Secure and Optimized Data Sharing Model Group in Healthcare Cloud Environment

Uma Hombal, Dayananda R.B.

Abstract-The cloud computing provides convenient on-demand access of the data. Sharing of data in the cloud computing will enable several users to easily handle the data that is being shared. The medical-field finds more advantages by the cloud-computing technology as the data can be accessed anywhere and anytime by the patients as well as this data can be shared with other medical-practitioners. This alarms for the security issues as the huge amount of sensitive data is being shared. The data must not be available to malicious-attackers. In this paper, we propose the block-design based key agreement protocol in order to share the data securely and the design provides fault-detection and fault-tolerance. The group-data model PSM is given with the block-based design, which decides how the sharing of the data is done by grouping and giving positions to users in particular blocks and the column. The $(np, i+1, 1)$ ***design is proposed in our paper, which gives the technique for positioning of the users. The encryption and decryption of data is done and their times cost according to file size is found. The comparison of the time-cost for our model and existing models is compared with respect to different number of simulations.***

Keywords: Cloud-computing, data-sharing, block-based design, group-key

I. INTRODUCTION

Health-care requires continuous innovations in all the fields in a systematic way in order to provide high quality services. Technology of Information is rapidly and vastly used in healthcare with the motivation of to enhancing and improvising the medical services for cost reduction. Modern health-care innovations rely on information system in all aspects. The application of information-technology in health-care has got its importance in all the countries [1]. Most of the services that are provided are being outsourced to the cloud servers. The cloud storage plays a very important role in the applications like the medical files transferring etc. The majority of data being outsourced will be the health-care data, which will include the personal health record, Electronic health record and related documents. The patients are sent to various tests which results in high exchange of data between different departments of medical units. But this must be done in a secure manner. Many researches have been done to protect the data that is being shared between different departments of these medical units and to identify the risks in sharing of this data [2] [3] [4].

The technology used which helps in this data-exchange is cloud computing. Cloud computing is said to be a model that enable on demand service. The resources can be dynamically increased which implies lot of medical data can be stored and this data can be used and can be accessed anywhere and anytime by the patients or the doctors as well as share the information among them.

Revised Manuscript Received on November 08, 2019.

Uma Hombal, Assistant Prof, Dept. of computer science and technology KLE Dr. MSSCET, Belagavi.

Dr. Dayananda R.B., Professor, KSIT, Bangalore

This alarms for the security and privacy issues as large amount of sensitive data will be shared. The patients' data must not be accessible to malicious attackers. The compromise in this data will be a threat to both the patient and the organization with whom the patient exchanges the data. Methods are taken to provide this security against the attacks [5]

Considering this application of information technology in health-care, the personal health record being outsourced to the servers has gotten numerous data-breaches related to cloud servers which includes the malicious attacks. Patients are unable to have any physical control over their own health-record. These sensitive data are not under the control of the control of these data-owners. So there requires an encryption mechanism to protect these records before out-sourcing is done. Here the owner must decide which user will get access to which data in this record. The decryption mechanism must be such that only those with the decryption ley must be able to decrypt and obtain the data [6] [7]. This implies that the authoritative-users get the access to the data that is being shared outsourced to the cloud.

In this paper we concentrate the sharing of data to multiple users. Here the multiple users will form a group and thereby exchange the data. Here the block-based design key-agreement way is used to design the block-based design structure which can support multiple-participants. This design helps all the data holders to share their data with the higher security as well as a much more efficient manner. This presents the group data-sharing model that supports sharing of this health-care data in a group manner. This DS(data sharing) model in group provides the definition of block based design which is symmetric which determines the way communication among the groups take place. It brings the concept of group-key that the multiple participants generate to share data in a secure manner. The group members make key-agreement to derive the common group-key. This key is being generated by the users themselves. Due to this, any sorts of attacks to the key is avoided and thereby the attack on the data is avoidable. The fault-detection and fault-tolerance is provided by this design. This ensures the group-key is being generated without failure. The fault-detection is done. In this, it can identify the volunteer who can replace the malicious-attacker. This enables to avoid different key-attacks which once again makes data sharing safe. In this, the CCSTPV i.e. the cloud-security service third-party-verifier is used. This is useful in providing the key-updates. It helps the user, to encrypt the file by using the key provided by the CCSTPV and thereby outsource the data to cloud, this encryption makes the data secure for against any middle-attacks.

This paper has organized in subsequent sections that are as follows, section- 2 discuss the Literature survey, in section 3 we described proposed model, section-4 we provide the result-analysis, section-5 gives the conclusion of our paper.

Multi-tier Framework for Optimizing Pairwise Key Predistribution in Sensory Applications

Vaneeta M, S. Swapna Kumar

Abstract*: Security has been always a prominent concern in Wireless Sensor Network (WSN) irrespective of the evolution of various scientific approaches that mainly mechanizes key management approaches to secure the communication system among the resource constraints sensors. Out of various key management approaches, pairwise key is one effective approach to ensure cost effective key management scheme; however, review of existing approaches shows that they still are characterized by various issues connected to optimized performance. Adopting analytical research methodology, the proposed system implements an optimized multi-tier framework for resisting key-based threats and it targets to introduce a lightweight pair wise predistribution of keys by joint integration of enhanced public key encryption and digital signature. The study outcome shows that proposed system offer a better security performance in contrast to existing pair wise predistribution of keys.

***Keywords*: Pairwise keys, predistribution, Key agreement, Security, Attacks.**

I. INTRODUCTION

The adoption of the Wireless Sensor Network (WSN) has been prominently increasing owing to its cost effective remote monitoring capabilities [1],[2]. The sensors follow various clustering schemes in order to carry out data aggregation process [3],[4]. In such communication scheme, usually the members nodes forward the physically sensed data to their assigned cluster head which is then forwarded to either sink (using single hop) or to different cluster head (using multihop). Although, WSN is completely backed up by a stable topology as well as infrastructure, but there are always good possibilities of faults among the operations being carried out by the resource constrained sensor. There are various possibilities of intrusion in WSN both in the form of internal or external attack. There are various studies that have been discussed for addressing key agreement issue with respect to self-enforcing approach, trusted-server approach, and key predistribution approach [5],[6]. Out of all these, key predistribution scheme is found to be more used in existing system that distributes the information of secret keys is carried out before the sensors are actually deployed in the simulation. The decision of the keys can be well defined in advanced if the neighborhood information exists, which is quite impractical as majority of the deployment strategy of the sensors are actually randomized and not on predefined basis. At present, there are various predistribution schemes in WSN that doesn't use such dependency of apriori information of the deployment of sensors. The better form of the solution will be to allow the complete set of the sensors to use a secret key that can be considered as master key. In order to achieve a better form of key-agreement, it is now feasible for different sensors to utilize this master secret key and thereby get the pairwise secret key [7]. However, such approaches are found to reduce the resiliency of the WSN performance that is not anticipated. It will mean that upon event of a compromisation of even a single sensor than the complete network will be rendered vulnerable.

Existing mechanism from the literatures recommends reposting such master key over certain form of hardware that is free from any form of physical damage or any security risk [8],[9]. It will mean that hardware-based approach is claimed to offer protection towards such master key; however it is not completely feasible as it will maximize the consumption of resources as well as cost associated with each sensor. At the same time, there is no evidence till date that hardware based security approaches are always safe as there is the possibility to break-in. There are certain other forms of the predistribution scheme of the secret keys in WSN that allows the sensors to carry a specific number of secret keys in the form of pairwise and this information is accessible only for that specific sensor node while the another specific sensor node in the form of source and destination respectively. It is claimed that such security policies are potentially strong as it is not feasible for the adversary node to influence the security strength of other sensors. Unfortunately, such approaches are not considered as practical approaches as they cannot be supported by sensors with restricted memory.

Another significant problem is that it is not feasible for adding new sensors as there is no new secret key to be allocated by the existing deployed sensors. Therefore, the proposed system discusses about a novel approach of pairwise key distribution scheme where applicability of the different test environment is valid. The idea is to ensure multi-tier framework by including a superior authentication scheme using enhanced public key encryption and digital signature. The prime agenda of the work is also to resist various forms of malicious attacks of dynamic order. The organization of the paper is as follows: Section "A" discusses about the existing literatures where different techniques are discussed for detection schemes used in power transmission lines followed by discussion of research problems in Section

Revised Manuscript Received on December 05, 2019.
***** Correspondence Author

Vaneeta M*, Department of Computer Science & Engineering, K.S Institute of Technology, Affiliated to VTU, Belagavi, India

S. Swapna Kumar, Department of Electronics and Communication Engineering, Vidya Academy of Science and Technology, APJ Abdul Kalam University, Thrissur, India

Integrated System for Classification of Pulmonary Nodules on CT Images

Vijayalaxmi Mekali, Girijamma H. A

Abstract*: Mortality rate of lung cancer is increasing very day all over the world. Early stage lung nodules detection and proper treatment is solution to reduce the deaths due to lung cancer. In this research work proposed integrated CADe/CADx system segments and classifies lung nodules into benign or malignant. CADe phase segments Well Circumscribed Nodules (WCN), Juxta Vascular Nodules (JVN) and Juxta Pleural Nodules (JPN) of different size in diameter. This part uses algorithms proposed in our previous WCN, JVN and JPN lung nodules segmentation work. CADx performance classification of segmented WCNs, JVNs and JPNs nodules into benign or malignant. In first part of CADx system hybrid features of segmented lung nodules are extracted and features dimension vector is reduced with Linear Discrimination Analysis. Finally, Probabilistic Neural Network uses reduced hybrid features of segmented nodules to classify segmented nodules as benign or malignant. Proposed integrated system achieved high classification accuracy of 94.85 for WCNs, 97.65 for JVNs and 97.96 for JPNs of different size in diameter (nodules diameter< 10mm, nodules diameter >10mm and < 30mm, nodules diameter >30mm and <70mm). For small nodules achieved classification performance values are, accuracy of 94.85, sensitivity of 90 and specificity of 95.85. And nodules of size 10mm to 30mm obtained accuracy, sensitivity and specificity are 97.85, 97.65 and 94.15 respectively.

***Keywords* : Computer Aided Detection/Diagnosis, Lung nodules, Low Dose Computed Tomography, PNN.**

I. INTRODUCTION

Lung cancer is most dangerous disease with high death rate. According to 2018 lung cancer survey by World Health Organization (WHO), lung cancer new cases have risen to 2.09 million and 1.76 million deaths all over the world. Early stage detection of lung cancer is one possible and acceptable solution to reduce the death rate [17]. Lung cancer is complex disease which can be classified into different type according its site of origin, cells size, and attachment of external structures, malignancy rate and solidity. Well Circumscribed Nodules (WCN) are round or oval shaped lung nodules appears in center of lung area without any additional tissues attachment. Juxta Vascular Nodules (JVN) are attached with blood vessels and Juxta Pleural Nodules (JPN) are attached with lung pleural. At next level WCNs, JVNs and JPNs are classified into solid, part-solid and non-solid nodules. Based on severity, lung nodules are either benign or malignant.

Revised Manuscript Received on November 15, 2019

Vijayalaxmi Mekali, Department of Computer Science and Engineering, Kammavari Sangham Institute of Technology, Visvesvaraya Technological University, Bangalore, India. Email: duruth.viju@gmail.com

Dr. Girijamma H. A, Professor, Department of Computer Science and Engineering, R. N. S Institute of Technology, Visvesvaraya Technological University, Bangalore, India.. Email: girijakasal@gmail.com

Small nodules without cancerous cells are known as benign nodules. Moderate or large size nodules with cancerous cells are known as malignant (have potential to spread to other sites) [18]. Malignancy of malignant lung nodules indicates potential of these nodules to extent to lymph nodes, or another lung lobe or other organs like breast, brain, prostate etc. Farthest speared of malignant nodules indicates higher malignancy. Table I provides characteristics of benign and malignant nodules.

