S.

<https://doi.org/10.1007/s10854-024-02800-0>

© The Author(s) 2024

Abstract

Spinel ferrites have come a long way in their versatile applications. The ever growing applications of these materials demand detailed study of material properties and environmental considerations in their synthesis. In this article, we report the effect of temperature and applied magnetic field strength on the magnetic behavior of the cobalt nickel ferrite nano particles samples. Basic structural properties of spinel ferrite nano particles, that are synthesized by an environmentally benign method of auto combustion, are characterized through XRD, TEM, Raman spectroscopy, Diffuse Reflectance Spectroscopy (DRS) in order to understand the nickel substitution effect on the optical properties of cobalt ferrite nano particles. Thermal magnetic studies using SQUID in the temperature range 1K to 400K and zero temperature (ZFC) MFM studies are performed on these samples. Plots of $M(H)$ vs applied field H (for ZFC and FC curves), $M(T)$ vs T (ZFC, FC and ZFC) for $M(H)$ loop studies are used to study the magnetic behavior of these nano particles. The XRD/TEM analysis suggest 80% crystallinity that show changes in the lattice distribution and phase changes in the spinel structure with nickel substitution. Raman spectrographs suggest phase purity changes and cation octahedra defects with nickel substitution. Diffuse reflectance study on powder samples suggests band gap values for nickel rich compounds. The Magnetic study of these sample nano particles show varied magnetic properties from that of hard magnetic, antiferromagnetic and super magnetic domain structures at 5K temperature to soft magnetic core shell like structure at 300K temperature. Nickel substitution effect is non monotonic. Blocking temperature of all the samples is found to be higher than the values suggested in the literature.

Introduction

Spinel ferrites (and their spinels) that have a FCC lattice base structure of oxygen anions with divalent cation occupying the tetrahedral (non-stoichi) sites and trivalent cations occupying octahedral sites (except for inverse spinels) are versatile metal oxide magnetic ceramic materials. The spinel ferrites show strong magnetic character and some show strong dielectric nature. These spinel ferrites and their composites, have found general applications in various technologies of core like antenna coils, and power devices, capacitors, sensors, core materials for power transformers, low loss materials for high frequency applications, information storage and security devices, magnetic refrigeration refrigerating materials, magnetic drug delivery materials and cell bearing system materials [1–16]. [14], [15], [16], [17], [18], [19]. Magnetic (small) ferrite nano particles are being investigated extensively by many researchers as referred by S. Anand and R. Sureshbabu in their work on applications of cobalt ferrite particles for medical applications, including the hyperthermia, magnetic resonance imaging (MRI), magnetic separation and drug delivery of cobalt ferrite nano particles [10]. It is also observed by Barbara Bogdan that the use of nano-particles allows the biological applicability of these ferrites, especially on the functioning of artificial liquid membranes [11]. Cobalt ferrite nano particles are also being investigated to replace rare-earth ferrites for permanent magnets. Alberto Lopez et al have reported a $H_{c,app}$ value of 2.1 MCOe or 163 kJ/m^3 , which suggests the potential applicability of cobalt ferrite as permanent magnet [12].

Researchers in spinel ferrite synthesis are still seeking an synthesis method and conditions, give a vital role in controlling the properties of the synthesized particles. J. A. Pridmore et al have used ball milling and sintering at temperatures of about 1000K for the synthesis of cobalt ferrite based films sensors [2]. Manish Srivastava et al. have used sol-gel synthesis from metal salts, glycels, acetic acid and ammonia and then calcination at about 1000K for the treatment of Li_2O Ferrite based particles. These particles of lithium core have shown magnetic saturation values of about 50 emu/g [13]. R. S. Hatachibara et al have synthesized the zinc ferrite nano particles by sonochemical synthesis, where a mild sonochemical synthesis that is achieved by ultrasonic waves is studied [14].

Thermal and Structural Properties of the Nano Sediment Suspensions in the Synthesis of Methane Hydrates

Ikurtti Radhika^{1,4*}, Pinnelli S R Prasad^{1,2*}, Devarasetty Suresh babu^{3,4*}

^{1,2,*} Department of Physics, Osmania University, Hyderabad-500007, India

^{3,4} National Geophysical Research Institute-CSIR, Hyderabad-500007, India

^{4*} G.Narayanaamma Institute of Technology & Science -500104, India

Abstract

Comparative studies have been carried out on mechanical properties of the sediments enhancing the formation and dissociation of methane hydrates. Porous media significantly influence the rate of hydrate formation by reducing the chemical barrier, where zeolites are the micro porous minerals. It was observed that the gas consumption was slightly greater in zeolite compared to montmorillonite clay for the first ratios before reaching to the saturation ratios. This paper also tells that, at constant dissociation rate the enthalpy of the amount of heat release of methane gas is increasing for the higher pressures at two water ratios both in clay and zeolite sediments, giving rise to effectiveness in enhancing and expediting the methane hydrate formation which is an ultimate source for energy demanding applications. In addition to this, we have observed a slight reduction in the permeability for clay sediment giving an evidence for the hydrate growth.

Key words: Gas hydrate, sediment, Porosity, permeability

INTRODUCTION

A comparative studies has been carried out on mechanical properties of the sediments enhancing the formation and dissociation of methane hydrates. Porous media significantly influence the rate of hydrate formation by reducing the chemical barrier, where zeolites are the micro porous minerals. It was observed that the gas consumption was slightly greater in zeolite compared to montmorillonite clay for the first ratios before reaching to the saturation ratios. This paper also tells that, at constant



Role of Mn²⁺ ions on optical and luminescent properties of CaF₂-Y₂O₃-ZnO-B₂O₃-SiO₂ glasses

S. Sankaranarayanan^a, S. Jeyarajasekar^a, S.C. Subramanian^a [Download PDF](#)[View Article](#) | [View Full Text](#) | [View PDF](#)<https://doi.org/10.1016/j.rinp.2022.104447>[Get updated content](#)[Check for updates](#)[View article](#)

Abstract

Mn²⁺-doped CaF₂-Y₂O₃-ZnO-B₂O₃-SiO₂ glasses were synthesized. Different physical parameters of these glass materials such as density, molar volume, refractive index, optical band gap and ultraviolet index were calculated. The glass transition and glass crystallization temperatures of these glasses were measured by DTA analysis. The mechanical properties such as Young's modulus, shear modulus, bulk modulus, Poisson's ratio and anisotropy of these materials were also calculated. Different characterization such as FTIR, DC conductivity, optical absorption and photoluminescence were carried out on the prepared glass samples. FTIR studies of these glass materials exhibited overall a broad concentration of MnO. The optical band gap, Urbach energy, transition probability and emission cross section of these glass materials were calculated. Semiconducting nature of these glass materials was also observed due to the significant increase in Ni₂ and MnO₂ with increasing concentration of MnO. Optical absorption studies revealed that the increase in intensity of different spectral peaks went down the upward in concentration of MnO. Photoluminescence spectra around 545 nm (5d⁵) ion appeared (i.e.) the emission was red-shifted for higher MnO concentrations and green shifted for lower MnO concentration.



Keywords

CaF₂-Y₂O₃-ZnO-B₂O₃-SiO₂ glasses; DTA; FTIR; Elastic properties; DC conductivity; Optical properties; Photoluminescence studies

Introduction

The supreme class of the most advantageous glass materials were collectively made up through well regulated structure, mechanical and optical properties. The borosilicate glass materials have great benefits over other glass materials of high chemical stability (high thermal stability and low thermal expansion) [1, 2]. The Mn²⁺-doped glasses or borosilicate glass materials have great importance in the development of photonic and fiber optical devices. Among all glasses (Mn²⁺ doped) all borosilicate glass materials exhibit low and high level oxidation states. Mn²⁺ ions are bonded through borosilicate glass networks which exhibit different characteristics were most useful materials to develop fiber optical communication applications [3, 4]. The polymeric amount of present alkali borosilicate glass materials which were influenced by Mn²⁺ ions were under different processes such as heterogeneity, solubility nature and chemical stability. FTIR records of Mn²⁺-doped alkali borosilicate glasses were used to survey the glass configuration influence different optical characteristics of various glass materials [5, 6]. The different oxidation states of Mn²⁺ such as Mn³⁺ and Mn⁴⁺ at these glass materials were acknowledged as luminescence absorbers. The presence of Mn²⁺ ions in borosilicate glasses provide a deep insight about their materials and indicate distinct states varied together with in the colour of the Mn²⁺ ions, predominant throughout the sites within the glass network [7, 8].

The optical absorption spectra of Mn²⁺-doped borosilicate glasses were acknowledged as providing that, by probing the location, arrangement of a paramagnetic impurity and characterizing the complexed. The Mn²⁺ ions of borosilicate glass materials exhibit emission peaks within the wavelength range from 520 to 620 nm. The bandwidths spectra of these materials affect the luminescence of Mn²⁺ ions, to evaluate the combination of both crystalline and amorphous materials [9, 10]. Mn²⁺ ions of various forms in the glass materials were



Influence of Sediment Structural Properties and Their Dynamics in the Formation and Dissociation of Methane Hydrates

Muhammad Rezaqul^{a,*}, Edy Rizki Budia^b, Euisyana Kharisma^c, Eka Rizki^d, Ferial E.E. Rizki^e, J. Daryawan, Eka Nur Hafidha^f, A. D.

Edy Nurcahyo^g

[View Article Online](#)

[Full Text Available in ScienceDirect](#)

[Full Text Available in](#)

Abstract

Methane gas hydrate formation/dissociation were investigated in sediments using a non-invasive acoustic. The main focus of this study is related to the dynamics of the sediments (for clay and sand) in methane hydrate formation. The pore scale nature of hydrate, hydrate formation techniques were a strong control on the large scale physical properties of the sediments. An experimental study of methane hydrate is here performed in different sediments to assess effect of (1) 0.5, (1-0.8) of monomodal clay and (1.0, 2) (1-0.7) of siltite. The synthesis of hydrate is done using a 2000 atm class at more different positions typically at 20 bars (0 bars and 50 bars there is a significant change in the growth of methane hydrate both in Monomodal clay and siltite before reaching to their saturation states.