A. Low Dose Computed Tomography (LDCT) and Computer Aided Detection/Diagnosis (CADe/x) system for lung cancer

Among all the imaging modalities LDCT is GOLD STANDARD for detection of lung cancer [17]. As LDCT generates multiple CT images (slices) in one scan, interpretation of such huge number of slices by radiologist to extract the information of existence nodules is challenging task. Thus, now a days cancer detection/diagnosis medical routines uses CADe/x system to get precise information about nodules. CADe system assist the radiologist in detection of nodules and benign or malignant nodules classification is done by CADx system and it thus helps the radiologist in treatment plan. Fig. 1 is CT lung image showing different anatomical structures of lung and red circle shows the presence of lung nodule.

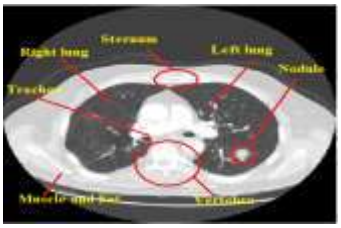


Fig. 1.Lung CT image with different parts and lung nodule.

Table-I: Characteristics of benign and malignant nodules

Characteristics	Benign	Malignant
Shape	Round or Oval	Irregular
Boundary Smoothness	Smooth	Irregular
Size	Less than 3cm in diameter	Greater than 3cm in diameter
Indication of cancer	Non-cancerous	Cancerous
Malignancy	No or very poor	High

Novel CADe/CADx System for Lung Nodules Segmentation and Classification on Computed Tomography Images

Vijayalaxmi Mekali, Girijamma H. A

Abstract*: Detection and classification of different types lung nodules poses major challenges in medical diagnosis routine. Classification of segmented nodules based on extracted hybrid features of segmented nodules have shown remarkable performance. Recently deep features alone and also with combination of hybrid features have improved nodules classification. In this research work new CADe/CADx system is proposed for detection and classification of Well Circumscribed Nodules, Juxta Vascular Nodules and Juxta Pleural Nodules. In nodules detection part, algorithms proposed in our previous work were used. Classifiers decision fusion based new nodules classification system is proposed. Four set of hybrid features and deep features using Convolution Neural Network are considered from segmented nodules. Hybrid features set consist of twenty four shape features, six GLCM features in four direction with a distance of two, six First Order Statistic features and twelve energy features. Five individually trained Probabilistic Neural Networks by all five set features separately used in nodule classification. In classification process all five classifiers decisions are fused at 2-level, 3-level, 4-level and 5-level. The proposed system achieved highest performance with 5-level fusion compared with other level fusions. System was evaluated on CT images of LIDC database with consideration of 2669 lung nodules of malignancy rate 1 to 5. Based on malignancy rate 2669 nodules are grouped as dataset 1 and dataset 2 with nodules of malignancy rate 1, 2, 3 and 3, 4,5 respectively. The 5-level decision fusion achieved highest accuracy of 95.72, sensitivity of 95.52, specificity of 95.79 and Area Under Curve of 96.21 for dataset 1 and accuracy of 92.54, sensitivity of 90.48, specificity of 94.63 and Area Under Curve of 92.69 for dataset 2.

***Keywords*: Computed Tomography, Computer Aided Detection/Diagnosis, Convolution Neural Network, Lung cancer and Lung Nodule Classification.**

I. INTRODUCTION

All over the globe mortality rate of lung cancer is very high as compared with other types of cancers such as prostate, brain, breast, cervical cancer. According to World Lung Cancer Day 2019 facts and figure, lung cancer new cases have risen to 2.09 million and 1.76 million deaths all over the world. Early stage detection and classification of lung cancer is acceptable solution to reduce the mortality rate. Lung cancer is heterogeneous disease as it appears at different locations in lungs attached with different types of external structures with different calcification rate. Lung cancer can be classified into different type according its site of origin, cells size, and attachment of external structures, malignancy rate and solidity. Well Circumscribed Nodule (WCN) is round or oval shaped lung nodules appears in center of lung area without any additional tissues attachment. Juxta Vascular Nodule (JVN) is attached with blood vessels and Juxta Pleural Nodule (JPN) attached with lung pleural as shown in Fig. 1. At next level WCNs, JVNs and JPNs are classified into solid, part-solid and non-solid nodules. Based on severity lung nodules are either benign or malignant. Small nodules without cancerous cells are known as benign nodules. Moderate or large size nodules with cancerous cells are known as malignant (have potential to spread to other sites). Malignancy of malignant lung nodules indicates potential of these nodules to extent to lymph nodes, or to another lung lobe or to other organs like breast, brain, prostate etc. Farthest speared of malignant nodules indicates higher malignancy. Table I shows the characteristics of benign and malignant nodules.

A. Low Dose Computed Tomography (LDCT) and Computer Aided Detection/Diagnosis (CADe/x) system for lung cancer

Medical modalities like X-ray, Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Positron Emission Tomography (PET) and Diffusion Weighted-MRI (DW-MRI) have been playing major role in detection of lung cancer. Among all the medical modalities Low Dose CT (LDCT) is GOLD STANDARD for detection of lung cancer. LDCT generates huge number of images (slices) in one single scans. It is tedious task for radiologist to interpret all the slices to draw useful information about existing nodules. To reduce the burden of radiologist and for accurate detection of lung cancer nodules, medical routines uses Computer Aided Detection/Diagnosis (CADe/x) system to detect and draw precise information about nodules. Benign or malignant nodules classification is done by CADx system and thus it helps the radiologist in treatment plan.

B. Role of Image processing techniques and classifier in lung cancer diagnosis

Image processing techniques such as different types of thresholding methods, Region Growing (RG) method, clustering algorithms, morphological operations, edge

Revised Manuscript Received on December 12, 2019.
***** Correspondence Author
Vijayalaxmi Mekali*, Department of Computer Science and Engineering, Kammavari Sangham Institute of Technology, Visvesvaraya Technological University, Bangalore, India. Email: duruth.viju@gmail.com
Dr. Girijamma H. A, Department of Computer Science and Engineering, R. N. S Institute of Technology, Visvesvaraya Technological University, Bangalore, India.. Email: girijakasal@gmail.com

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

DIAGNOSIS OF DISEASES IN POTATO LEAVES USING IOT

Beena K[1], Nukala Hari Vamsi Krishna[2], Manasa Reddy K[3], Akshatha S Katta[4], Harini B.H[5]

[1] Professor, [2,3,4,5] Student

[1,2,3,4,5] Department of Computer Science and Engineering

[1,2,3,4,5] K.S. Institute of Technology, Bengaluru-560062, Karnataka, India

Abstract: **Crop cultivation plays an essential role in the agricultural field. Presently, the loss of food is mainly due to infected crops, which reflexively reduces the production rate. This paper presents a brief outline of the automatic detection and classification of plant leaf diseases. The internet of things also plays a major role. In this, we are using techniques and algorithms to classify diseases & quick diagnosis can be carried out as per disease. The farmers get early alerts from the device about the diseases and can save their crops. This research applies to rural areas wherever the connectivity is limited.**

Index Terms **- Agriculture, IoT, Potato Leaf Diseases, Image Processing Technique, K-Means Clustering, Genetic Algorithm, Support-Vector Machine, K-Nearest Neighbour**

1. INTRODUCTION

Agriculture has become far more than simply a method to feed ever-growing populations. It's important to know that 70% of the population of an Asian country depends on agriculture. Which means it feeds a nice range of individuals. However, the relative significance of farming has dropped steadily since the beginning of industrialization. So, it's time that we put our hands together to solve the issues faced in the field of agriculture.

The cultivation of the crops for maximum profit and standard manufacture is usually scientific. The supervision for crops needs supreme power especially for the disease management that may have a result on factors of production significantly to make an economic profit. Control of plant diseases is crucial to the reliable production of food, and it provides significant problems in agricultural use of land, water, fuel, and other inputs. Plants in both natural and cultivated populations carry inherent disease resistance, but there are numerous examples of devastating plant disease impacts such as Irish potato famine and chestnut blight. However, disease control is reasonably successful for most crops. It is estimated that diseases typically reduce plant yields by 10% every year in more developed settings.

Traditionally, all the diseases and harms were identified with visual inspection by experienced people who may use certain features like color, texture and shape to analyze which in turn leads to expensive cost and less efficiency. By considering this issue as a challenge, we aimed to provide a solution technically with the method of the Internet of Things. Application of Internet of Things in agriculture includes agricultural monitoring and control, controlled environment agriculture, open – field agriculture, livestock applications, food supply chain tracking. The benefits of smart farming using the Internet of Things improves agriculture in different ways like tons of data collected by smart sensors, provides better control over the internal processes. The use of the Internet of Things in agriculture produces cost management, waste reduction, process automation, and enhanced product quality and volumes.

There exists a variety of symptoms, the internal and external expressions of disease, that result from any disease from the symptom complex, which, together with the accompanying signs make up the syndrome of the disease. Generalized symptoms may be classified as local or systemic, primary or secondary, and microscopic or macroscopic.

The foremost problem is producing a crop of less quality because of disease. So hence, detecting these diseases and insect pests may be a key to stop agricultural losses. This project aims to develop a system that mechanically detects and classifies the disease. Therefore, detecting and classifying diseases and insect pests in agricultural applications is imperative.

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

DEMAND DRIVERS FOR AGRICULTURAL COMMODITIES

Roopesh Kumar B N[1], Abhishek M[2], Aditya Shankar[3], Ketan K[4], Nagalekha Ramesh[5]

[1] Professor, [2,3,4,5] Student

[1,2,3,4,5] Department of Computer Science and Engineering

[1,2,3,4,5] K.S. Institute of Technology, Bengaluru-560109, Karnataka, India

Abstract: The system developed will continuously crawl various sources on the web to monitor parameters that might affect the prices of agricultural commodities. This shall be achieved by analyzing historic data coupled with real time data extraction from major business websites such as Forbes, business insider, Bloomberg and so on. Given a certain parameter, our system will crawl through social media to perform sentiment analysis and determine if the general public and/or a few specific people have a positive or negative opinion regarding a topic that might affect the parameter. Our system automatically creates a thread for every new parameter that it deduces. Major events that have a significant impact on the market will alert the user. All this logged data can then later be used for further analysis. It will eliminate the need for tracking numerous sources of information for intelligent trade moves and will provide a one stop solution to be ahead of the competition.

Index Terms - **Market information system, agricultural commodity price.**

I. INTRODUCTION

The commodities market is one of the most volatile markets as the commodities have an immense impact on the economy of a country and the quality of life of a human being. Typically, the commodities market is subject to a lot of fluctuations and therefore, in order to make a profit, it is important to understand the various parameters that create an impact on the prices of the commodity. Our system will continuously crawl various sources on the web to monitor parameters that might affect the prices of the commodities.

Examples of the factors that will be monitored include

1. Government and economic policies
2. Storage and transportation factors
3. Supply and demand
4. Weather conditions and so on

1. LITERATURE SURVEY

Commodities are raw material that has not been processed and can be traded. These raw materials can be classified according to their quality based on international trade standard, such as wheat, rubber, coffee.

The cause of commodity price fluctuations is rooted in the development of a world market that is not yet adept in anticipating global fluctuations in demand. Price fluctuations are actually being exacerbated by the availability of information and the speed of communication. One may think that better information would reduce volatility, so this result seems counterintuitive. When commodity markets were more localized in nature, market participants had a much better feel for demand levels. This proximity to supply and demand factors allowed prices to follow more predictable patterns. However, the fact remains that the global market has been permanently opened, and this, in turn, has caused tremendous volatility. The unpredictability of price levels has led developing countries that understand their own long-term raw material shortages to enter and exit markets as prices reach certain levels. This activity, while it has increased the frequency of price movements, has actually decreased volatility in the sense of dampening highs and lows. Thus, while market participants see more frequent price movements, the end result is actually a certain level of price stability (i.e., move movements but within a narrower band), which lends itself well to hedging activity.

DETECTION OF PHISHING WEBSITES USING MACHINE LEARNING TECHNIQUES

[1]Mrs.Vaneeta M, [2]Pratik N N,[3]Prajwal D, [4]Pradeep K S, [5]Suhas Kakade K

[1]Associate professor, Department of Computer Science and Engineering, K S Institute of Technology
[2,3,4,5]Undergraduates, Computer Science and Engineering, K S Institute of Technology,
Bengaluru, Karnataka, India-560109, Affiliated to VTU, Belagavi

Abstract: Phishing is a website forgery with an intention to track and steal the sensitive information of online users. It is a form of identity theft, in which criminals build replicas of target websites and lure unsuspecting victims to disclose their sensitive information like passwords, PIN, etc. A huge volume of information is downloaded and uploaded constantly to the web. This gives opportunities for criminals to hack important personal information. To overcome the issues faced here,developed a phishing websites detection technique based on machine learning classifiers with a wrapper features selection method. Classification algorithms used are Artificial Neural Network, Random Forest and Support Vector Machine. Dynamic features extraction is made from the entered URL and the trained model is used for the detection of phishing URL.

Index Terms **- Phishing, Phishing attack, Wrapper Features Selection, Machine Learning Classifiers,WHOIS Protocol, Dynamic Features Selection**

I. INTRODUCTION

In recent years, the web has evolved explosively due to the availability of numerous services such as online banking, entertainment, education, and social networking. Accordingly, a huge volume of information is downloaded and uploaded constantly to the Web. This gives opportunities for criminals to hack important personal or financial information, such as usernames, passwords, account numbers and national insurance numbers. This is called a Web phishing attack, which is considered as one of the major problems in Web security.

The number of phishing attacks has been growing considerably in recent years and is considered as one of the most dangerous modern internet crimes, which may lead individuals to lose confidence in e-commerce. Consequently, it has a tremendous negative effect on online banking, e-commerce, online marketing efforts, organization's incomes, relationships with customers, and overall business operations.

The success of phishing website detection techniques mainly depends on recognizing phishing websites accurately and within an acceptable timescale. Many conventional techniques based on fixed black and white listing databases have been suggested phishing websites. However, these techniques are not efficient enough, since a new website can be launched within few seconds. Therefore, most of these techniques are not able to make an accurate decision dynamically, whether the new website is phishing or not. Hence, many new phishing websites may be classified as legitimate websites.

Here developed a phishing website detection scheme using a Wrapper feature selection technique with machine learning classifiers, to detect phishing websites with high accuracy.

Classification techniques emoployed are:

- Neural network
- Support vector machine
- Random forest.

Features considered for detecting phishing sites are grouped as follows:

- URL-Based Features
- Domain-Based Features
- Page-Based Features
- Content-Based Features

II. LITERATURE SURVEY

2.1 PhishShield: A Desktop Application to Detect Phishing Webpages through Heuristic Approach[1]

In this paper, implemented a desktop application called Phish Shield, which concentrates on URL and Website Content of phishing page. Phish Shield takes URL as input and outputs the status of URL as phishing or legitimate website. The heuristics used to detect phishing, are footer links with null value, zero links in body of html, copyright content, title content and website identity. Phish Shield is able to detect zero hour phishing attacks which blacklists unable to detect and it is faster than visual based assessment techniques that are used in detecting phishing.

2.2 Detection of Phishing Website Using Machine Learning[2]

The proposed model focuses on identifying the phishing attack based on checking phishing websites features, Blacklist and WHOIS database. According to few selected features they differentiate between legitimate and spoofed web pages. These selected features are many such as URLs, domain identity, security & encryption, source code, page style and contents, web address bar and social human factor.

2.3 Intelligent phishing url detection using association rule mining[3]

This paper focuses on discerning the significant features that discriminate between legitimate and phishing URLs. These features are then subjected to associative rule mining—a priori and predictive a priori. The rules obtained are interpreted to emphasize the

PNEUMONIA PREDICTION USING MEDICAL IMAGE MODALITY

[1]Mrs.Rashmi B H, [2]Shreyas H C,[3]Pruthvi Patel A S[4]Prashanth S, [5]Vinutha S

[1]Assistant professor, Department of Computer Science and Engineering, K S Institute of Technology

[2,3,4,5]Undergraduates, Computer Science and Engineering, K S Institute of Technology,
Bengaluru, Karnataka, India-560109, Affiliated to VTU, Belagavi

Abstract: Pneumonia is a disease which occurs in the lungs caused by a bacterial infection. Early diagnosis is an important factor for the successful treatment process. Generally, the disease can be diagnosed from chest X-ray images by an expert radiologist. The diagnoses can be subjective for some reasons such as the appearance of disease which can be unclear in chest X-ray images or can be confused with other diseases. It is also much more difficult to make clinical diagnoses with chest X-rays than with other imaging modalities. Therefore a computer aided diagnosis systems are needed as tools to assist in the clinical interpretation of chest x-rays would therefore fulfill an unmet need.To solve this problem we have developed an application that detects Pneumonia and predicts the accurate probability values.

Index Terms **- CNN,Deep neural networks,Onnx,Keras,VGG16.**

I. INTRODUCTION

Pneumonia is a disease which occurs in the lungs caused by a bacterial infection. Chest X-rays are currently the be method for diagnosing pneumonia. But there is a lack of access with almost two-thirds of the world's population lacking access to radiology diagnostics. Many doctors do not have the proper diagnosing tools to diagnose patients.The diagnosis by the doctors may not be accurate .It is also much more difficult to make clinical diagnoses with chest X-rays than with other imaging modalities. This diagnoses may be inaccurate. There is a lack of access with almost two-thirds of the world's population lacking access to radiology diagnostics. It is also much more difficult to make clinical diagnoses with chest X-rays than with other imaging modalities and Many doctors do not have the proper diagnosing tools to diagnose patients.

Medical image analysis is an active field of research for machine learning, partly because the data is relatively structured and labeled, and it is likely that this will be the area where patients first interact with functioning, practical artificial intelligence systems [1]. Deep neural network models have conventionally been designed, and experiments were performed upon them by human experts in a continuing trial-and-error method. This process demands enormous time, know-how, and resources. To overcome this problem, a novel but simple model is introduced to automatically perform optimal classification tasks with deep neural network architecture. The neural network architecture was specifically designed for pneumonia image classification tasks. The proposed technique is based on the convolutional neural network algorithm, utilizing a set of neurons to convolve on a given image and extract relevant features from them.

The application developed will be able to act as a diagnostic tool based on a CNN for the screening chest X-ray images of patients having Pneumonia. The Application utilizes transfer learning, which trains a neural network with a fraction of the data of conventional approaches.

II. LITERATURE SURVEY

Manali Shaha et al.[2] proposed Research in image classification seen the evolution in computer vision algorithm from first order moments to handcrafted features to end to end machine learning approaches to improve the classification accuracy.This paper talks about the success of CNN in the order of machine learning and computer vision field. Alex proposed an evolutionary CNN architecture named AlexNet for object recognition task. The major hurdle in training of CNN is availability of large database. To improve the accuracy researches proposed deeper CNN architecture. Simmon el al proposed VGG16 architecture for object recognition task. Improved VGG16 architecture known is VGG19 overcome the drawbacks of AlexNet and increase the system accuracy. Two databases calTech256 and GHIM10K where used to analyze and compare AlexNet and VGG16.SVM classifier was analyzed. Accuracy of CNN highly depends upon the three factors: 1) Large scale database, 2) High end computational model and 3) Network depth.

Shoji Kido[3] proposed Computer-aided diagnosis (CAD) systems include two types of CAD algorithms such as (CADe) and (CADx). CADe which is computer aided detection which detects abnormal lesion CADx which is computer aided diagnosis that differentiates abnormal lesion into benign or malignant. Image features that could detect and classify abnormalities of the lung diseases such as lung nodules or lung disease patterns. These image features are useful for the computer-aided classification on the lung diseases. Defining such image features is a difficult task due to the complicated image patterns. Deep learning techniques improved state-of-the-art in fields of the speech and vision. Therefore with the features of (CADe) and (R-

HAND TALK GLOVES USING FLEX SENSOR WITH IOT

[1]Bharath Kumar T B, [2]Darshan G K, [3]Navya N, [4]Pavan Gowda B K, [5]Sneha Karamadi

[1,2,3,4] Undergraduate student, Computer Science, & Engineering, K S Institute of Technology,

[5] Associate Professor, Department of Computer Science & Engineering, K S Institute of Technology Bangalore, India.

Abstract : In general, speech impaired people have difficulty in communicating with each other who has no knowledge of sign language. The past implementation of this project involved using image processing concept and accelerometer. But the drawback of the implementations of that projects were non portable and too expensive. Our project involves an IOT based hand glove which is fitted with flex sensors. Flex sensors are the input sensors which provides input to the arduino, these sensors vary the resistance value based on the degree of bend made by the fingers, that is the more the bend, the more the resistance value. The output from the sensors is in form of analog and is converted to digital and further processed by the microcontroller. In this project we have used hardware components like arduino uno, speaker for audio output, flex sensors, audio recognizer, breadboard. The programming platform used in this project is arduino ide.

IndexTerms **– Hand gloves, Sensors**

I. INRODUCTION

Among various ideas, we selected a project that will help a group of speech impaired people who are barely able to speak like common people. Normal people do not understand the signs made by the speech impaired people. For their disability, they are almost ignored in our society. But we believe they can contribute in our society. We try to solve this problem for speech impaired people by our device. Our project is to convert finger gestures movements into audio as an output. We have come up with a novel idea of a glove named HAND TALK that will convert the hand movements into a corresponding message and allow the individual to express themselves better. A sensor equipped glove needs to be worn on the hand. The heart of the system i.e. Flex Sensors fixed on a hand glove picks up the signal generated by the gesture made by an individual and with the help of Arduino the analog input signal is converted into a digital and for various gestures there is specific output which is converted into a specific message. When the person performs a particular gesture, the predefined message for that gesture is given in audio as an output through speaker.

II. RELATED WORK

[1] Signs were recognized by gestures that were captured by a camera and image processing was used to outline the gesture and and the gesture is mapped to a binary code which is in turn mapped to a text and the text is displayed.
[2] Sign recognizing sensor glove was used to recognize and display English words here the team used artificial neural networks to perform the task and all also this project has limited to American English alphabet and sentences.
[3] A system that could send data wirelessly using a Bluetooth module and the device using the synthesizing software could recognize the gesture and display it on the device.
[4] A system was proposed to use accelerometer, gyroscope, flex sensor and send the gestures to a mobile device using which the data was displayed on the device where the data was mapped to a text and was displayed.

III. EXISTING SYSTEM

The existing system implemented using image processing concept and accelerometer. But the drawback of the implementations of that projects were non portable and too expensive. Our project involves an IOT based hand glove which is fitted with flex sensors which is portable and user-friendly.

IV. PROPOSED SYSTEM

There are 2.78% of the total population in India who can't speak. Sign language is a nonverbal form of communication method which is found among all speech impaired communities in world. The Hand Talk glove is a normal, cloth driving glove fitted with flex sensors which translates the sign language into speech, through speaker and also it is displayed on led basically this system bridges the communication barrier between speech impaired and normal people and also this system is not only used by speech impaired people, hand gloves has many applications in various fields.

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

DETECTION OF DDoS ATTACK USING HYBRID MACHINE LEARNING ALGORITHMS

[1]Keerthi M, [2] Manipi Manoj, [3]Kiran Kumar M, [4]Dakaraju ViswaTeja, [5]Sougandhika Narayan

[1,2,3,4]Undergraduates, Computer Science and Engineering, K S Institute of Technology, Bengaluru, Karnataka, India-560109, Affiliated to VTU, Belagavi

[5]Assistant professor, Department of Computer Science and Engineering, K S Institute of Technology

Abstract: With great development in Science and Technology, the privacy and security of various organizations are condensed. Computer Intrusion and attack detection has always been a significant issue in networked environment. In most cases, there are two levels in which an intrusion may takes place i.e., in system level and the network level. Distributed Denial of Service is one of the network level attack. Distributed Denial of Service (DDoS) attack results in non-availability of services to the user. In case of organizations, this attack can result in a huge loss in terms of money or reputation since the clients of the organization cannot utilize the resources provided by that particular organization. The proposed solution to overcome this kind of attacks is, to monitor the network that is being attacked. The monitored network is analyzed and few parameters are considered from the analyzed network. These parameters are given as input data sets to machine learning algorithm for the classification of the data set. The algorithm classifies the data sets for the packets, causing the attack. These packets are then identified and terminated from the network that is being monitored.