References (20)

T. Lorenz et al.
Decomposition of Methane Hydrates in Sand, Sandstone, Clays, and Glass Beads
J. Geophys. Res. **Vol. 34**, (2023)

T. Lorenz
Effect of surfactant on the formation and dissociation kinetics behaviour of methane hydrate
Chemical Engineering Science (2004)

F. Engwall et al.
Chem. Eng. Sci. (1987)

F. Engwall et al.
Chem. Eng. Sci. (1994)

E.E. Rizki et al.
J. Ind. Eng. Chem. (2024)

Shan J.D., Liu R.H. CA. **Coalbed Methane of the Natural Gas**. 300. Boca Raton, FL: CRC Press; 2004. 500p.

Gas Hydrate in Cymatone Reservoir Clay: The Effect of Hydrodynamics on Hydrate Formation and Phase Equilibria, Harsh Gargani et al., S. Foster and Ganes, A. T. New Gas Hydrate Phase Specimens and Stability of Clay Methane Hydrate.

T. S. Sparrow
Mechanical, Mineralogical, and Micrological Properties of Methane Hydrates in Synthetic Clay
J. Chem. Eng. Data (2009)

E.H. Yoon et al.
Abundant Methane Occupancy of Natural Gas Hydrates in Deep Sea Floor Sediments
Energy Environ. Sci. (2012)



HOME ► ARCHIVES ► VOL. 7 NO. 4.5 (2018) SPECIAL ISSUE 9 ► ABOUT

Experimental investigations of methane hydrate in sediment suspensions

AUTHORS

Ikkurti Radhika

Pinnelli S. R. Prasad

Devarasetty Suresh Babu

DOI: <https://doi.org/10.14419/ijet.v7i4.5.21178>

PUBLISHED: 2018-09-22

Keywords: Gas Hydrates, Methane, Phase Equilibrium.

ABSTRACT

Methane hydrate structural stability and formation, were studied in water suspensions with synthetic clay (44.17nm), SiO₂(60.42nm) and zeolite (35.08nm) at different weight percentages (1wt%,10wt%,20wt%) in isochoric method using stirred autoclave. The formation kinetics in these sediments greatly differs from those of the bulk hydrate owing to surface and capillary effects in the pores. It has been confirmed that hydrate formation in confined pores is severely restricted due to increased inner capillary pressure. Further- more in principle, the clay particles suspended in water play a negative role in structuring the crystalline hydrate. More specifically, even though the addition of clay enhances the hydrate yield insignificantly, from our results, the addition of sediments did not affect the phase equilibrium much, because water exists in excess around clay particles and therefore the hydrate formed in the bulk (water phase) is much more dominant than that in the pores.

REFERENCES

- [1] An experimental investigation into the effects of zeolites on the formation of methane hydrates. *Int. J. Energy Res.* (2014) Nam-Jin Kim, Sung-Seok Park et al.
- [2] Ryu YB, Lee JD, Kim YS, Yoon SY, Lee MS. Influence of nanosized Materials on the formation of CH₄ hydrate. *Proceedings of the sixth international Conference on Gas Hydrates, Vancouver, Canada, http://www.icgh.org 2008*
- [3] Lin V, Chen GJ, Sun CY, Guo XQ, Wu ZX, Liang MY, Chen LT, Yang LY. Effect of surfactant on the formation and dissociation kinetic behaviour of methane hydrate. *Chemical Engineering Science* 2004; 59:4447-4455
- [4] THERMODYNAMICS AND CHEMICAL ENGINEERING DATA. *Chinese Journal of Chemical Engineering*, 18(2) 292-6 (2010) Influence of Pore Size, Salinity and Gas Composition upon the Hydrate Formation Conditions* YANG Mingjun (✉), SONG Yangchen (✉), LIU Yu (✉), CHEN Yongjun (✉) and LI Qingping (✉)

CONSUMER PROTECTION IN E-COMMERCE

1. V.Vijaya Lakshmi

Asst.Professor of Management Studies

G.Narayanaamma Institute of Technology and Science, Shaikpet, Hyderabad, Telengana

and:

2. Smiltha Mahindrakar

Asst.Professor of Management Studies

G.Narayanaamma Institute of Technology and Science, Shaikpet, Hyderabad, Telengana

ABSTRACT

Electronic commerce is one of the most important aspects of the Internet and allows people to buy instant. In Business eco systems, consumers are the most vital elements. A business is not reviewed in isolation but is always considered in combination with the consumers of its goods and services. Growing practice of electronic transactions includes both e-commerce and e consumers. Lack of proper policy standard and specific laws regulating electronic transactions of consumer and numerous cases reported through print media as well as electronic media necessitated the measures for the protection of electronic consumers. In the process of e-commerce e-consumers are looking forward for appropriate consumer protective regulations for the protection of their rights on e-transactions. In this article endeavor has been made to assess and device or improve the existing laws or policies apart from analysis and comparison of usefulness of e-consumers protective mechanism for the protection of consumer rights and the paper attempts to find out the possible ways for the protection of e-consumers' rights in general and rights of Indian e-consumers in particular.

Keywords: Consumer Protection, E-commerce, Information Technology, Online transactions.

CONSUMER PROTECTION IN E-COMMERCE

1. V.Vijaya Lakshmi

Asst.Professor of Management Studies

G.Narayanaamma Institute of Technology and Science, Shaikpet, Hyderabad, Telengana

and:

2. Smiltha Mahindrakar

Asst.Professor of Management Studies

G.Narayanaamma Institute of Technology and Science, Shaikpet, Hyderabad, Telengana

ABSTRACT

Electronic commerce is one of the most important aspects of the Internet and allows people to buy instant. In Business eco systems, consumers are the most vital elements. A business is not reviewed in isolation but is always considered in combination with the consumers of its goods and services. Growing practice of electronic transactions includes both e-commerce and e consumers. Lack of proper policy standard and specific laws regulating electronic transactions of consumer and numerous cases reported through print media as well as electronic media necessitated the measures for the protection of electronic consumers. In the process of e-commerce e-consumers are looking forward for appropriate consumer protective regulations for the protection of their rights on e-transactions. In this article endeavor has been made to assess and device or improve the existing laws or policies apart from analysis and comparison of usefulness of e-consumers protective mechanism for the protection of consumer rights and the paper attempts to find out the possible ways for the protection of e-consumers' rights in general and rights of Indian e-consumers in particular.

Keywords: Consumer Protection, E-commerce, Information Technology, Online transactions.

Blended learning and Flipped Classrooms: Their effectiveness

Dr. B. Sushma

M.A, MPhil., Ph.d., PGCTE, PGDTE
Assistant Professor of English,
GNITS, Hyderabad

Abstract:

Blended learning and flipped classrooms are the norms of the day in teaching English language to learners. Students no more want traditional classrooms where lectures are given for hours together by the teachers. They want to actively participate in the class, taking learning into their own hands. Students who are academically inclined and technologically savvy use the internet for educational purposes. These resources encourage the learners more than a conventional classroom. Teachers can exploit these online materials, videos, mobile apps to make learners engaged in effective learning in and outside the classrooms. Autonomous learning helps learners think on their own and can be successful in their academic pursuits. This paper tries to explore how blended classrooms, where some online content is read or watched by learners before entering the class are conducted for extracting maximum skills out of learners.

Key words: Blended learning, flipped classrooms, conventional learning, online resources.

With the growth in technology, e-resources, mobile learning, online platforms like Google sheets, Padlet, Edmodo, audio-visual aids, mobile apps etc access to knowledge has become very easy. Choosing the right platform, getting benefitted appropriately from the wide range of resources available is a challenging task for both the learners and facilitators. However, students of the modern generation need to be given space to explore their own skills as they choose to be independent than relying on the teacher's lectures in classrooms. This is where blended learning and flipped classrooms come into picture. Learners are satisfied with their own researching skills, they develop knowledge by themselves and gain inputs from teachers and peers through this method.

Blended learning is a phenomenon where online resources, materials, audios, videos, web articles, links, blog or vlogs are used for discussions or activities in the classroom which is usually called flipped classroom. It is called 'flipped' because the traditional classroom conducts lectures and gives homework to learners, in a flipped classroom, learners do the homework in the classroom, by referring to the content online at home. The conventional roles are reversed. A lot of learning happens in pairs or groups through discussions, quizzes, debates, task sheets, assignments, projects in a flipped classroom.

This method is most suitable for undergraduate and post-graduate students even to secondary grade students in schools. It promotes self-learning which raises the thinking skills in learners. Learners are expected to take responsibility of their own learning at the tertiary and higher levels. Learners also do not appreciate the 'sage on stage', teacher lecturing them for an hour on the stage. The attention span would not last for more than fifteen minutes in a traditional classroom. It thus becomes challenging for teachers to engage the learners. Instead of this, the teacher can plan out many exercises, activities, discussions based on the lesson to be taught. Prior to this, teachers need to provide the learners with some online content, articles to read, videos to watch on the given topic so that they can participate in the discussions in the class. Students' achievement is more effective in this kind of learning.

Blended learning or flipped classrooms as a concept was first conceived by Bonk and Graham in the book 'Handbook of Blended Learning' in 2006. According to Graham, Blending learning "combines face-to-face

Parthasarathy, R. "Nissim Ezekiel." *The Twentieth Century Indian Poet*. Edited by Parthasarathy. Oxford: University Press, 7th impression, 2004, pp. 28-39.

Prasad, S. N. "The Cognitive Self in Nissim Ezekiel: An Approach to His Poetry." *Indian English Literature Since Independence*. Edited by E. Appasa-Pillai. The Indian Association for English Studies, 1991, pp. 124-135.

Rahman, Anam. "Mythosic Form in Nissim Ezekiel." *Form and Matter in the Poetry of Nissim Ezekiel*. By Rahman. Abhinav Publications, 1981, pp. 13-41.

Ross, Stephen D. "The Unique: William of Au." *Literature and Philosophy: an inquiry of the Psychological World*. By Ross. Meridian Corporation, 1969, pp. 27-31.

Saranambikhan, M. "The 'Tongue in English Chain': Indo-English Poetry Trends." *Indian Poets in English: A critical Assessment*. Edited by Vasudha D. Sharma and M. Saranambikhan. Macmillan, 1983, pp. 1-27.

Srinivasara, Kenneth K. "Nissim Ezekiel's 'Unoriginal': An Interpretation." *The Indian English Writers*. By Kenneth K. Srinivasara. ABS Publications, 2005, pp. 367-384.

Sydney, Philip. "An Allegory in the Poetry." *English Critical Texts*. Edited by D. J. Enright and Emond De Chidester. Oxford University Press, Indian ed., 1975, pp. 2-49.

The Twentieth Century Indian Poet. Edited by R. Parthasarathy. Oxford University Press, 7th impression, 2004. (All Ezekiel's poems cited in this paper are from this book, mentioned as TTPCP).

Wadia, William. "Small Observations on a large subject." *Aspects of Indian Writing in English*. Edited by M. K. Nair. Macmillan, 1999, pp. 101-119.

Wardlaw, William. "Preface to Lyrical Methods." *English Critical Texts*. Edited by D. J. Enright and Emond De Chidester. Oxford University Press, Indian ed., 1975, pp. 102-108.



Interpretation of O. Henry's Short Story, 'The Gift of the Magi' Using Linguistic Approach

B. Sushma

Abstract: The short story, 'The Gift of the Magi' by O. Henry is a beautiful piece of wonderful expression, creative language, real life themes, metaphors and an excellent message to live by. This story has been chosen to do a literary or linguistic analysis to bring out the message of the story. It has got a universal appeal and sends the real message (without an inhibitive interpretation) to its readers. This paper tries to explore the use of words, phrases, symbols, simile, metaphor, personification, irony, tone, mood, point of view to understand the use of language better. O. Henry stands out as a literary genius in creating a world of love, peace, sacrifice and belongingness through his characters Jim and Della.

Keywords and phrases: Love, sacrifice, literary devices, Metaphors, Linguistic analysis.

'The Gift of the Magi' is one of the remarkable short stories by O. Henry, a renowned American author. It was first published in 1906. In O. Henry's second short stories collection, it is a magical short story where O. Henry's literary genius works to the highest. It's a story of true love and sacrifice between Jim and Della. The story is very short and is in a few pages. Yet it captures the attention of its readers by way of its language, writing style and themes. The various themes in the story include, love, marriage, bonding, respect, sacrifice, financial issues, non-materialism, happiness, small pleasures and life in general.

This story has a tight plot with a proper beginning, middle and the end. Plot is also about the various events and scenes in the short story. It includes the setting and introduction of characters. The characters introduced here are Della and Jim. The setting merely





33

5vrs 2019-2021



ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
ISSN-2321-7063

IJELLH

**International Journal of English Language
Literature in Humanities**



Statens

Aut Prof of English

GNST

Hyderabad, India

vidua.vaid@ijournal.com

English Language through TED talks

Abstract

Language Acquisition can happen from any resource. There are many authentic resources like newspapers, audio-visuals, pamphlets, brochures, handbooks, advertisement etc. This paper tries to talk about how TED talks i.e., online TED videos can be used effectively by language teachers to enhance the language abilities of learners. This paper attempts to discuss the various skills that students can develop through the videos and suggests a model for the activities that can be designed by interested teachers.

Key words: Online videos, TED talks, authentic resources, acquisition, Language skills.

'Technology, Entertainment, Design' popularly known as TED talks are renowned worldwide. It is an idea conceived by Richard Saul Wurman in February 1984. It is a media organization that posts talks online for free distribution under the slogan "ideas worth spreading." TED serves as an excellent platform for sharing ideas among students, engineers, scientists, teachers, psychologists, doctors, architects and any other field known to humanity. These talks are conducted independently with the name TED X where X stands for independently organized events at educational institutions mostly.



A two level probabilistic inventory model with a constraint on holding cost

M. Nagasree^{1*}, M. Madhavifata² and A. Sridakumari³

Abstract

In this paper a single period two level probabilistic inventory model with continuous distribution of demand is considered. The objective of this paper is to find the optimal purchase quantity S^* and also the quantity that can be stored in QW W^* which minimizes the expected total cost for the period under the restriction that the expected holding cost cannot exceed fixed quantity. Lagrange's method of multipliers approach is used to find the optimal values of S^* and W^* . Numerical example is illustrated to represent the model.

Keywords

Continuous distribution, Lagrange's method of multipliers, Probabilistic inventory model.

AMS Subject Classification

90B05.

¹ Research Scholar, Department of Mathematics, Jawaharal Nehru Technological University Anantapur, Anantapur, India.

² Sr. Assistant Professor, Department of Humanities and Mathematics, G.Narasimma Institute of Technology and Science for women, Hyderabad, India.

³ Assistant Professor, Department of Mathematics, Jawaharal Nehru Technological University Anantapur, Anantapur, India.

*Corresponding author. ¹ nagasree@jntu.ac.in, ² madgpm1@gmail.com, ³ sridakumari@gmail.com

Article History: Received 22 November 2018; Accepted 08 May 2019

Contents

1	Introduction.....	224
2	Literature Review.....	224
3	Assumptions.....	225
4	Notations.....	225
5	Model Description.....	225
6	Example.....	226
7	Conclusions.....	226
	References.....	226

1. Introduction

Many researchers consider a deterministic demand but in practical the demand is uncertain. If the demand is uncertain, it is difficult to maintain an inventory. In the examples like News papers and seasonal products demand cannot be determined. By considering the average demand a suitable probability distribution function can be selected and the expected cost can be calculated. In the paper, [1] explained a single period probabilistic demand when the order is for only one period which cannot be transferred to the next period.

It is a general practice that QW has a fixed capacity W and RW has infinite capacity. The purchased quantity is first stored in QW and the remaining in RW . An attempt is made to vary both the quantities in RW and QW . The objective of the paper is to find optimal number of units that can be stored in both RW and QW . By considering probabilistic demand and also imposing a constraint on the holding cost the total expected cost is calculated. Lagrange's method of multipliers and Newton Raphson Method are used to find the solution. It is illustrated numerically by an example.

2. Literature Review

Many papers are published on two level inventory models with deterministic demand by considering the various patterns: stock dependent demand with permissible delay in payment was taken by [2] and [3] considered exponentially increasing demand, [4] considered demand with price sensitive, [5] designed a model with ramp type demand and weibull deterioration, while [6] considered the power demand pattern, [7] has dealt time dependent demand under inflation.

A two level of inventory model with probabilistic demand and uniform demand is considered by [8] and discussed when the inventory is dependent on time and also with a constant age specific rate. [9] discussed a Multi-item inventory model with



A two level probabilistic inventory model with a constraint on holding cost

M. Nagasree^{1*}, M. Madhavifata² and A. Sridakumar³

Abstract

In this paper a single period two level probabilistic inventory model with continuous distribution of demand is considered. The objective of this paper is to find the optimal purchase quantity S^* and also the quantity that can be stored in QW W^* which minimizes the expected total cost for the period under the restriction that the expected holding cost cannot exceed fixed quantity. Lagrange's method of multipliers approach is used to find the optimal values of S^* and W^* . Numerical example is illustrated to represent the model.

Keywords

Continuous distribution, Lagrange's method of multipliers, Probabilistic inventory model.

AMS Subject Classification

90B05.

¹ Research Scholar, Department of Mathematics, Jawaharal Nehru Technological University Anantapur, Anantapur, India.

² Sr. Assistant Professor, Department of Humanities and Mathematics, G.Narasimma Institute of Technology and Science for women, Hyderabad, India.

³ Assistant Professor, Department of Mathematics, Jawaharal Nehru Technological University Anantapur, Anantapur, India.

*Corresponding author. ¹ nagasree@jntu.ac.in, ² madgpm1@gmail.com, ³ sridakumar@gmail.com

Article History: Received 23 November 2018; Accepted 08 May 2019

Contents

1	Introduction.....	224
2	Literature Review.....	224
3	Assumptions.....	225
4	Notations.....	225
5	Model Description.....	225
6	Example.....	226
7	Conclusions.....	226
	References.....	226

1. Introduction

Many researchers consider a deterministic demand but in practical the demand is uncertain. If the demand is uncertain, it is difficult to maintain an inventory. In the examples like News papers and seasonal products demand cannot be determined. By considering the average demand a suitable probability distribution function can be selected and the expected cost can be calculated. In the paper, [1] explained a single period probabilistic demand when the order is for only one period which cannot be transferred to the next period.

It is a general practice that QW has a fixed capacity W and RW has infinite capacity. The purchased quantity is first stored in QW and the remaining in RW . An attempt is made to vary both the quantities in RW and QW . The objective of the paper is to find optimal number of units that can be stored in both RW and QW . By considering probabilistic demand and also imposing a constraint on the holding cost the total expected cost is calculated. Lagrange's method of multipliers and Newton Raphson Method are used to find the solution. It is illustrated numerically by an example.

2. Literature Review

Many papers are published on two level inventory models with deterministic demand by considering the various patterns: stock dependent demand with permissible delay in payment was taken by [2] and [3] considered exponentially increasing demand, [4] considered demand with price sensitive, [5] designed a model with ramp type demand and weibull deterioration, while [6] considered the power demand pattern, [7] has dealt time dependent demand under inflation.