Index Terms – **Minimet, Scapy, SVM, Wireshark.**

I. INTRODUCTION

The major threat in networking environment's is DDoS (Distributed Denial of Service) attack. The main aim of DDoS attacks is to prevent the legitimate user to access the service for a long time. In this attack, attacker tries to compromise the multiple numbers of hosts to send a huge amount of traffic intentionally towards a legitimate user. This leads to unavailability of service for large amount of time. A host which is under the attacker control is called bot. A group of controlled computers is known as botnet. In this, we have designed a DDoS detection mechanism based on machine learning techniques. In order to handle this DDoS attack, we have proposed a machine learning based model with Support Vector Machine (SVM). SVM is a kind of supervised learning technique. A distributed denial-of-service (DDoS) attack occurs when multiple systems flood the bandwidth or resources of a targeted system, usually one or more web servers. Such an attack is often the result of multiple compromised systems (for example, a botnet) flooding the targeted system with traffic. A botnet is a network of zombie computers programmed to receive commands without the owners' knowledge. When a server is overloaded with connections, new connections can no longer be accepted. The major advantages to an attacker of using a distributed denial-of-service attack are that multiple machines can generate more attack traffic than one machine, multiple attack machines are harder to turn off than one attack machine, and that the behavior of each attack machine can be stealthier, making it harder to track and shut down. These attacker advantages cause challenges for defense mechanisms. For example, merely purchasing more incoming bandwidth than the current volume of the attack might not help, because the attacker might be able to simply add more attack machines. This, after all, will end up completely crashing a website for periods of time.

AN IOT APPROACH FOR MOTION ACTIVATED SECURITY CAMERA AND SURVEILLANCE SYSTEM

[1]Mrs.Ranjitha K N, [2]Rahul V, [3]Rakshit Pawar, [4]Rohit Kumar B R, [5]Nishanth A

[1]Associate professor, Department of Computer Science and Engineering, K S Institute of Technology,
[2,3,4,5]Undergraduates, Computer Science and Engineering, K S Institute of Technology,
Bengaluru, Karnataka, India-560109, Affiliated to VTU, Belagavi.

Abstract: Internet of things is the communication of anything with any other thing, the communication mainly transferring of usable data, for example a sensor in a room to monitor and control the temperature. It is estimated that by 2020 there will be about 50 billion internet- enabled devices. Motion detection surveillance technology came about as a relief for the generally time-consuming reviewing process that a normal video surveillance system offers. It has gained a lot of interests over the past few years. In recent times we tend to use a number of surveillance systems for monitoring the targeted area. This requires an enormous amount of storage space along with a lot of human power in order to implement and monitor the area under surveillance. This is supposed to be costly and not a reliable process.

IndexTerms **- Raspberry Pi (RP), Passive Infrared (PIR) sensor, Internet of Things (IOT), Face Recognition, Motion Detection, Smart Door Unlock, Haar Classifier.**

I. INTRODUCTION

The purpose of this survey paper is to present the motion activated security camera and surveillance system currently available over the world. Nowadays, technology plays an essential role in our life in which different domain of interests are taking advantages of technology. Recently, computers and smart phones have significantly contributed our daily life where numerous computations and adjustments are being accomplished by such technologies. Securing homes has become one of the concerning issues that facing many people. With the expanded duration of leaving the home due to work, study and other duties, homes are being more vulnerable for several threats especially being burgled. Such concept aims to turn the home into a smart home in which different tasks especially monitoring can be performed remotely. Monitoring and controlling some tasks outside the house would have the ability to provide maximum safety. Recently, electronic door lock systems are one of the most popular security systems that is being installed for many residents and business places.

II. LITERATURE SURVEY

Naser Abbas Hussein et al, authors explained the brief description of proposed smart door system followed by the operation of the Raspberry Pi module in designing, the keypad door lock, and the camera module has been provided. Smart digital door lock is a system to monitor and control several devices in the home. The smart digital door lock system operates over internet network by using raspberry pi3. Captured face is compared with database, if both matches then the door is opened. Smart door lock is one of the most popular digital consumer devices because of the user convenience and affordable price. In actuality, it is replacing a lot of conventional types of locks [1].

Shaik Anwar et al, explained IOT based smart home security system that was implemented on a Raspberry pi development board in Linux environment, which supports SMTP, TCP/IP, HTTP. SSH is a secure protocol and the most commonly used to administrate and communicate with Linux servers. SSH Client is implemented on android platform using java script on JDK and Eclipse IDE. This paper presents the design and the implementation of an interactive Smart home security system with Email alert, Web enabled video streaming and remote control of voice alert and door accessing system using smart phone [2].

Neha Gaba et al, explained that identification and tracking of object is an important factor in analysis of video in a surveillance system. A series of techniques for detection of motion have been design and developed in the past decade. One of the most recent and relevant high precision techniques being temporal differencing, which is considered to be most advanced of all. The temporal differencing technique employs pixel-by-pixel difference between consecutively incremental frames, thereafter the threshold is decided based on averaging of differences to establish the foreground object. The presented paper describes an algorithm-based framework which is capable of producing background with almost null noise pixels. It also overcomes the trails of artificial "ghost" [3].

K.N Karthick Kumar et al, explained that to improve the calculation of motion activated security systems, it is isolated into two sections motion detection and motion recognition Raspberry Pi camera catches the picture and uses foundation subtraction calculation to recognize movement. The principle of PIR sensors is based on the fact that everything emits a small amount of infrared radiation. The system is also equipped with a remote monitoring facility. To enable remote monitoring, it is must to configure the Wi-Fi router. In conclusion, PIR motion sensors and camera modules are cost-effective surveillance mechanism [4].

Gaze PIN Entry for Password Authentication

[1]Mr.RaghavendracharS, [2]SoumyaDattatreyaHegde, [3]VarshaPurushotham, [4]VennalaKN, [3]VidyashreeS,
[1]Assistant Professor, [2,3,4,5] Student
[1, 2,3,4,5] Department of Computer Science and Engineering,
[1, 2,3,4,5] K.S.Institute of Technology, Visvesvaraya Technological University, Karnataka, India

Abstract : Personal identification numbers are widely used for user authentication and security. Password authentication using PINs requires users to physically input the PIN, which could be vulnerable to password cracking via shoulder surfing or thermal tracking. PIN authentication with hands-free gaze based (by closing the eye) PIN entry techniques, on the other hand, leaves no physical marks behind and therefore offer a more secure password entry option. Gaze-based authentication refers to finding the eye location across consecutive image frames, and tracking eye center over time. This paper presents a real-time application for gaze-based PIN entry, and eye detection and tracking for PIN identification using a smart camera.

IndexTerms **- Gaze based PIN Entry, Security, Eye tracking, Eye blinking.**

I. INTRODUCTION

The use of PINs is a common method for many application, such as unlocking secret devices, locking and unlocking of doors and for other banking services. According to statistics about 51,000 people were victims of personal data breaches and 16,000 were victims of identity theft scams and accounted 57 percent of all losses in 2018.It is because that an legitimate user entering the code in open and public areas. This makes PIN entry being attacked such as phishing attack and thermal tracking. The main purpose of this work is to enter and identify gaze based PINs using a smart camera through real-time eye detection and tracking. Detection of eye and tracking of eye is done under different conditions, including angles of the face, head movement, location of eye in the face and the state of the eye whether it is closed or open to determine the usability of the system for real-time applications. We make use of Python OpenCv for eye tracking and for recording the state of the eye. Smart Camera allows on board data processing and collection. This type of authentication adds a layer of security to physical entry and expected to reduce the vulnerability of the authentication process.

II. LITERATURE REVIEW

The important problem in information security is user authentication. There are many authentication techniques are textual, graphical or biometric passwords etc. The text based password is easily guessed by the attacker over to nearby shoulder; attackers observed directly or watch some external devices. The text based password authentication methods are not enough for shoulder surfing attacks. The graphical based password authentication is best, because it is more secure and it provides better resistance to shoulder surfing attacks. The traditional two-factor authentication mechanisms aren't applicable to online social networks, because the physical token or biometric information can't be simply accustomed login to users' profiles.

Shoulder surfing enables an attacker to understand the authentication details of a victim through observations and is becoming a risk to visual privacy. The author [2] present DyGazePass: Dynamic Gaze Passwords, an authentication strategy that uses dynamic gaze gestures. We also present two authentication interfaces, a dynamic and a static-dynamic interface, that support this strategy to counter shoulder surfing attacks. The core idea is, a user authenticates by following uniquely colored circles that move along random paths on the screen. The author [3] presents SAFE (Secure Authentication with Face and Eyes) an improved face authentication method that uses a commodity gaze tracker to input a secret. During authentication, the user must not only show her face but also looked at a secret icon that moves across the screen. Using a novel method for estimating the background level within the gaze tracking data, SAFE adapts the system's parameters to enable secure, hands-free authentication.

Real-time eye detection and tracking [4] have been developed not for a PC but for use in a standalone smart camera with DSP capabilities. The tracking algorithm is enhanced and simplified for the NI Smart Camera. The paper [5] presents an eye fixed fixed tracking study of Image Pass, a recognition-based graphical authentication mechanism. The goal of the study was to discover how users perceive and react to graphical authentication. The author [6] describe the EyeDent system—in which users authenticate by looking at the symbols on an on-screen keyboard to enter their password. Instead, in EyeDent, gaze points are automatically gathered to work out the user's selected symbols; this approach has the advantage of allowing users to authenticate at their natural speed, rather than with a fixed dwell time.

Click-based graphical passwords are a replacement method of authentication where passwords are created and entered by clicking especially places on a picture. This paper presents [7] a study that investigated eye tracking as a potential threat to the security of such passwords. A simple biometric based on a gaze sequence on a personal computer screen has been described [8]. The experiments reported above have validated the suitable performance of the approach and demonstrated that it's comparable conventional PIN based user authentication.

III. SYSTEM DESIGN AND ARCHITECTURE

The camera is allowed to capture the images. The first direction is to detect the user Face accurately.In this technique several stages used to find out the movement of eye, such as Face detection and Eye detection, colour conversion, Edge detection, Hough Transformed, motion detection and eye tracking.After that system will perform the several operation of image processing to track the eye pupil. For the detection of face Haar cascade algorithm is used. Haar cascade classifier is used to calculate the position of eye gaze based on features of human eye. For detecting pupil area Hough transform method is used. Virtual keypad will be displayed on the screen.

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Data Extraction of Digital Text and Conversion into an Audio-Visual Output

Niharika Rajaram

Dept of Computer Science and Engineering

K S Institute of Technology
Bengaluru, Karnataka, India

Monisha R

Dept of Computer Science and Engineering

K S Institute of Technology
Bengaluru, Karnataka, India

Nikhila M.Y

Dept of Computer Science and Engineering

K S Institute of Technology
Bengaluru, Karnataka

Rajeev Koushik Y G

Dept of Computer Science and Engineering

K S Institute of Technology
Bengaluru, Karnataka, India

K Venkata Rao

Dept of Computer Science and Engineering

K S Institute of Technology
Bengaluru, Karnataka, India

***Abstract*—Visual content provides an improved quality of learning. The proposed project is an automatic video generator, which creates a video from a textbook chapter. The video will consist of narration with subtitles of the whole chapter while showing images relevant to the current paragraph. In order to retrieve the images, web scraping will be used. Topic selection and keyphrase analysis will be done and the resulting keyphrase will act as a query for image search. Audio files are generated with the help of retrieved text. The images, audio and text are integrated to create a final video**

Keywords—OCR, Data Extraction, Key phrase extraction, Text Processing.

I. INTRODUCTION

The experience of being unable to follow lectures in classrooms, especially with regards to subjects of the theoretical nature, is quite relatable among students across the world. It is difficult to find study materials that are engaging, cover the syllabus and also aide in retaining the contents of the textbooks in memory. Therefore, there is a need for a product that aims at tackling exactly the above mentioned issues.

We propose an application that allows students to provide a PDF version of the prescribed source materials as an input and retrieve an output in the form of a video, complete with subtitles and audio. This video would contain images related to the text in PDF, which introduces an audio-visual element into the learning process. This tailor-made output can greatly enhance the ability of students to grasp newer concepts quickly and help remember what they study for a longer duration of time.