A two level of inventory model with probabilistic demand and uniform demand is considered by [8] and discussed when the inventory is dependent on time and also with a constant age specific rate. [9] discussed a Multi-item inventory model with

Optimal Inventory Model with Two Level Storage Under Ramp Type Demand

M. Negirees¹, M. Madhevaraja², A. Seetha Kumari³
Research Scholar, Department of Mathematics,

NTU College of Engineering, Anna Nagar, Anna Nagar - 600 037

²Senior Assistant Professor of Mathematics, Humanities and Mathematics Department
G. N. Narsingamma Institute of Technology & Science (for women), Dattipati, Kolarudod

³Assistant Professor of Mathematics, Department of Mathematics
NTU College of Engineering, Anna Nagar, Anna Nagar - 600 037

Abstract: This paper presents an EOQ model for the two level of inventory for deteriorating items with demand rate as a ramp type function of time and a two parameter Weibull distribution is used to represent the distribution of the time for deterioration both in OW (Own Warehouse) and RW (Rented Warehouse). As the holding cost is higher in RW than OW, 'L' units of RW is transferred in bulk from RW to OW at a time and the total amount is transferred in a shipment. A fixed cycle is considered and the shortages are partially backlogged. The objective of the paper is to find the optimal replenishment policy for the problem.

Keywords: Two levels of storage, Ramp type demand, Bulk release

I. INTRODUCTION

In the study of inventory models, two important factors that need to be noted are demand and deterioration. Different demand patterns are used to reflect sales in the market. Most of the researchers considered either continuous increase or continuous decrease demand with time. But in practice this may not be true all the time. For example, in the case of newly launched products, fashionable garments, hardware devices, cosmetics, initially demand increases with time and becomes constant over a period of time. The Ramp type demand is suitable for such products where it increases up to a certain time and becomes constant thereafter.

Next important factor is deterioration. Most of the products like medicines, food items, chemicals, electronic components etc. deteriorate/damage/spoil over a period of time. Many mathematical models have been developed on the deteriorating items considering various functions of rate of deterioration like constant rate, exponentially decaying and so on.

Many researchers have studied about the Weibull deterioration with two or three parameters. Chakrabarty [16] mentioned in his introduction of the paper that the Weibull distribution for deterioration could be used explicitly for the products where the rate of deterioration increases with age, longer the items remained unused or the higher the rate at which they failed.

II. LITERATURE REVIEW

The inventory models for deteriorating items stored in two warehouses have been discussed and explained by many authors and researchers. In the past, R.V.S. Sarma [13] explained optimum release rule. A.K. Ghosh [2] discussed linear trend in demand and later included the shortages in [3]. A. Goyal [3] stock dependent rate, Hui-Ming Wee [6] partial backordering and Weibull deterioration under inflation, Ruzhan Li [11] reviewed deteriorating inventory study, Deepa Khanna [4] considered time dependent demand under inflation, K.D. Pattan [7] stock dependent demand and constant quantity release.

Many researchers started studying Ramp type demand and Weibull deterioration under different assumptions. Chakrabarty [16] discussed a single warehouse with trended demand and Weibull deterioration. Seetha Kumari [15] considered Ramp Type demand under inflation. Li-Qiang [5] in his research, started with zero inventory level, that was taken forward by Ajay Singh Yadav [1] who formulated a model with Ramp Type Demand and Weibull Deterioration for two warehouse.

Neeraj Kumar [10] considered a multivariate demand i.e. a combination of linear time variable and on hand inventory, a two parameter Weibull deterioration is considered only in RW and constant rate is in OW, the objective of the study was to find that the quantity that can be stored in RW and the number of times the inventory should be transferred from RW to OW so that the net profit may be maximized.

Neeraj Kumar [11] investigated the effect of salvage value on an inventory problem of determining the optimal replenishment policy for deteriorating items with stock dependent demand and limited storage facility.

Selgitha Hanrajee [14] a time dependent linear trend demand considered with three parameter Weibull distribution deterioration both in RW and OW and it was assumed that the goods in OW are consumed only when the inventory

Optimal Inventory Model with Two Level Storage Under Ramp Type Demand

M. Neelgires¹, M. Madhevarita², A. Seeta Kumar³
Research Scholar, Department of Mathematics,

NTU College of Engineering, Anna Nagar, Anna Nagar - 600 037

²Senior Assistant Professor of Mathematics, Humanities and Mathematics Department
G. N. Narsingiah Institute of Technology & Science (for women), Dattipati, Hyderabad

³Assistant Professor of Mathematics, Department of Mathematics
NTU College of Engineering, Anna Nagar, Anna Nagar - 600 037

Abstract: This paper presents an EOQ model for the two level of inventory for deteriorating items with demand rate as a ramp type function of time and a two parameter Weibull distribution is used to represent the distribution of the time for deterioration both in OW (Own Warehouse) and RW (Rented Warehouse). As the holding cost is higher in RW than OW, 'L' units of RW is transferred in bulk from RW to OW at a time and the total amount is transferred in a shipment. A fixed cycle is considered and the shortages are partially backlogged. The objective of the paper is to find the optimal replenishment policy for the problem.

Keywords: Two levels of storage, Ramp type demand, Bulk release

I. INTRODUCTION

In the study of inventory models, two important factors that need to be noted are demand and deterioration. Different demand patterns are used to reflect sales in the market. Most of the researchers considered either continuous increase or continuous decrease demand with time. But in practice this may not be true all the time. For example, in the case of newly launched products, fashionable garments, hardware devices, cosmetics, initially demand increases with time and becomes constant over a period of time. The Ramp type demand is suitable for such products where it increases up to a certain time and becomes constant thereafter.

Next important factor is deterioration. Most of the products like medicines, food items, chemicals, electronic components etc. deteriorate/damage/spoil over a period of time. Many mathematical models have been developed on the deteriorating items considering various functions of rate of deterioration like constant rate, exponentially decaying and so on.

Many researchers have studied about the Weibull deterioration with two or three parameters. Chakrabarty [16] mentioned in his introduction of the paper that the Weibull distribution for deterioration could be used explicitly for the products where the rate of deterioration increases with age, longer the items remained unused or the higher the rate at which they failed.

II. LITERATURE REVIEW

The inventory models for deteriorating items stored in two warehouses have been discussed and explained by many authors and researchers. In the past, R.V.S. Sarma [13] explained optimum release rule. A.K. Ghosh [2] discussed linear trend in demand and later included the shortages in [3]. A. Goyal [3] stock dependent rate, Hui-Ming Wee [6] partial backordering and Weibull deterioration under inflation, Runian Li [11] reviewed deteriorating inventory study, Deepa Khanna [4] considered time dependent demand under inflation, K.D. Pattan [7] stock dependent demand and constant quantity release.

Many researchers started studying Ramp type demand and Weibull deterioration under different assumptions. Chakrabarty [16] discussed a single warehouse with trended demand and Weibull deterioration. Seetha Kumar [15] considered Ramp Type demand under inflation. Li-Qiang [5] in his research, started with zero inventory level, that was taken forward by Ajay Singh Yadav [1] who formulated a model with Ramp Type Demand and Weibull Deterioration for two warehouse.

Neeraj Kumar [10] considered a multivariate demand i.e. a combination of linear time variable and on hand inventory, a two parameter Weibull deterioration is considered only in RW and constant rate is in OW, the objective of the study was to find that the quantity that can be stored in RW and the number of times the inventory should be transferred from RW to OW so that the net profit may be maximized.

Neeraj Kumar [11] investigated the effect of salvage value on an inventory problem of determining the optimal replenishment policy for deteriorating items with stock dependent demand and limited storage facility.

Selgitha Hanurjee [14] a time dependent linear trend demand considered with three parameter Weibull distribution deterioration both in RW and OW and it was assumed that the goods in OW are consumed only when the inventory

THE PORTRAYAL OF MOTHERHOOD IN KAMALA DAS' 'SUMMER VACATION'

Dr. B. Sushma

Asst. Professor of English

G. Narayanamma Institute of Technology and Science, Tamilnadu, India



Abstract:

Kamala Das, a renowned Indian English poet, short story writer, novelist and essayist is known for having a distinct voice for writing about the Indian sensibilities, culture, traditions, customs, values and belief systems. She is known for her true and honest depictions of the society around us with its harsh realities. She presents the chagrins of people, their situations and circumstances in an aesthetic, wonderful and at the same time heart touching way. Her major concerns are women, children, marriage, female sexuality, love, death, class, caste, politics and such other things. Her short stories, especially bring out the uniqueness by way of characterization, themes, techniques and the endings. This paper tries to study her short story, 'Summer Vacation' in the light of 'Motherhood'. The story is told by the child narrator, Annu about how Annu and her grandmother meet each other every summer vacation, and the kind of love and bonding the both have for each other.

Keywords: Motherhood, women, love, bonding, Indian culture, Indian Sensibilities.



Journal

Home



- [Home](#) ([/journalTarget.do?journalName=IJSS&issue=1&article=014](#))
- [About Us](#) ([/journalTarget/about_us](#))
- [My Profile](#) ([/journalTarget/my_profile](#))
- [Registration](#) ([/journalTarget/register](#))
- [Products](#)
- [Article Submission](#) ([/journalTarget/submit_article](#))
- [Usage Statistics](#) ([/journalTarget/usage_statistics](#))
- [Price List 2011](#) ([/journalTarget/price_list](#))
- [Contact Us](#) ([/journalTarget/contact_us](#))
- [Terms](#) ([/journalTarget/terms](#))
- [Login/Register](#) ([/journalTarget/login_register](#))

014/01



Home Page (Target?journal=JBM&issue=1)
 Journal Issue (Target?journal=JBM&issue=1)
 Archive (Issue (Target?journal=JBM&issue=1))
 Register (Target?journal=JBM&issue=1)
 Subscribe (Target?journal=JBM&issue=1)
 Editorial Board (Target?journal=JBM&issue=1)
 Aims & Scope (Target?journal=JBM&issue=1)

Author Guidelines (Target?journal=JBM&issue=1)
 Editorial Board (Target?journal=JBM&issue=1)
 Submit Your Article (Target?journal=JBM&issue=1)



Journal of Business Management
 - FREE -
 Sample Issue (Target?journal=JBM&issue=1)

Third Access (Target?journal=JBM&issue=1)

SUMEDHA JOURNAL OF MANAGEMENT
 Year: 2021, Volume: 8, Issue: 1
 First page: 1-174 Last page: 1-174
 P-ISSN: 2277-9792, Online-ISSN: 2278-0445

Working capital management of selected cement companies in Andhra Pradesh

Laxmi V. Vajpa, Chaitan G. V.
 Research Scholar, Department of Commerce and Business Administration, A.P.J. Abdul Kalam
 University, Department of Commerce and Business Administration, A.P.J. Abdul Kalam

Online published on 25 January, 2021

Abstract

In the study the cement companies were compared and the analysis carried under the ratio. The study result states that the inventory conversion days are highest compared to other ratios. The financial correlation has been applied and the result found that the selected ratios are having the relationship with the FCFE. The linear regression has been applied and the result states that the selected management of working capital ratio impact on the FCFE.

Keywords

Cash Conversion Cycle, Current Asset ratio, Inventory conversion Days, Return on net assets, Working Capital Management

[Full Text PDF](#) [PDF](#)
[Journal of Business Management](#) [Journal of Business Management](#) [Journal of Business Management](#)

If you have already subscribed for the Article/Notification, please login using the panel provided below.

OR

For information regarding subscription please click here [Journal of Business Management](#)

OR

For a comprehensive list of other publications available on indjournals.com please click here [Journal of Business Management](#)

We recommend

Working capital management in cement industries in Andhra Pradesh: a comparative study
 K. Sankaran et al. (2019) International Journal of Business Commerce & Management Research, 27(2)

Working Capital Management of Selected Cement Companies in India
 Srinivasan R. et al. International Journal of Management and Development Studies, 2012

Working the Short-term to long-term using liquidity ratios of selected cement companies
 Yashwanth C. et al. International Journal of Management & Social Science, 2018

A study on working capital management in selected cement companies in India
 Meghadevi R. et al. IJBM: The Journal of Indian Management, 2015

Relationship between working capital management and profitability: A comparison of steel and cement industries of India
 Dr. Sharmeeta Das et al. International Journal of Management IT and Engineering, 2014

Role of Strategical Processes in Climate Change Adaptation and Challenges
 Vinayak Tam, National Report on the 20th UNCCD General Assembly on Drought Risk, 2011-2020, 2020

Recent Progress in Atmospheric Chemistry Research in China: Establishing a Theoretical Framework for the Global Change
 Tong Guo, National Report on the 20th UNCCD General Assembly on Drought Risk, 2011-2020, 2020

Recent Advances in Understanding Multi-scale Climate Variability of the Asian Monsoon
 Han Chang, National Report on the 20th UNCCD General Assembly on Drought Risk, 2011-2020, 2020

A Review of Research on the Desert-Grassland Ecosystem Shift in Inner Mongolia, China, July 2011

Climate Change, National Report on the 20th UNCCD General Assembly on Drought Risk, 2011-2020, 2020

Recent Advances in China on the Preparation of Health and Climate
 Vinayak Tam, National Report on the 20th UNCCD General Assembly on Drought Risk, 2011-2020, 2020

Powered by [iJournals](#)

[Home Page](#) | [Privacy Policy](#) | [Contact Us](#) | [Copyright](#) | [Terms & Conditions](#) | [Feedback](#)

Page Rank Test (http://www.probacklink.in/)

INDJOURNALS INDEXED AT JGPR, MAY 2021

All rights reserved. All copyrights and trademarks are the property of SUMEDHA PUBLICATIONS, LTD. All rights reserved.

http://www.indjournals.com/journalTarget?journal=JBM&issue=1&article=014

ISSN 2278-0248

International Journal on Multicultural Literature

A British Global Multicultural Literary Journal

132

VOLUME 132

NUMBER 1

2018

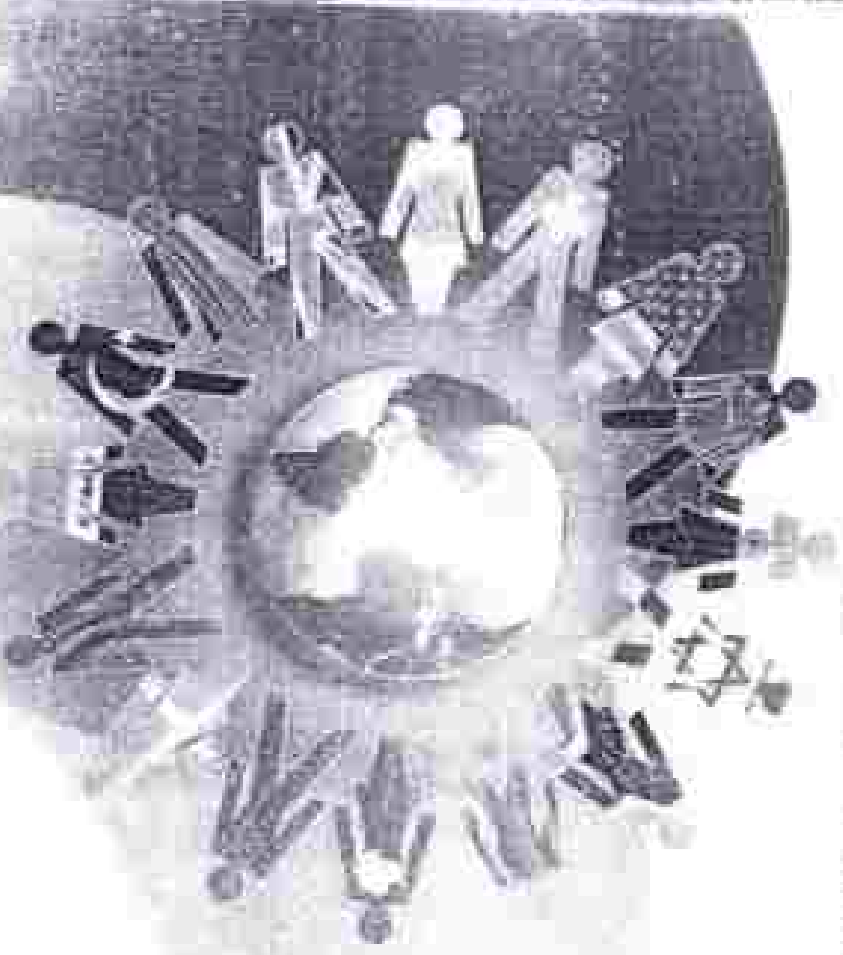
International Journal on Multicultural Literature

Abstracted and Indexed by Library Reference Center Plus,
Abstracts.com, Philology, JPLS, ISI, Worldcat, ResearchGate

Indexed in the JCR, Expanded ISI, Emerald, ISI, Journal Master List

A Multicultural Literary Journal

IJML



Published by: **Dr. K. V. Dominic**

Address: Noreppalli Lake

Periyar Road - 685 385

Email: ijml@vsnl.com

Phone: +91 9547249118

Website: www.ijml.com

Edited by
Dr. K.V. DOMINIC



society, the great supporters of women should be women but very often the world's women wish to punish their own gender. Most of the credits are directed by men and they will keep age old theories of Mother-in-law and daughter-in-law problem a burning issue on our head and gladly let women on the other. Woman need to be respected as individuals and not as Gods. TV serials show women either the very incarnation of God or Devil on the side and on the other if she is bad she is considered as Devil. Such these concepts are bad and we need a balanced society where everyone is being respected.

Works Cited

- Ben, Thera L. *Recent Fiction of Children in Kerala, 2012 - 13*. Institute of Social Reform, 2011.
- Bhoni, Chitra. *God/Fiction: Popular Reading and Fairy Theories*. Manipal, 1996.
- Prologue*. Directed by Anitha Joseph. *Metals Entertainment*, 2011.
- Roy, Arundhati K. *An Immigrant in Culture/Space*. Vire Books, 2001.
- Reed, Russ (ed.). *Crash Culture: Figuring Creativity in Fiction and Film*. Columbia, 2011.
- Ruber, Nicole and Michelle Brown. *Critiquing Class in the Movies*. New York UP, 2011.
- Wolke, Maggie. *Men, Codes and Culture*. Pluto Press, 2001.

Interconnectedness of Man and Nature in Arundhati Roy's *The God of Small Things*

B. Sushma

Absent-Eco-criticism has given as a multi-disciplinary concept which can be applied to scenic, technology, art and literature. From the 'Romantic Kernel' or the call to return to Nature' slogan by William Wordsworth in the 19th Century to the present times, the inter-relationships has been explored by many writers. Debate by the immigration and treatment of a selfish, individualistic and egoistic society, human beings are moving to the new world to explore the human mind and its relation to nature and surroundings. The nature of the contemporary travel like Arundhati Roy, *River Deal*, Anna Sui and China Baiyang. Discussion here from extensive descriptions of Nature and its role in man's life in their literary outputs. This paper tries to examine Arundhati Roy's description of nature of Kerala, God's own country and the role of the characters like Anam, Velutha, Ammu's children, and how nature has influenced their lives using Eco-criticism as the theoretical framework.

Keywords: Man-Nature Interconnectedness, Eco-criticism, Description of Nature, Egoistic society, Inner world.

With its lush green environment, beautiful mountains, peaceful, scenic valleys, cool, clear, flowing river waters, the striking waterfalls, quiet and dense pathways, Kerala, God's own country, is the setting of Arundhati Roy's first and only novel, *God of Small Things*. Kerala remains the backdrop of every event that happens in the lives of the characters in the novel. Cheryl Chodoffy, one of the pioneers of eco-criticism says, "Eco-criticism is the study of the relationship between literature and physical environment." Another critic, Lawrence Buell says "Eco-criticism is the study of the relationship between literature and environmental conditions in a spirit of consultation to

IDENTITY CRISIS IN SUNETRA GUPTA'S "A SIN OF COLOUR" AND "MEMORIES OF RAIN"

B. R. Lakshmi¹, G. Hampamma², V. B. Chitra³

¹(Research scholar, NTUA, Anantapuramu.)

²(Vice-Principal, (Academics), MIT, Madanapalle.)