LITERATURE SURVEY

A. A unified scheme of text localization and structured data extraction for joint OCR and data mining

This paper discusses the integration of text detection and and structured data extraction into a unified deep learning-based Image Text Extraction (ITE) scheme.

With the guidance of the above paper, we have been able to:

i. Learn the concept of Image Text Extraction (ITE).

ii. Understand the procedure of approaching text detection, text recognition and structured data extraction, along with the application of deep learning.

iii. Recognize the various fields of applications of the ITE technology.

The paper gave us valuable insights into the applications of Optical Character Recognition (OCR).

B. An efficient approach for Key phrase Extraction from English Document

The above paper was helpful for us to:

Smart Ambulance with Traffic Control

[1]Mr.Prashanth H S, [2]Sandhya D, [3]Shalini V, [4]Sheela, [3]Vydehi Bhat,

[1]Assistant Professor, [2,3,4,5] Student

[1, 2,3,4,5] Department of Computer Science and Engineering,

[1, 2,3,4,5] K S Institute of Technology, Visvesvaraya Technological University, Karnataka, India.

Abstract : The expansion of industrialization and urbanization has led to an immense increase within the population invariably leading to rise within the quantity of vehicles on road. Due to heavy traffic, an emergency vehicle stuck in traffic is unable to cross the signal due to poor traffic signal controller. This project aims at providing solution to the above problem by altering or controlling the traffic light before the ambulance reaches the traffic signal using the concept of Internet of Things (IOT).This system uses a central server to manage the traffic controller. The Ambulance driver uses the android application to request the traffic controller to make signal green during which lane the ambulance is present.

IndexTerms **- Ambulance, traffic signals, priority, criticality, RFID reader, IoT**

I. INTRODUCTION

The main thought behind the paper is to provide a sleek flow for the ambulance to succeed the hospitals in time and thereby minimizing the delay caused by traffic jam. The traffic in cities has been exponentially increased due to an outsized of vehicles plying on the road. Due to this significant traffic, often traffic jams occur on roads due to which the emergency vehicles like ambulance and fire engines grind to halt in traffic which can be the cause for losing human lives.

Current traffic control systems are a static case wherein vehicles have gotten to await for a predefined amount of some time until the microcontroller switches the green light for that lane. If the car is stuck around the stoplight, then the traffic police can give priority to the ambulance by giving necessary symbol or signs to the vehicles in order that the ambulance can get out of the traffic as quickly as possible.

Moreover, if the emergency vehicles area unit stuck during a lane distant from the stoplight, the siren of the ambulance is unable to achieve in the traffic police, during this case the emergency vehicles need to wait until the traffic gets cleared or we have to depend upon other vehicles to maneuver aside which is not an simple task in traffic situations.

The project proposes a system where, ambulance driver uses an android application to request the traffic controller to form the signal green for the lane during which the ambulance is present.

II. LITERATURE REVIEW

i. SMART AMBULANCE GUIDANCE SYSTEM

In this paper, they need used a central server to control the traffic controllers. The traffic signal controller is implemented using Arduino UNO. The ambulance driver uses a web application to request the traffic controller to make the signal green during which the ambulance is present

ii. ADVANCE ALERT MECHANISM FOR AMBULANCE PASS BY USING IOT FOR SMART CITY

This paper analysis essentially uses the prevailing technologies along side the concept of Internet of things (IoT). The architecture used is server-client architecture. The client may be a user using an android application.

iii. MICROCONTROLLER BASED RFID SYSTEM

The project is used to change the traffic signals upon arrival at traffic light junction. The system creates an android app that connects both the ambulance and therefore the traffic signal station using cloud network. This technique makes use of Radio frequency identification technology to implement the intelligent traffic signal control. The essential plan behind the projected system is, if the Ambulance halts on the way due to a traffic signal, RFID installed at the traffic signal tracks the RFID tagged ambulance and sends the info to the cloud.

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 05 | May 2020 www.irjet.net p-ISSN: 2395-0072

An Image Based Eye-Blink Assistive System For Paralyzed Patients

Vidhya Dhari L[1], Sandra Vaanija[2], Supriya C[3] , Mrs. Vijayalaxmi Mekali[4]

[1,2,3] *Students of Dept. Computer Science and Engineering*
[4] *Assistant Professor, Dept. of Computer Science and Engineering*
[1,2,3,4] *K S Institute of Technology, Bangalore, Karnataka, India*

Abstract - *The main aim of this paper is to remove difficulties faced by completely paralyzed patients suffering from Motor Neuron Disease (MND) and Locked-in Syndrome (LIS). Paralyzed patients cannot communicate as they suffer from speech disorder, the only part that remains unaffected is eyes and communication is possible only through their eye movements. The proposed system is based on a Video-Oculography (VOG) technique which is efficient when compared to other existing techniques. In this system methods like face detection, eye blink detection and image processing are employed to communicate the needs of patients to the concerned person through a text and an audio message using twilio application.*

Key Words: **Motor Neuron Disease, Locked-in Syndrome, Speech Disorder, Video-Oculography, Face Detection, Eye Blink Detection, Image Processing, Twilio.**

1. INTRODUCTION

Motor Neuron Disease (MND) and Locked-in Syndrome (LIS) are incurable medical conditions where the patient is completely paralyzed. It also leads to inability in communication through speech. Because of this, performing voluntary actions is not possible and it becomes very difficult for the patients to express their needs. A caretaker has to assist the patient 24/7. In most of the cases the caretaker might not understand what the patient is trying to convey. Many systems have been developed to address this issue. Currently the technology used is Brain wave controlling and Electro-oculography. Both the methods are expensive and also uncomfortable.

1.1 Outline of the Proposed System

The proposed method uses Video-Oculography technique which is less expensive, comfortable and not painful. In the proposed system, firstly the patient's face is detected and extraction of eye region is done using Face Detection algorithm. Then, eye-blink detection is done using Eye-Blink algorithm.

Paralyzed patients should choose an image from the set of images being displayed on the screen, by blinking their eyes voluntarily as per their requirement. The chosen image is communicated to the concerned person as the patient's requirement through an audio and a text message on their phone.

We use OpenCV-Python for face and eye detection, Tkinter module for displaying of images and Twilio application for text and voice message. Using such image processing and machine learning techniques, the patient's intent or needs can be conveyed more effectively and efficiently.

2. EXISTING METHODS

Research on problems faced by paralytic patients was started in 19th century. Initially, it was done manually by tracking the neural movements in the brain which indicates the person's need. Further on evolution in technology, various techniques were used to resolve issues faced by paralytic patients. Various techniques such as ElectroEncephaloGram (EEG), Electro-OculoGraphy (EOG), Eye-Blink Count etc. This section briefs the above mentioned techniques.

2.1 ElectroEncephaloGram (EEG)

An electroencephalogram (EEG), is a non-invasive test used to record the electrical activity in the human brain [1]. In this method, electrodes are placed at various positions on the head around the scalp of the patient for measuring the electronic activity of the brain as shown in the fig 1. The recorded electronic impulses are considered as ElectroEncephaloGram (EEG).

Fig -1: EEG

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 06 | June 2020 www.irjet.net p-ISSN: 2395-0072

AUTONAMY OF ATTENDENCE USING FACE RECOGNITION

RAGHURAM GN[1], RITWIK GS[2], SURYA M[3], SUHIL KM[4], DEEPA SR[5]

[1,2,3,4]Student, Computer science and Engineering, KS Institute of Technology, Bangalore, India
[5]Assoc. Professor, Dept. of Computer science and Engineering, KSIT College, Karanataka, India

---

Abstract - *This paper proposes and compares the methodologies for an automated attendance system using video-based face recognition. Here input to the system is a video and output is an excel sheet with attendance of the students present in the video. Automated attendance system can be implemented using various techniques of biometrics. Face recognition is one of the biometric techniques. It does not involve human intervention.*

Key Words: face detection, haar cascade classifier, face recognition

1. INTRODUCTION

Many colleges, and schools follow the conventional face to face attendance marking. This traditional method requires a lot of time, sometimes students may not respond to their respective numbers and it involves errors during the manual calculation of attendance. So to overcome these problems there is a necessity for an automatic attendance monitoring system.

In recent years, video-based face recognition has received extensive attention and is one of the most important topics of research in the field of image processing for people's identification. We can utilize it in the field of education to maintain the attendance of students. In most learning institutions, student attendances are manually taken by the use of attendance sheets issued as part of regulation. This method is tedious, time consuming and inaccurate as some students often sign for their absent colleagues. This method also makes it difficult to track the attendance of individual students in a large classroom environment.

We propose the design and use of a face detection and recognition system to automatically detect students attending a lecture in a classroom and mark their attendance by recognizing their faces. The system is developed for deploying an easy and a secure way of taking down attendance. While other biometric methods of identification can be more accurate, students usually have to queue for long at the time they enter the classroom. The software first captures an video of all the authorized persons and stores the information into database The input image is recognized by comparing them with the face database which is our training set. After finding the valid match attendance is registered in an excel sheet.

2. RELATED TECHNOLOGY

2.1 Face Detection

Human beings have recognition capabilities that are unparalleled in the modern computing era. These are mainly due to the high degree of interconnectivity, adaptive nature, learning skills and generalization capabilities of the nervous system. Face recognition technology can be used in wide range of applications. Computers that detect and recognize faces could be applied to a wide variety of practical applications including criminal identification etc. The Haar feature proposed by Viola et al. combined with AdaBoost cascade classifier can detect face quickly. Since then, many researchers have devoted themselves to using more advanced features to improve the accuracy of face detection, such as Local Binary Pattern (LBP), Histogram of Oriented Gradient (HOG) , Scale-invariant Feature Transform (SIFT).

2.2 Harr Cascades

Each feature is represented as a single value obtained from the difference of the sums of pixels in white rectangle from the sum of all pixels in the black rectangle. All different possible sizes and locations of classifier is used for calculating of plenty of features.

2.3 Harr Feature

Haar feature is a wavelet-based feature that decomposes image. The function of cascade classification is to combine more feature efficiently. In the beginning, the image process of haar is only based on RGB value of each pixel, then process the image in rectangle shapes with some pixel in every shape. Each of the shapes is processed and the limit level is occurred after that which shows dark and light area. The formula of haar feature is the average value of the result is above the threshold, it means the haar feature exists.

2.4 Grayscale Image

One of the pre-processes in face detection of mankind object is the change of the real image room into grayscale. That is occurred since generally facial object in grayscale image has consistent pattern such as eyes color is darker than cheeks or nose color. Here is the formula to turn color (RGB) into grayscale.

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

6-LEGGED CRAWLING ROBOT FOR VIRTUAL TELEPRESENCE

[1]Bharath P, [2]Bhagwat Dayal, [3]Pooja Sreedhara Murthy [4]Sameeksha M Gupta [5]Mrs.Sneha C R

[1]Student, [2]Student, [3]Student, [4]Student, [5]Assistant Professor

[1]Department of Computer Science & Engineering,

[1]K S Institute of Technology, Bengaluru, India.

Abstract: In recent times robotics plays an important role in innovation**.** Robotics combines science, technology, and engineering to build robots. Humans try to construct robots that are structurally similar to that of animals and insects. This allows us to compare and imitate the animal movement and their walking pattern. Inverse kinematics is a method of determining the values that we need to move to a particular position. With this idea, we have developed a 6- legged robot and observed the tripod gait algorithm using inverse kinematics. The hexapod has a camera module attached which helps and video streaming and provides a virtual view in a local network. Additional features like pan and tilt options for the camera module helps the user to get a better view of the surroundings.

Index Terms **- Hexapod, Tripod gait, Legged-robot, Virtual telepresence, Inverse kinematics, Video streaming, Automatic, Arduino, Raspberry Pi.**

I. INTRODUCTION

A robot is a machine that could be programmable by a PC and is equipped for doing an intricate arrangement of activities naturally. Robots can be guided by an external control contraption or the control may be introduced inside. They can be independent or semi-self-sufficient and run from humanoids to modern robots, clinical working robots, and even tiny nanorobots. By mirroring an exact appearance or mechanizing developments, a robot may pass on a feeling of knowledge or thought of its own. Strolling robots recreate human or creature movement, as a trade for wheeled movement.