³(Asst. Professor, Dept of English, NTUA, Anantapuramu.)

ABSTRACT



Sunetra Gupta in her fiction shows how a diasporic individual is in an irresolute position and can't put oneself under a uniquely elite meaning of self. The hyperated nearness between two characterising selves highlights the personality emergency making it a natural normal for diasporic life. Most importantly, the self is seen both as local and outsider under conditions. These evidently conflicting positions do cause sentiment uneasiness in diasporic life. However, the condition can be continued through self-moulding. An investigation of a range of works of Sunetra Gupta, indicates not just how the vagrant Indians are progressively being acknowledged by the West yet additionally how this diasporic Indian adapts to such a moving plane of acknowledgment through the unending procedure of production of identities.

Keywords: Gently, Diaspora, Estrangement, Outsider, Homeland.

Citation:

Are Lakshmi, B. R., Hampamma, G., & Chitra, V. B. (2018). Identity Crisis in Sunetra Gupta's "A Sin of Colour" and "Memories of Rain". *Veda's Journal of English Language and Literature*, 5(3), 299-303.

DOI: [10.1358/2248-3133](https://doi.org/10.1358/2248-3133)
Lakshmi, B. R., Hampamma, G., & Chitra, V. B. (2018). Identity Crisis in Sunetra Gupta's "A Sin of Colour" and "Memories of Rain". *Veda's Journal of English Language and Literature*, 5(3), 299-303.

Author(s) retain the copyright of this article.

Copyright © 2018 VEDA Publications

Author(s) agree that this article remains permanently open access under the terms of the Creative Commons Attribution License 4.0 International License. 



IJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 5 **Issue:** II **Month of publication:** February 2018

DOI:

www.ijraset.com

Call: ☎ 08813907089

E-mail ID: ijraset@gmail.com



Environmental Accounting Reporting Practices in India- Issues and Challenges

V. Vijaya Lakshmi¹, K. Sivanala Devi²

¹ Dept of Humanities and Mathematics

² Dept of Basic Sciences, G. Narayanaswami Institute of Technology & Science, Udupi, Karnataka

Abstract: Accounting and disclosure of environmental matters have been increasingly manifesting as an important dimension of corporate accounting and reporting practices. As the entire world continues its rapid move towards industrialization, it has seriously threatened human ability to maintain the ecological balance. Industrialization is the foundation stone of the development of any economy, while the unplanned industrialization and discharge of waste by industries is one of the major cause of environmental pollution. As corporate sectors in the global market, especially in India are becoming anxious about environmental degradation, depletion of resources etc. naturally more and more emphasis will be accorded to how environment-friendly the outcomes. Maintaining accounts of such environmental and natural resources in the country has become more urgent. Moreover, international awareness and acceptance of the importance of environmental issues has motivated the development of a branch of accounting called "Green Accounting" or "Environmental Accounting". But, as conventional accounting deals with mainly non-living things, the formulation of valuation, and measurement and accounting techniques for incorporating environment-related matters in the corporate financial statements sometimes creates problems for the accountant. In the light of this situation, the conceptual analysis of the study is concerned with the rationale of environmental accounting on the economy and society as a whole, and focuses the failures of the traditional accounting system. The present research paper concentrates on exploring the concept of Environmental/Green accounting, its practices and reporting in India. A modest attempt has been made to throw light on the environmental awareness in developing nations like India and discuss the problems associated with the implementation of environmental accounting.

Keywords: Environmental Degradation, Environmental Accounting, Social Responsibility, Environmental Reporting.

I. INTRODUCTION

Environmental Accounting is an important tool for understanding the role played by the business enterprises in the economy towards the environmental safety and welfare of the society. It provides data highlighting both the contribution of business enterprises to economic wellbeing and the costs imposed in the form of pollution or resource degradation. Every business has an overriding responsibility to make the fullest possible use of its resources - both human and material. An enterprise is a corporate citizen. Like a citizen, it is judged by its actions in relation to the environment and society of which it is a member as well as by its economic performance. As far as Indian corporate sector is concerned, it is sad but true that it has not been performing as a good citizen. There are many laws that have been enacted and amended from time to time to make the corporate sector to fulfil its social responsibility for better development of Indian environment and economy. Therefore, recent years have witnessed rising concern for environmental degradation which is taking place due to increasing industrial activities. It may be noted here that the environmental degradation and pollution spoil human health, reduce economic productivity and lead to loss of amenities. The mitigation of energy resource use without impairing the quality and functions of the organization rendered the multi-national companies to stay competitive.

The energy conservation in the firms brought cost reduction, cost leadership and market leadership. The western developed countries including USA, UK, France, Germany, Australia, Japan and New Zealand have recognized the concept of calculated energy consumption in their manufacturing and service sectors.

The International Accounting Standards Board (IASB) identified and recognized the measurement of energy conservation under the name and style of Green Accounting. The developing countries like India is facing twin problems of protecting the environment and promoting economic development.

A trade-off between environmental protection and development is required hence a careful assessment of the benefits and costs of environmental damages is necessary to find the safe limits of environmental degradation and the required level of development. It is known that there are limited resources available for the use of all species on the earth and the ancestral damage is done to the



IDENTITY CRISIS IN SUNETRA GUPTA'S "A SIN OF COLOUR" AND "MEMORIES OF RAIN"

B. R. Lakshmi^{1*}, G. Hampamma², V. B. Chitra³

¹Research Fellow, JNTUA, Anantapuramu /

²Visiting Professor, Anantapuramu, JNTU, Anantapuramu /

³Associate Professor, Dept of English, JNTUA, Anantapuramu



ABSTRACT

Sunetra Gupta in her fiction shows how a diasporic individual is in an in-between position and can't put himself under a uniquely site-meaning of self. The typified likeness between two strikingly different selves highlights the personality emergency making it a natural normal for diasporic life. Most importantly, the self is seen both as local and outsider under conditions. These evidently conflicting persons do cause sentiment anachronism in diasporic life. However, the condition can be confirmed through self-moulding. An investigation of a range of works of Sunetra Gupta, indicates not just how the migrant Indians are progressively being acknowledged by the West yet additionally how the diasporic Indian adapts to such a moving state of acknowledgment through the changing procedure of production of identities.

Keywords: Identity, Diaspora, Management, Outsider, Homeland

Citation

- APA - Lakshmi, B. R., Hampamma, G. & Chitra, V. B. (2018). Identity Crisis in Sunetra Gupta's "A Sin of Colour" and "Memories of Rain". *Journal of English Language and Literature*, 1(1), 44-50.
- MJA - Lakshmi, B. R., Hampamma, G. & Chitra, V. B. (2018). "Identity Crisis in Sunetra Gupta's "A Sin of Colour" and "Memories of Rain". *Journal of English Language and Literature*, 1(1), 44-50.





ISSN INTERNATIONAL
STANDARD
NUMBER
ISSN
Impact Factor : 5.7

INDEX  COPERNICUS
SERIALS EDITORIAL

 **Crossref**

UGC Approved Journal

IJELLH

**International Journal of English Language,
Literature in Humanities**

Indexed, Peer Reviewed (Refereed) Journal

ISSN-2321-7065



Editor-in-Chief

**Volume 6, Issue 2
February 2018**

www.ijellh.com

*LAKSHMI BHASKARA

Research Scholar, JNTUA,
ANANTAPURAMU.

Dr. G. HAMPANMA,
Vice-Principal(Academics)
MITS, MADANAPALLI.

<roflim@telna1813@gmail.com>

**DE. V.B.CHITRA

Asst. Professor, Dept of English
JNTUA, ANANTAPURAMU.

<roflim@telna1813@gmail.com>

Identity and Diasporic element in Anita Rau Badami "The Hero's Walk"

Abstract: *The Hero's Walk* illustrates the ways by which becoming to be diasporic identifies with the rituals and routines of regular day to day life and necessitates the abolition of one's beliefs of cultural location, gender, class and race. The idea home gets problematized since it surpasses the physical association and geographical and it additionally connotes social, emotional, cultural and political territories that are often reconstituted and transgressed by the diaspora. The novel concentrates on different issues of diaspora in the worldwide – nearby nexus and incites to think national and global forms of having a place in diasporic terms as methods of critique and reading of both entrepreneurial late innovation and the normalizing part of the nation state. Badami has depicted different issues of diaspora, with more concentrate on issues of homeland and identity.

Keywords: Identity, diaspora, outsider, homeland, alien

A Woman-Centric Study Of Chitra Banerjee Divakaruni's 'Arranged Marriage'

Dr. B. Sushma

*M.A., M.Phil., PGDTE, PGDTE, Ph.D., Assistant Professor of English, G. Narayanaswami Institute of
Technology and Science, Hyderabad
Corresponding Author: Dr. B. Sushma*

Date of Submission: 16-04-2018

Date of acceptance: 03-05-2018

'Arranged Marriage' is a short story collection by Indian Diasporic Writer, Chitra Banerjee Divakaruni. The stories come out with varied themes and issues concerning India and America. Indian Culture, traditions, belief systems, values juxtapose the American way of living. Facial discrimination, Assimilation and Acculturation form part of the stories, the women of India and diasporic space encounter various issues surrounding their lives. All the stories are compact and content in themselves probing the readers to think and empathize with the characters and situations. This paper tries to analyze the women in the short stories and how they lead their lives whether happy or sad, satisfied or dejected.

'The Son' is a story about a mother and a daughter who unable to bear the violence and humiliation of the father, try to move out from the house and again return, when the moods of the man change. This goes on all through their lives. The setting of the story is Calcutta and the village, Goyalpur. The protagonist is the mother and the narrator is the daughter, who narrates in the third person. The daughter sees the mother trying quite often in the night. This depicts the typical Indian patriarchal society, where husbands beat up their wives for no big reasons. The daughter sees the bruises on her cheeks and forehead. Unable to bear the pain of a male chauvinist husband attacking her physically, they both go and live in the mother's grandfather's house in Goyalpur. Financial independence is not given to women of Indian society. So, the mother secretly pools up the money to go away from the house. After a couple of days, she decides to go back as she receives a letter from her husband to come back. For a few days, life is happy in her house but the same thing happens again and they both keep shuttling between the places.