Legged robots are a kind of portable robot, which utilizes verbalized appendages, for example, leg systems, to give motion. Legged movement makes it conceivable to arrange lopsided surfaces, steps, and different territories that would be hard for a wheeled robot to reach, just as makes less harm natural territory as wheeled robots, which would dissolve it. Numerous legs permit a few unique strides, regardless of whether a leg is harmed, making their developments increasingly helpful in robots moving items. Legged robots are intended for velocity on harsh landscape and require control of leg actuators to look after equalization, sensors to decide foot arrangement, and arranging calculations to decide the course and speed of development. The occasional contact of the legs of the robot with the ground is known as the stride of the walker. Legged robots can be ordered by the number of appendages they use, which decides strides accessible. Many-legged robots will in general be increasingly steady, while fewer legs fit more prominent mobility.

Six-legged robots, or hexapods, are persuaded by a longing for considerably more noteworthy steadiness than bipedal or quadrupedal robots. The structures frequently impersonate the mechanics of creepy crawlies, and their steps might be ordered also. These incorporate wave gait, tripod stride, creep step, swell step. A hexapod robot is a mechanical vehicle that strolls on six legs. Since a robot can be statically steady on at least three legs, a hexapod robot has a lot of adaptability by the way it can move. On the off chance that legs become debilitated, the robot may at present have the option to walk. Besides, not the entirety of the robot's legs is required for strength; different legs are allowed to arrive at new foot arrangements or control a payload. Hexapods might be utilized to test natural speculations about creepy crawly motion, engine control, and neurobiology.

Furthermore, including a camera module to the legged robot helps in obtaining a virtual view of the surroundings. The person can look around from the perspective of the robot. Video streaming from the Raspberry Pi camera can be viewed in any web browser or a smartphone that is present and connected to the same network as that of the Raspberry Pi.

II. LITERATURE SURVEY

2.1 Kinematic and Gait Analysis Implementation of an Experimental Radially Symmetric Six-Legged Walking Robot [1]

As a robot could be steady statically remaining on at least three legs, a six-legged strolling robot can be exceptionally adaptable in developments and perform various missions without managing genuine kinematic and dynamic issues. An exploratory six-legged strolling robot with 18 degrees of opportunity is contemplated and worked in this paper. The kinematic and stride examination details are exhibited by an exploratory hexapod robot. The outcomes show that the robot strolls well as it was recreated.

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 06 Issue: 12 | Dec 2019 www.irjet.net p-ISSN: 2395-0072

Stock Market Prediction using Financial News Articles

Siddhanth M[1], Shravan Bhat[2], Sampath Kumar[3]

[1,2,3]*Under the guidance of: Dr. Rekha B Venkatapur, Head of Department of Computer Science, K.S Institute of Technology, Karnataka, India*

Abstract - *Stock market prediction is one of the most unpredictable markets and hence very difficult to predict. Our system first extracts the data from trusted news sources. Then, the extracted text is cleaned using natural language processing libraries and then sentiment analysis is applied on this text to get the polarity of the news (positive or negative). After determining the polarity, it is then given as input to the machine learning model which applies an efficient algorithm to predict the price of the stock in the future (for the next 10 minutes or so).*

Key W Keywords: **Stock Market prediction, Financial News, Machine Learning, Natural language processing, Sentiment Analysis, Data Mining, Stock price movement**

I. INTRODUCTION

There are a lot of online sources that publish financial news on the Internet to help investors for shaping their investments. Both, current and historical news about companies, economic and political events are available on these sources. Availability of this huge amount of financial data in digital media creates appropriate conditions for a data mining research.

The decision of when to buy or sell shares is an interesting research challenge in the stock market. Such decisions are being negotiated daily in the stock market across the globe. Indices were created as a way to measure the relative value of stocks in a determined group in the market.

The idea about whether stock markets can be predicted has kept economists and investors very busy for decades. The two distinct trading philosophies for stock market prediction are fundamental and technical analysis . While technical analysis focuses on the study of market action through the use of charts, fundamental analysis concentrates on the economic forces of supply and demand that cause the stock price to move higher, lower, or remain the same.

Stock price prediction has attracted many researchers in multiple disciplines such as computer science, statistics, economics, finance, and operations research. These research efforts have so far produced several methods for forecasting the future direction of the stock market. In this study, we propose a system predicting stock price movements by first extracting the data from trusted news sources. Then, the extracted text is cleaned using natural language processing libraries and then sentiment analysis is applied on this text to get the polarity of the news (positive or negative). After determining the polarity, it is then given as input to the machine learning model which applies an efficient algorithm to predict the price of the stock in the future (for the next 10 minutes or so).

There are a lot of substantial work done on prediction of stock prices. These works are basically text categorization systems targeting to predict stock price movement by classifying financial news articles as positive or negative. Since the problem is converted to a text categorization problem, several feature selection and classification methods are used in these works. In term frequency – inverse document frequency technique is used as a feature selection method. This relatively low success rates are caused by nature of stock price movements, which are the result of decisions of investors, since it is hard to predict human behavior.

II. Background

Traditional technical analysts have developed many indices and sequential analytical methods that may reflect the trends in the movements of the stock price . However, in addition to historical prices, the societal mood is seen to be playing a significant role in stock price movement. The overall social mood with respect to a given company is now being considered as an important variable which affects the stock price of that company. Online information such as public opinions, social media discussions , and Wikipedia activities are being used to study their impact on pricing and investors' behaviors taking into account the risk factors due to biased and malicious posts. Researchers have shown that integrating models based on historical stock prices with the data from the mainstream and social media platforms can improve the predictive ability of the analytical models of stock price prediction.

Sentiment analysis is an NLP technique for mining and evaluating public opinions expressed in text/speech . The increasing interest in sentiment analysis is partly due to its potential applications. Major elements of sentiment analysis methods include the sentiment (opinion expressed), target object or topic, time of expression, person expressing the opinion, the reason for the expression, the opinion qualifier, and the opinion types.

Secure and Optimized Data Sharing Model Group in Healthcare Cloud Environment

Uma Hombal, Dayananda R.B.

Abstract-The cloud computing provides convenient on-demand access of the data. Sharing of data in the cloud computing will enable several users to easily handle the data that is being shared. The medical-field finds more advantages by the cloud-computing technology as the data can be accessed anywhere and anytime by the patients as well as this data can be shared with other medical-practitioners. This alarms for the security issues as the huge amount of sensitive data is being shared. The data must not be available to malicious-attackers. In this paper, we propose the block-design based key agreement protocol in order to share the data securely and the design provides fault-detection and fault-tolerance. The group-data model PSM is given with the block-based design, which decides how the sharing of the data is done by grouping and giving positions to users in particular blocks and the column. The $(np, i+1, 1)$ ***design is proposed in our paper, which gives the technique for positioning of the users. The encryption and decryption of data is done and their times cost according to file size is found. The comparison of the time-cost for our model and existing models is compared with respect to different number of simulations.***

Keywords: Cloud-computing, data-sharing, block-based design, group-key

I. INTRODUCTION

Health-care requires continuous innovations in all the fields in a systematic way in order to provide high quality services. Technology of Information is rapidly and vastly used in healthcare with the motivation of to enhancing and improvising the medical services for cost reduction. Modern health-care innovations rely on information system in all aspects. The application of information-technology in health-care has got its importance in all the countries [1]. Most of the services that are provided are being outsourced to the cloud servers. The cloud storage plays a very important role in the applications like the medical files transferring etc. The majority of data being outsourced will be the health-care data, which will include the personal health record, Electronic health record and related documents. The patients are sent to various tests which results in high exchange of data between different departments of medical units. But this must be done in a secure manner. Many researches have been done to protect the data that is being shared between different departments of these medical units and to identify the risks in sharing of this data [2] [3] [4].

The technology used which helps in this data-exchange is cloud computing. Cloud computing is said to be a model that enable on demand service. The resources can be dynamically increased which implies lot of medical data can be stored and this data can be used and can be accessed anywhere and anytime by the patients or the doctors as well as share the information among them.

Revised Manuscript Received on November 08, 2019.

Uma Hombal, Assistant Prof, Dept. of computer science and technology KLE Dr. MSSCET, Belagavi.

Dr. Dayananda R.B., Professor, KSIT, Bangalore

This alarms for the security and privacy issues as large amount of sensitive data will be shared. The patients' data must not be accessible to malicious attackers. The compromise in this data will be a threat to both the patient and the organization with whom the patient exchanges the data. Methods are taken to provide this security against the attacks [5]

Considering this application of information technology in health-care, the personal health record being outsourced to the servers has gotten numerous data-breaches related to cloud servers which includes the malicious attacks. Patients are unable to have any physical control over their own health-record. These sensitive data are not under the control of the control of these data-owners. So there requires an encryption mechanism to protect these records before out-sourcing is done. Here the owner must decide which user will get access to which data in this record. The decryption mechanism must be such that only those with the decryption ley must be able to decrypt and obtain the data [6] [7]. This implies that the authoritative-users get the access to the data that is being shared outsourced to the cloud.

In this paper we concentrate the sharing of data to multiple users. Here the multiple users will form a group and thereby exchange the data. Here the block-based design key-agreement way is used to design the block-based design structure which can support multiple-participants. This design helps all the data holders to share their data with the higher security as well as a much more efficient manner. This presents the group data-sharing model that supports sharing of this health-care data in a group manner. This DS(data sharing) model in group provides the definition of block based design which is symmetric which determines the way communication among the groups take place. It brings the concept of group-key that the multiple participants generate to share data in a secure manner. The group members make key-agreement to derive the common group-key. This key is being generated by the users themselves. Due to this, any sorts of attacks to the key is avoided and thereby the attack on the data is avoidable. The fault-detection and fault-tolerance is provided by this design. This ensures the group-key is being generated without failure. The fault-detection is done. In this, it can identify the volunteer who can replace the malicious-attacker. This enables to avoid different key-attacks which once again makes data sharing safe. In this, the CCSTPV i.e. the cloud-security service third-party-verifier is used. This is useful in providing the key-updates. It helps the user, to encrypt the file by using the key provided by the CCSTPV and thereby outsource the data to cloud, this encryption makes the data secure for against any middle-attacks.

This paper has organized in subsequent sections that are as follows, section- 2 discuss the Literature survey, in section 3 we described proposed model, section-4 we provide the result-analysis, section-5 gives the conclusion of our paper.

ANALYSIS AND CLASSIFICATION OF WATER PURITY BASED ON PARAMATERS STATED BY CENTRAL POLLUTION CONTROL BOARD

[1] Bharath HG, [2] Greeshma S, [3] Kavya D, [4] Amith JS, [5] Aditya Pai H,

[1,2,3,4] Undergraduate student, Computer Science & Engineering, K S Institute of Technology,

[5] Associate Professor, Department of Computer Science & Engineering, K S Institute of Technology Bangalore, India.

ABSTRACT Water from various sources are stored in lakes and used for multiple purposes after a prolonged storage time. The main purpose of this paper is to predict the stored water status using KNN algorithm technique. Quality of water affects public health, growth and yield of the plants. Water quality is measured based on its chemical, physical, and biological parameters. Water quality of two samples one is Yediyur Lake in Bengaluru and underground water in Raghuvanahalli region in Bengaluru where TDS and pH values are analyzed. The paper discusses about the initial findings of the research to check the Total Dissolved Solvents and Potential of Hydrogen in the Yediyur lake region and Raghuvanahalli region

Keywords— TDS, pH, KNN algorithm.

1.INTRODUCTION

One of the vital water resources in India is rivers, lakes and ground water. Though the lake water is not used directly for drinking or any other domestic purpose, the quality of lake water affects the quality of ground water in the nearby areas. The groundwater is also being vastly used in many cities and villages for water consumption and other domestic purposes. This proposed model predicts the water quality based on the chemical, physical and biological parameters like PH and Total Dissolved Solvents using KNN algorithm. As the water quality changes after every day of storage in the lake due to exposure to sunlight, there is an inconsistency in the data. Thus a KNN algorithm is used for this application. The sample of data is collected at different time intervals and are analyzed for the difference in the pH value and TDS.