Both the mother and daughter become victims in the hands of a male. But their frequent travelling from their house to grandpa's house and again to their house indicates the typical Indian traditional society where women don't have courage to completely part their lives with the husbands but face all humiliation without questioning.

A comparison is drawn between the life of the son and the life of the mother. Both move from one tree to the other in safeguarding their lives, but they don't realize where it is really safe. The same thing is with the mother. 'I guess they just don't realize what's happening. They don't realize that by living somewhere else they'll be safe. Or maybe they do, but there's something that keeps pulling them back here' p-8. Sons have vision in the night but can't see during daylight. Similarly, the wife sees and bears the violence in the night and is blind to her own self-respect due to the society around her and thus stays back with her husband without having a say.

If the protagonist in 'The Son' is timid and voiceless, in the short story 'Clothes', Sumita, after becoming a widow decides to stay back in America working in a store instead of returning to India. The situations in India, how the society receives widows and imposes restrictions on them make her take the decision which was against her in-law's wishes. Sumita desires to live in a liberal society like America on her own terms.

Sumita grew up in village with folk tales, fables and stories about a girl who was married to a handsome prince: "And she married the handsome prince who took her to his kingdom beyond the seven seas." p-18. Sumita crosses the seven seas with her handsome prince but destiny is not in her hands and has to become a widow. Not all stories have a happy ending in what becomes clear to Sumita. The duties women had to fulfill were put in Sumita's mind by her mother: "A married woman belongs to her husband, her in-laws" p-18. The word, 'A married woman' itself is restrictive and confined whose boundaries are drawn by her in-law's family even after the bonds are severed with the male counterpart due to unanticipated death. But Sumita dares to defy tradition, and asserts her individuality by staying back in America.



Developing Language Learning Abilities through Story Telling

Sudma Brahmoderasa

Story telling is an effective and interesting way of learning language skills. Listening, speaking, reading and writing skills can be integrated for more learning to happen in a story-telling classroom. Story telling as an activity can be given to students either in the present tense, past tense or any other tense which they need practice in. This promotes greater comprehension in grammar and sentence structures. Creativity is also enhanced as learners tend to build stories on their own using imagination techniques. Thereby, thinking abilities, power of expression using appropriate words and phrases are increased in them.

Listening

The teacher needs to select two short stories of ten minutes each and play them. The first short story is shown while students listen to them attentively looking for the themes/morals and the story line, characters etc and some passive attention to vocabulary as well. Here the teacher needs to select good videos where there is clarity in speech and accent. There shouldn't be any external disturbances due to noisy surroundings and technical glitches. Based on this, they need to design some exercises like gap-filling, vocabulary (synonyms, antonyms), guessing the meanings of the phrases used making own sentences using certain words, writing a quote using a word, or another short story with a didactic message taking a lead from the main story. This could be a continuation of the original story or a twist to it which enables learners to enjoy the exercises as well as learn in the interactive and fun method.

Eg. Short stories - Links of some videos

1. <http://www.youtube.com/watch?v=joKqSdbZ4IU> (Greed leads to heavy losses)
2. <http://www.youtube.com/watch?v=0Dmrrh2Uig> (The Crow and the old woman)
3. <http://www.youtube.com/watch?v=TqhuqvibRcJ0> (Magic Pot)

Exercises:

A. Magic Pot story - Comprehension Questions

1. What did the farmer do every day? What did he find on the farm?
2. Mention a few things the farmer does with the pot at home.
3. What did his neighbors do when they found that the farmer was becoming richer and richer every day?
4. What is the moral of the story?
5. Write another short story of a farmer using your imaginative skills.
6. What do you think are the skills you have developed doing these exercises?

RESEARCH ARTICLE



ISSN

Print ISSN: 2595-2636
Online ISSN: 2321-3108

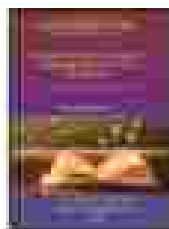
2595-2636 (Print); 2321-3108 (online)

SYMBOLIC AND ALLEGORICAL FANTASY IN CHITRA BANERJEE DIVAKARUNI'S 'THE CONCH BEARER'

Dr. B.SUSHMA

Assistant Professor of English

G. Narayanaamma Institute of Technology and Science, Hyderabad
vadan.sush04@gmail.com



ABSTRACT

Chitra Banerjee Divakaruni, one of the influential writers of the Indian Diaspora has produced Children's literature with a view to educate, entertain and create a sense of belongingness about Indian culture and its roots in the children of the 'exile' in America. The notion of 'home' doesn't seem to exist in the younger generation of the Indian Diaspora as they are born and brought up in the multicultural space, which they consider as their 'home'. This disconnectedness in the roots of one's own culture, specifically Indian Culture makes Divakaruni interested in writing about children in her fictional work, 'The Conch Bearer'.

Divakaruni gives voice to the child protagonist, Anand and explores the world of myth, magic, fantasy, fables, fairy tales, illusions, spiritualism connected to Indian Culture, mythology and cosmology. This paper tries to put forth the ways in which this symbolic and allegorical fantasy have been used and represented through Abhay, the child protagonist and other principal characters in the novel.

Key words: Myth, allegory, fantasy, magic, spiritualism, illusions

Snowy White Himalayan mountains, lush green trees, flowing serene Rivers, the eternal silence, atmosphere of adventure, a taciturn panatorium of peace and happiness; the narrow, crowded and filthy streets of Calcutta, the cold evenings and nights with eerie atmosphere mark the setting of Chitra Divakaruni's children's novel, 'The Conch Bearer'. 'The Conch Bearer' was written and published in 2009. About the novel, in an interview, the writer says: "If children are able to appreciate the characters in books, in real life too, they can be tolerant towards people of 'other cultures'" (Interview with Divakaruni). The novel is basically for the reading of the younger generation in America, both white Americans and especially Indian Americans who lost ties with their home country, India. Divakaruni attempts to revive its culture, tradition in the minds of the young children. Anand,

a twelve year old child protagonist, the "Conch Bearer" in the story sets on a journey of adventure to the Himalayas to restore the Conch in its rightful place. In the process, Anand attains a spiritual outlook on life and decides to be away from his family and native city, Calcutta. This paper tries to explore the novel from the writer's use of symbols, imagery, cultural aspects, dreams, fantasies, stories, fables, fairy tales to bring out the theme of the novel, 'Good wins over Evil'.

The Conch in the story serves as a symbol or a clarion call for the Humanity to live in peace, harmony without having egoistic or evil way of living. The Master healer, Abhaydatta appoints Anand to be the Conch Bearer to protect it from the evil hands of Sunachanu, a healer who turns greedy for power for his selfish ends. Abhaydatta says to Anand, "I need an assistant, someone to journey

**TEACHING VOCABULARY TO LANGUAGE LEARNERS: SOME
INSIGHTS****DR. B. SUSHMA**

M.A., M.Phil., PGCTE, PGDTE, Ph.D.

Assistant Professor of English

G. Narayanamma Institute of Technology and Science
Hyderabad**ABSTRACT**

Vocabulary development is an important and ongoing process for all language learners including the instructors and learners. It is a skill that is acquired over a period of time sometimes implicitly and sometimes through explicit teaching. This explicit teaching can also be done in innovative and interesting ways. According to the National Reading Panel (2000), explicit teaching of vocabulary is highly effective. Students need to be taught both specific words and word-learning strategies for developing their vocabulary. A language learner must have at least 3,000 words in his/her repertoire for confident, fluent and loquacious speaking abilities. It is necessary for language teachers to expose the learners to various types of words such as new, L2, etc. to enable them use the words effectively in their spoken and written activities. This paper introduces some ways that the teachers can adopt in their classes for effective development of vocabulary in students.

I. Using Newspaper Articles:

Divide a class of 30 into 5 groups, 6 students in each group. Ask each group to select a newspaper clipping of their choice and area of interest. The same article is to be read by all the group members. Give photocopies of the same to all the members. First 15 minutes are given for them to read the article for overall comprehension of the message given. Next 10-15 minutes are again given to read between the lines for picking up different words. According to Linda Diamond and Linda Gutlohn, "Rich and robust vocabulary instruction goes beyond definitional knowledge, it gets students actively engaged in using and thinking about word meanings and in creating relationships among words." The words are underlined and the instructor asks them to understand the meaning of the words through the content and the context clues. The students write the meanings as per their understanding. Later, the teacher gives them the time to look for the meaning, the parts of speech, the pronunciation, and the usage of the words through example sentences from a dictionary which has many examples in it. eg. Thesaurus. Students then compare the assumed meanings and actual meanings. Only 20% of the words and meanings would be incorrect but a bit nearer to the original meaning.



DYNAMICS OF WORKING CAPITAL MANAGEMENT OF AMBUJA CEMENT COMPANY – AN ANALYSIS

P. Vijaya Lakshmi¹ & G. V. Chakravarti²

¹Research Scholar, Department of Commerce and Business Administration, ANU, Coimbatore, INDIA

²Professor, Department of Commerce and Business Administration, ANU, Coimbatore, INDIA

ABSTRACT

Working capital is the most vital part of any business firm. Working capital management is the key to success for the manufacturing firm. As a manufacturing firm the profitability of cement industry mainly depends on the efficient management of working capital. Efficient management of working capital is a fundamental part of the overall corporate strategy in creating shareholders' value. Truly, the management of Working Capital is one of the most important and challenging aspects of overall financial management. Optimization of working capital balance means minimizing working capital requirements and realizing maximum possible returns. Efficient WCM increases firm's free cash flow, which in turn, increases the firm's growth opportunities and returns to shareholders. Even though firms are traditionally focused on long term capital budgeting and capital structure, the recent trend is that most companies attach different importance to their WCM efficiency.

The paper attempts to present an analysis of the relation between the different working capital ratios of Ambuja Cement Company from top ten cement manufacturing companies of India. The study is based on secondary data and related data was collected from website of company, company's annual reports and financial websites like money control. Data for Five years 2002-2006.

Key words: Working capital management, Cement Industry, Financial Ratios

Introduction

Cement industry is one of the important industries in country development in the light of the most important basic for construction industry and also the important indicator showing domestic economic growth. In the past, the dynamic demand of cement used to be up to 36 million tons. But, the severity negative effect from economic crisis in 1997 have caused real estate and construction industry setback, the domestic demand of cement has shrunk and been in overcapacity atmosphere. Until 2004-2005, the government has launched many economic stimulus policies. This has made real estate and construction industry rebound and the demand of cement has been increasing gradually from 21 million tons in 2001 to 25 million tons and 26.62 million tons in 2002 and 2003 respectively, and the price level is higher in line with increased production cost.

Cement industry originated in India when the first plant commenced production in 1914 at Poitbanda, Coimbatore. The industry has been growing at a steady pace, but in the initial stage, particularly during the period before independence, the growth had been very slow. Since indigenous production was not sufficient to meet the entire domestic demand, the Government had to control its price and distribution strictly. Large quantities of cement had to be imported for meeting the deficit.

The cement sector mainly plays a critical role in the economic growth of the country, and its success can only contribute growth in Cement is vital to the construction sector and all infrastructural projects. The construction sector alone contributes 7% per cent of the country's gross domestic product (GDP). The industry occupies an important place in the Indian economy because of its close linkage to other sectors such as transportation, transportation, and power. India is the second largest producer of quality cement in the world. The cement industry in India comprises 117 large cement plants and over 170 small cement plants. Currently, there are 46 plants in the industry across the country. The cement industry in India is experiencing a boom on account of rapid growth in the

Effects of Passives on the Performance of an Axial Flow Compressor

S.M Swamy¹ and G.P Prasad Reddy²

¹Asst.Professor, Department of Mechanical Engineering, G.Narasimha Institute of Technology and Sciences, Puttapet, Hyderabad-104

²Professor, Department of Mechanical Engineering, G.Narasimha Institute of Technology and Sciences, Puttapet, Hyderabad-104

Corresponding Author: S.M.Swamy

Abstract: The flow field at the root exit of an axial flow compressor for different tip geometries and for different flow coefficients is measured by using single passive means in the present experimental study. The following configurations are tested: (i) basic rotor configuration without any passive means, (ii) rotor with partial shroud, (iii) rotor with partial shroud and turbulence generator, TG placed on the casing at the leading edge of the rotor blade. The turbulence generators are made of vortico tape. From the steady state measurements, the performance of rotor with PS and TG is found to be the best. Both the rotors with partial shroud and turbulence generators have yielded a higher flow coefficient compared to that of rotor without passive means. From the periodic flow measurements, it is concluded that the low velocity region near the tip centre is considerably reduced with the partial shrouds. The extent of this low velocity region for both rotor with basic and rotor with partial shroud, increased with decreasing flow coefficient due to increased stage loading with less low momentum fluid has moved inward of the annulus and towards the pressure side as the flow coefficient decreases. The improved performance of the rotor with passive means is attributed to the enlargement of the casing wall boundary layer at the rotor inlet, due to vortices generated by TG.

Keywords: Compressor, rotor with partial shroud, rotor with turbulence generator.

Date of Submission: 15-06-2018

Date of acceptance: 30-06-2018

Nomenclature:

d	diameter, m
b	rotor blade chord, mm
PS	partial shroud
n	impeller rotational speed, rpm
p	pressure, N/m^2
r	radius, m
s	blade spacing, mm
SE	section surface
t	tip clearance, mm
TG	turbulence generator placed at the rotor leading edge
U	peripheral velocity, m/s
V	volume flow rate, m^3/s
α	absolute flow angle, deg
β	stator blade angle, deg
γ	rotor blade angle, deg
ψ	pressure coefficient
ϕ	flow coefficient
τ	stagger angle, deg
ρ	density, kg/m^3
τ	tip clearance as percentage of chord, t/Ch

n 100

EXPERIMENTAL INVESTIGATION OF CI ENGINE FUELLED WITH WASTE COOKING OIL AS BIODIESEL USING PYROGALLOL AS ANTIOXIDANT

D.Niharika, Dr B.Durga Prasad, Dr M.P.Rangasath
PG Research Scholar, Professor, Lecturer
Department of Mechanical Engineering

JNTUA College of Engineering, Anantapuram, Andhra Pradesh, India

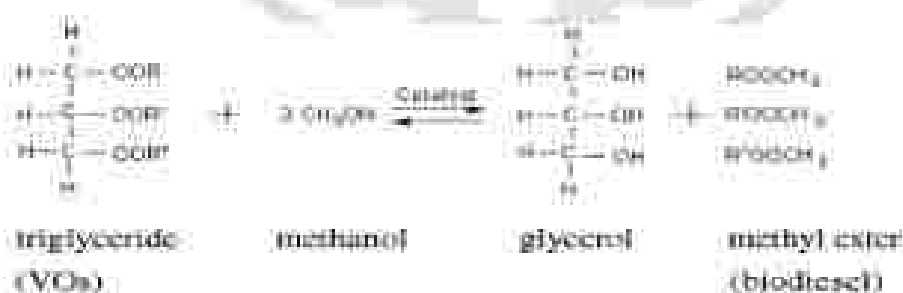
Abstract: In current conditions, vitality is considered as a basic factor for financial development, social advancement and human welfare. To meet the constantly rising demand for energy, biodiesel, an alternative fuel got from vegetable oil/animal fats is winding up progressively prominent in creating nations. Among which biodiesel derived from waste vegetable oil has effectively demonstrated as potential alternative for diesel engine. Anyway more research is to be done on alternative fuels using additives.

In this experiment investigation is done on single cylinder compression ignition engine using waste cooking oil biodiesel prepared by transesterification process with an additive pyrogallol [C₆H₆O]. Pyrogallol as an antioxidant provides oxidation stability to the biodiesel. The performance and emission tests are done at different loading conditions. Tests are done using different blends namely B10, B15, B20, B10A, B15A, B20A. By the addition of pyrogallol to the biodiesel, brake thermal efficiency came nearer to that of pure diesel performance. Emissions are also very less for all blends when compared to pure diesel.

Index terms: CI Engine, transesterification, waste cooking oil, pyrogallol

1. INTRODUCTION

Due to diminishing fossil fuels, values are climbing up and natural concerns are driving the researchers to develop alternative fuel. Now a days, cooked oils from restaurants are reused as biodiesel rather than throwing away which causes environmental pollution. This method of conversion into alternative fuel benefits in both environmentally and economically. The waste cooked oil can be converted into biodiesel by several methods. The most common method is by using transesterification process. In this process, the oil is chemically treated with alcohol (namely methanol/ethanol) in presence of the catalyst for yielding a fatty acid alkyl ester and glycerol (collected from the bottom).



Mixes of biodiesel are presently well embraced and picking up in market. Biodiesel is a fuel contained mono-alkyl esters of long-chain unsaturated fats got from vegetable oils or creature fats that meets the necessities of ASTM D 6751. In my case, a few extraordinary attributes of biodiesel, otherwise called fatty acid methyl ester (FAME), or B100, may cause some operability issues. Viscosity, thermal and oxidation strength are the most noteworthy issues confronting researchers on biodiesel mixes.

Additive:

Biodiesel is viewed as an unchangeable substitute for fossil diesel, however its poor oxidative steadiness is a deterrent to its total acknowledgment by diesel engine producers. The biodiesel is less volatile when compared with the diesel. Further, it is

Experimental Investigation of Wear Characteristics of Aluminum Silicon Carbide Reinforced with Basalt Fibre

M. Yashwanth Kumar¹, Dr. T. Vijay Kumar²

¹ Assistant Scientist, Mechanical Department, K.J.S.O. (Government Job) Hyderabad, Vijayanagara, Andhra Pradesh, India 520 002

² Associate Professor, Mechanical Department, K.J.S.O. (Government Job) Hyderabad, Vijayanagara, Andhra Pradesh, India 520 002

yashwanth.megh03@gmail.com | t.vijay_bach04@rediffmail.com

Abstract: Due to light weight and strength, Aluminium is a good widely used engineering material in various industrial and research fields. Aluminium-Silicon is such extremely useful in the case of cast-aluminum materials in which the most important factor of high strength to weight ratio because the atomic composition of Al-Si alloy is a real β structure. Improved mechanical properties manufacturing processes have proven their ability in final matrix composition. Reinforcement can stop the corrosion cracks and facilitate propagation of the composite with material mixed in proper ratio. There are different methodologies of fabricating composites like stir casting, liquid infiltration, etc., while using these methods with proper parameters. Various research papers specify how wear resistance and mechanical properties along with co-efficient of friction and dry sliding behavior of Al-Si (fly-ash) metal matrix composite Al-Si in base metal is between 2-12% is acceptable. Hardness and tensile properties has been improved in several cases of Al-Si-Fly-ash composites. When weight percentage of fly-ash goes beyond 10% resulting continuous increase in hardness and tensile properties with certain limitations. However, to overcome such a problem, it is proposed an addition of basalt fibre in certain weight percentage to test mechanical properties.

Keywords: Aluminium Silicon Carbide, Hardness, Wear Test, P/T Chart, USNORM

1. Introduction

Intermetallic compounds or second phases, dissimilar metals are combination of metal matrix composites in which discrete phases are embedded [1]. With practical homogeneous distribution of basalt through stir casting liquid processing. Aluminium alloy and their composites have been effectively developed. Yield strength and ultimate tensile strength of aluminium alloy extensively improved with addition of short basalt fibres compared with that of unreinforced matrix. The ultimate tensile strength of A7073 with basalt composites when reinforced with 6 % is increased by 85.51% [2]. With increase in load over speed assessment, the wear rate also gradually increases, with exception of the composite with small particulate size where it falls when