2.RELATED WORK

In [1] The investigation of water source quality in Taihu Lake is being examined. The author describes the development of drinking water treatment processes. According to the paper the water samples were taken

International Journal of Computer Integrated Manufacturing

ISSN: 0951-192X (Print) 1362-3052 (Online) Journal homepage: https://www.tandfonline.com/loi/tcim20

Shop floor to cloud connect for live monitoring the production data of CNC machines

Prathima B A, Sudha P N & Suresh P M

To cite this article: Prathima B A, Sudha P N & Suresh P M (2020) Shop floor to cloud connect for live monitoring the production data of CNC machines, International Journal of Computer Integrated Manufacturing, 33:2, 142-158, DOI: 10.1080/0951192X.2020.1718762

To link to this article: https://doi.org/10.1080/0951192X.2020.1718762

Published online: 28 Jan 2020.

Engineering Science and Technology, an International Journal 23 (2020) 565–575

HOSTED BY

Contents lists available at ScienceDirect

Engineering Science and Technology, an International Journal

journal homepage: www.elsevier.com/locate/jestch

Full Length Article

Power optimization in MANET using topology management

B. Devika *, P.N. Sudha

Kammavari Sangham Institute of Technology, India

ARTICLE INFO

Article history:
Received 28 January 2019
Revised 2 July 2019
Accepted 29 July 2019
Available online 6 September 2019

Keywords:
MANET topology
Power
Energy
Gabriel graph
Mobility
Connectivity

ABSTRACT

Mobile ad-hoc network (MANET) is a wireless ad hoc network, which is quickly deployable and functions without any infrastructure. This work proposes a hybrid optimization algorithm, named Chronological-Earth Worm optimization Algorithm (C-EWA), for performing effective clustering and adjusts power and energy parameters using topology management. In this paper, initially a graph that is equivalent to the network is constructed, and then, clustering of the graph is performed using the proposed C-EWA to generate an optimal cluster head. C-EWA is developed by the integration of chronological theory in EWA, with the use of the objective function. Here, the objective function considers several factors that involve power, connectivity, mobility, link lifetime, and distance. After choosing appropriate clusters, each of the nodes that belong to the cluster constructs a Gabriel graph within the corresponding cluster. Once the Gabriel graph is constructed, each node updates the list of neighbor and maintains the graph connectivity and adjusts the power of transmission based on the connectivity. The performance of the proposed method shows superior performance in terms of remaining battery power, mobility, throughput, delay and connectivity with values of 21.960 J, 0.729, 0.713, 0.295, and 5.256, respectively.

1. Introduction

Mobile Ad-hoc Network (MANET) is an autonomous wireless ad hoc network that contains mobile nodes, which initiate transmission without considering base stations [1]. Networking is essential for the strategic networks, which are not depended on other infrastructures that involve disaster relief organizations and military [2]. Several challenges related to network protocols are presented in MANET [3]. The protocols should offer distributed solutions whenever the centralized control and the access points are absent. The node mobility is inessential as compared to routing protocols [4], which can track the topology of the network [5]. The surplus of routing protocols deployed for MANETs perform certain tasks for data transmission. The changing topologies, network division, bandwidth, larger error rates, interference, power constraints, and collision are the issues in the network control for designing larger level protocols that involve routing and executing applications using the Quality of service (QoS) [6].

The MANET is adapted in several applications that range from the battlefield to the user's living room. Due to the limited battery energy of mobile nodes, how to prolong the lifetime of nodes and network becomes the key challenge in MANET, and it has received more and more attentions. The traditional methods employed for conserving energy are the spotlights on controlling transmission power and the dynamic turning of active nodes in the network. The reduction of energy utilization is controlled by transmission power, which subsequently results in effective data transmission and prolonging network lifetime [7]. Power plays a vital role in MANET [8,9] and requires fewer infrastructures and communication networks. The routing becomes challenging due to varying topologies produced by the movement of the node, and thus, the routing is a center of attraction among researchers. The existing routing protocols, like Ad hoc On-Demand Distance Vector (AODV) [10], Temporally Ordered Routing Algorithm (TORA), and Dynamic Source Routing (DSR), do not fulfill the requirements of real time applications. The application requires the communication network to provide a guarantee regarding QoS parameters. The prolonged battery life is important due to the mobile nodes. The power received is an important parameter for initiating the communication in MANET [11].

The MANET nodes move freely from one place to another in a random manner. The topology of the network is changed unpredictably and rapidly. The nodes inside the transmission range can directly exchange information with each other. The nodes that reside outside the transmission range should communicate indirectly by adapting the multi-hop routing protocol. Each node is responsible for the route discovery in a dynamic manner. Despite several clustering schemes, the organization of MANET into a

* Corresponding author.
E-mail address: devikabgowda@gmail.com (B. Devika).
Peer review under responsibility of Karabuk University.

https://doi.org/10.1016/j.jestch.2019.07.008
2215-0986/

International Journal of Engineering Applied Sciences and Technology, 2020
Vol. 4, Issue 11, ISSN No. 2455-2143, Pages 493-497
Published Online March 2020 in IJEAST (http://www.ijeast.com)

UNMANNED UNDERWATER VEHICLE FOR MONITORING AQUATIC ECOSYSTEM

Abhishek A Nandyal, Adithya D M, Karthik K, Manikantan G
Dept of ECE, KSIT
Bangalore

Dr. P.N. Sudha
HOD, Dept of ECE, KSIT
Bangalore

Abstract-**Collection of Data by Survey and Observation in the actual aquatic environment is indispensable for studies and development. Studies about ocean such as Marine Environment Monitoring, submarine Earthquakes, Ocean life, marine Resource Research are carried out with the help of an underwater vehicle. While the existing underwater vehicles provide a high cost, less effective, inaccurate data processing solution, the problem is addressed by choosing a highly efficient microcontroller PIC18 Microcontroller with its excellent capability for image processing, video streaming and the ability to work based on internet of things. In this paper a low cost and an efficient underwater vehicle is designed and implemented which has the ability to measure parameters like temperature and pressure using sensors.**

Keywords– **Aquatic Ecosystem, Underwater Vehicle, PIC18 Microcontroller.**

I. INTRODUCTION

The ocean occupies approximately 71% of the earth surface and still has a lot of unknown parts. Therefore various studies and development about the ocean such as marine environment, submarine earthquake, ocean life, and marine resources research and so on are carried out. The collection of data by survey and observation in the actual sea is indispensable for the studies and the development. Hence there is a need of a low cost, highly efficient underwater vehicle which can serve multiple applications is necessary. Underwater vehicles are the vehicles which work underwater for surveillance and monitoring aquatic ecosystem. They are powerful and complex systems which are capable of performing various underwater tasks.

Thus an underwater vehicle can be considered as the multi body system which performs multiple operations. The dynamic modeling and Simulation of the underwater vehicle is important in the process of design and analysis of the maneuverability of the underwater vehicles. It has become an interesting research area because of their emerging applications. However with the increasing functionalities, the geometric shape and the mechanical design of the vehicle has become more and more complicated. Therefore efficient tools are required to describe detailed and accurate models of the underwater vehicles with complex attached bodies.

With the explosion and combination of the mechanical engineering, electrical engineering and computer science fields, the birth of mechatronics has led to extensive research and development in the area of mobile robotics. Though terrestrial robotics is a field of highly active research and commonly increasing applications, underwater robotic technologies have not grown at the same rate, partially owing to the high costs associated with the development of such robots. Underwater robotic technologies are divided into two basic groups which are Remotely Operated Vehicles (ROVS) and autonomous underwater vehicles (AOVS). Remotely Operated Vehicles (ROVS) are the vehicles which are remotely operated by a highly skilled and trained human operator. Due to rapid failure of remote communication technologies underwater, in order to allow for remote control, these vehicles are physically connected over a tether cable to a remote operation unit.

These vehicles greatly improve efficiency of all kinds of underwater operations by removing the requirement of human presence inside the submersible. Being remotely operated these vehicles can also be deployed in missions who pose a great risk to human life. ROVs gained quick popularity because of their cost- effectiveness and high mission applicability. When such underwater vehicles are made, it is necessary to consider about the following things. 1) Seawater and Water Pressure Environment, 2) Sink, 3) There are n Gas or Battery Charge Stations, 4) Global Positioning System cannot use, 5) Radio waves cannot use.

II. LITERATURE REVIEW

In Xiao Bo Tan *et al* [1] this paper presents an underwater vehicle which has a Robotic fish based on Robotic sensor networks for profiling the aquatic diffusion process where mobile sensors are used for profiling the characteristics of a diffusion process including source location, discharged substance amount, and its evolution over time. Simulation based on real time data traces of GPS localization errors, robotic fish movement, and wireless communication was conducted. An efficient greedy algorithm and a complex

International Journal of Latest Engineering and Management Research (IJLEMR)
ISSN: 2455-4847
www.ijlemr.com || Volume 05 - Issue 05 || May 2020 || PP. 05-08

Literature Survey on A Bore Well Rescue Bot

Kadri Srinidhi Rao[1], Jeevitha Kalaashilpa N C[2], Bhagya Shree S J[3], Ashwini S[4], Dr P N Sudha[5]
Dept of ECE
K.S. Institute of Technology, Bengaluru

Abstract: Over the past few years, there have been several accidents of children falling into abandoned bore wells in India.

Abandoned bore wells have turned into death pits for kids. This problem is found all over India. Rescue teams spend hours and sometimes days in futile attempts to save these kids. A lot of money is being spent in these missions. In most cases they are unable to save the kids. Such events have happened umpteen numbers of times in the past, and every time either the government of the bureaucracy are being blamed. The rescue process of saving the child from bore well is a long and complicated procedure & to approach the victim parallelly takes about 20-60 hours. This complicated process makes 70% of the rescue operations to fail. Very few of the victims have been saved in such accidents. This paper briefs different techniques used to save kids fallen into the abounded bore wells and also briefly discuss the drawbacks in these methods.

In this paper we propose a technique to deals extreme Safe handling of the victim with cent percent recusal & further eradicating the kid from falling in bore well. Our Bot designed constitutes a best Ergonomic Design and performs safest rescue operation.

Keywords: Egronomic, Anchorage, Rack & Pinion Geared mechanism, Teleconferencing.

I. Introduction

Water scarcity is the major problem faced by the human society. Due to drought and depletion of underground water more bore wells are dugged on the surface of the earth. Due to water scarcity more bore wells are being sunk. In many areas the bore wells are dugged and left open without any Proper covering. This abandoned bore wells have become death traps and started taking many innocent lives of small children. Now a days falling of children in bore wells are increasing due to the carelessness and playful activities of the children. The holes dugged for the bore wells are deep and around 700 feet. In these cases the rescue of children from such deepest bore wells is quite challenging. Many times the rescue system for children fallen in the bore wells may risk the child life.

As the famous saying of famous scientist Benjamin Franklin "**An Ounce of Prevention is worth a Pound of Cure**". In order to overcome these hurdles a new system of preventing children from falling into bore wells is designed.

II. Literature Survey

In [1] Virtual prototype realization and simulation for small – caliber deep well rescue robot [2011]

In order to analyze the feasibility of rescue robot, a virtual prototype of the robot was designed by using Solid works, which ensures to find the potential deficiencies during the course of robot design before the final robot design and assembling is done. The virtual prototype can show the whole process of rescue activities. Originally when the robot is put into the well and is moved accordingly to analyze the rescue position furthermore the anchorage set has fixed the robot and the stretching arm has stretched out till to the underside of the victim and the supporting bracket is applied to perform rescue operation.
Draw backs: Fixed model & Risky

In [2] A novel design of robotic system for rescue in bore well accidents. [2016]

The robot is sent into the bore-well where the robot is adjusted to the size of the bore-well with the help of the rack and pinion geared mechanism. This is achieved with the help of data received from the ultrasonic sensors. This is achieved with the help of data received from the ultrasonic sensors. After firmly attaching robot to the walls of the bore well, the robot traverses down the bore-well. If the bore-well is having tapered diameter The ultrasonic sensors in front of the wheels will sense the distance and automatically adjust the wheels beneath it with the help of the rack and pinion mechanism present in the center block.
Drawback: Rescue time up to 40 hours. Risky and requires more man power

In [3] Smart child rescue from bore well[2016]

International Journal for Research in Engineering Application & Management (IJREAM)
ISSN : 2454-9150 Vol-06, Issue-03, June 2020

Rakshak - A Bore Well Rescue Bot

[1]Ashwini.S, [2]Bhagya Shree S J, [3]Jeevitha Kalaashilpa N C, [4]Kadri Srinidhi rao, [5]Dr. P. N. Sudha
[5]Professor and Head of department, Electronics and Communication department, K S Institute of Technology, Bangalore, India, [1]ashwiniselvaraj003@gmail.com, [2]bhagi.sj22@gmail.com, [3]jeevitha1998nc@gmail.com, [4]nidhivadi234@gmail.com, [5]pnsudha@ksit.edu.in

Abstract- Over the past few years, there have been several accidents of children falling into abandoned bore wells in India. Abandoned bore wells have turned into death pits for kids. This problem is found all over India. Rescue teams spend hours and sometimes days in futile attempts to save these kids. A lot of money is being spent in these missions. In most cases they are unable to save the kids. Such events have happened umpteen numbers of times in the past, and every time either the government of the bureaucracy are being blamed. The rescue process of saving the child from bore well is a long and complicated procedure & to approach the victim parallely takes about 20-60 hours. This complicated process makes 70% of the rescue operations to fail. Very few of the victims have been saved in such accidents. This paper briefs different techniques used to save kids fallen into the abounded bore wells and also briefly discuss the drawbacks in these methods. In this paper we propose a technique to deals extreme Safe handling of the victim with cent percent recusal & further eradicating the kid from falling in bore well. Our Bot designed constitutes a best Ergonomic Design and performs safest rescue operation.

Keywords- bureaucracy, eradicating, ergonomic, futile, umpteen, victim

I. INTRODUCTION

Water scarcity is the major problem faced by the human society. Due to drought and depletion of underground water more bore wells are dugged on the surface of the earth. Due to water scarcity more bore wells are being sunk .In many areas the bore wells are dugged and left open without any proper covering. This abandoned bore wells have become death traps and started taking many innocent lives of small children. Now a days falling of children in bore wells are increasing due to the carelessness and playful activities of the children. The holes dugged for the bore wells are deep and around 700 feet. In these cases the rescue of children from such deepest bore wells is quite challenging. Many times the rescue system for children fallen in the bore wells may risk the child life. As the famous saying of famous scientist Benjamin Franklin "An Ounce of Prevention is worth a Pound of Cure". In order to overcome these hurdles a new system of preventing children from falling into bore wells is designed wherein the sensors will be placed at the top of the bore well pipeline which helps to sense the human being if he/she falls in the pipeline and data is sent to controller[3].The robot is put into the well and is moved accordingly to analyze the rescue position furthermore the anchorage set has fixed the robot and the stretching arm has stretched out till to the underside of the victim and the supporting bracket is applied to perform rescue operation [1].

II. PROPOSED METHODOLOGY

The idea for this proposed system is conceived by witnessing the rapid bore well accidents prevailed in India during 2010-19 to prevent the children fall into unclosed bore well & rescue the victim by avoiding the technical and financial risks involved in rescue operation and to perform the rescue operation in the extreme conditions. The basic concept of this project is to bring the victim to ground within short span of time. This could be achieved using the advanced ergonomic design present in the robot. It seeks to please the functionality of tasks with the requirements. Ergonomic design focuses on the compatibility of the objects and environments with the humans using those platforms. For completion of present design & to reach prototype stage, the following steps are followed as shown in the flow charts -

 DOI : 10.35291/2454-9150.2020.0440

International Journal of Engineering Applied Sciences and Technology, 2020
Vol. 5, Issue 2, ISSN No. 2455-2143, Pages 599-601
Published Online June 2020 in IJEAST (http://www.ijeast.com)

A LITERATURE SURVEY ON "UNMANNED UNDERWATER VEHICLE FOR MONITORING AQUATIC ECOSYSTEM"

Abhishek A Nandyal, Adithya D M, Karthik K, Manikantan G
Dept. of ECE, KSIT
Bangalore

Dr. P.N. Sudha
HOD, Dept. of ECE, KSIT

ABSTRACT - Assortment of information by Survey and Observation at intervals the particular aquatic surroundings is indispensable for studies throughout this paper. An occasional price and an economical underwater vehicle are supposed and enforced that has the facility to measure.

Microcontroller with its wonderful capability for image process, video streaming and so the flexibility to work supported of things less effective, inaccurate process resolution, the matter is self-addressed by selecting an extremely economical microcontroller PIC18 analysis square measure administered with the help of an underwater vehicle whereas the prevailing underwater vehicles offer a high price, and development. Studies regarding ocean like Marine surroundings observation, submarine Earthquakes, Ocean life, marine Resource etc.

Keywords: – Aquatic Ecosystem, Underwater Vehicle, PIC18 microcontroller.

I. INTRODUCTION

An ocean could a be a body of water that composes abundant of a planet's layer. On Earth, an ocean is one among the main standard divisions. These square measure in declivitous order by space, the Pacific, Atlantic, Indian, Southern (Antarctic), and Arctic Oceans.

The phrases "the ocean" or "the sea" used while not specification raise the interconnected body of salt water covering the majority of the surface.

As a general term, "the ocean" is typically interchangeable with "the sea" in American language, however not in British English. To be precise, an ocean might be a body of water (generally a division of the planet ocean) part or totally capsulate by land.

Saline seawater covers approximately 361,000,000 km2 (139,000,000 sq mi) and is usually divided into many principal oceans and smaller seas, with the ocean covering around seventy-one of surface.

The ocean contains ninety-seven percent of Earth's water, and oceanographers have explicit that however two hundredth of the world Ocean has been mapped. The total volume is around 1.35 billion cubic kilometers (320 million cu mi) with a mean depth of nearly 3,700 meters (12,100 ft).

Robots square measure used during a unfold of fields i.e. industry, agricultural, military, space, medicine, human rescue, and science.

Submarine robots square measure one amongst the wide applied robots, that square measure used in submarine exploration and marine environmental analysis.

Submarine robots square measure developed by several scientists; as an example, writer (1976) created a submarine automaton, that includes a capability to dive to sixty-one meters depth.

This automaton square measure usually used to collect oceanographic information and is controlled by North American nation.

The ballast system is typically used within the submarine automaton (McDuff, 2000; Bosker, 2003).

McDuff (2000) created an occasional vehicles square measure created, it is necessary to think regarding believe consider suppose deem trust admit accept have confidence have faith in rely on place confidence in about the following things.

II. LITERATURE SURVEY

[1] Method of Aquatic Diffusion exploitation Robotic sensing element Network:

The studies regarding ocean analysis, observance of marine organic phenomenon and abiotic parts life, submarine earthquakes and for analysis are with the assistance of beneath vehicle, whereas the present comes high price and fewer effective, to resolve this downside, we tend to use raspberry pi with wonderful options like image process, video

Journal 23

Journal of Information Technology Research
Volume 12 • Issue 3 • July-September 2019

Edge Detection and Contour Based Ear Recognition Scheme

Deven Trivedi, G. H. Patel College of Engineering and Technology, Anand, India
Rohit Thanki, C. U. Shah University, Wadhwan, India
https://orcid.org/0000-0002-0645-6266
Surekha Borra, K. S. Institute of Technology, Bengaluru, India

ABSTRACT

In recent days, with the advancements in computer vision technology pattern recognition for biometric data has been the focus of many researchers. The human ear can be used to assist in the recognition of an individual. In this article, a new scheme for ear recognition is presented, based on edge features such as the helix shape and contours between the edge pixels. First, an ear image is detected from the acquired image using a snake model-based image segmentation technique, and then histogram equalization is applied to form an enhanced ear image. After that, an Infinite Symmetric Exponential Filter (ISEF) edge is applied to the image, the contouring of edges is calculated, and then the contour values of pixels are extracted as ear features. Finally, the ear matching is performed between query ear features and enrolled ear features. Based on the matching score, the decision about individual authentication is performed. The experimental results showed that this proposed scheme performs better than existing schemes in the literature.

KEYWORDS

Biometric, Canny, Contour, Ear, Edge, Shen-Castan

1. INTRODUCTION

Nowadays, an individual is recognized based on his/her biometric characteristics in many places like offices, institute, airports, etc. These biometric characteristics are divided into two types: physical and behavioral (Jain and Kumar, 2012; Jain and Nandakumar, 2012). The examples of physical characteristics of an individual are fingerprint, face, iris, palm print and ear. The examples of behavioral characteristics of an individual are speech, signature, and gait. The systems based on biometrics recognize an individual automatically using various computer vision and pattern recognition algorithms (Jain and Kumar, 2012; Jain and Nandakumar, 2012). The biometric systems are used mainly for two operations: verification and authentication. In these operations, the query biometric image is compared and matched with its closest image in the database. While the query image is compared with all the database images in case of authentication, it is compared with its enrolled image in case of verification.

DOI: 10.4018/JITR.2019070105

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 07 | July 2020 www.irjet.net p-ISSN: 2395-0072

MEDICINES ANY TIME

T G Nithya[1], Sheethal J Rao[2], Ravi Teja M[3], Sachin M G[4], Dr.Sangappa[5]

[1]Dept of ECE, K S Institute of Technology, Karnataka, India
[2]Dept of ECE, K S Institute of Technology, Karnataka, India
[3]Dept of ECE, K S Institute of Technology, Karnataka, India
[4]Dept of ECE, K S Institute of Technology, Karnataka, India
[5]Professor, Dept. of ECE, K S Institute of Technology, Karnataka, India

---

Abstract - *Medicines are used to cure, halt, or prevent disease; ease symptoms; or help in the diagnosis of illnesses. Medicine Any Time (MAT) is a machine which provides the medication in crisis cases and guarantee accessibility of medications 24x7. MAT will be extremely valuable in sparing life. It can be used on parkways, remote ranges, provincial territories and spots where therapeutic stores are not near the event of crisis. In any emergency first help can be made effectively with this framework. Sub frameworks like Global System for Mobile correspondence (GSM), RFID Reader, pharmaceutical allocator, and stock control are controlled by ARM processor. RFID tag identifies the specific client and GSM sends the message to the stock control when the medicines should be refilled. Pharmaceutical allocator of the machine stores the prescription and medicines are provided to patients on regular basis.*

***Key Words*: Global Positioning System and Global System for Mobile (GSM); Radio Frequency Identification (RFID) tags**

1. INTRODUCTION

Degrees of social status are closely linked to health inequalities. Those with poor health tend to fall into poverty and the poor tend to have poor health. According to the World Health Organization, within countries those of lower socioeconomic strata have the worst health outcomes[6]. Health also appears to have a strong social component linking it to education and access to information. Intelligent pillbox is an automatic medicine vending machine[1].

The project is basically wireless data transfer tool which uses national care card to store the data. In the application we are using RFID tag for person identification instead of cash payment. RFID tagging is an ID system that uses small radio frequency identification devices for identification and tracking purposes[3]. An RFID tagging system includes the tag itself, a read/write device, and a host system application for data collection, processing, and transmission[7]. RFID belongs to a group of technologies referred to as Automatic Identification and Data Capture (AIDC). AIDC methods automatically identify objects, collect data about them, and enter those data directly into computer systems with little or no human intervention[5]. RFID methods utilize radio waves to accomplish this. At a simple level, RFID systems consist of three components: an RFID tag or smart label, an RFID reader, and an antenna[4]. RFID tags contain an integrated circuit and an antenna, which is used to transmit data to the RFID reader (also called an interrogator). The reader then converts the radio waves to a more usable form of data[9]. Information collected from the tags is then transferred through a communications interface to a host computer system, where the data can be stored in a database and analyzed at a later time[2]. The users will first insert the national health care card into the system. Then the system will read the card data and display the prescription and will ask for user's input[8]. Then the users have to specify the medicine's name and the number of tablets. Once the input has been taken, the system will check if the required medicine is available or not. If it does, system will check the users balance and will dispense the medicine and if the user does not have required amount it will display a message stating insufficient balance and ask the user to recharge the card[10].

2. METHODOLOGY

User Authentication: User authentication is a process that allows a device to verify the identity of someone who connects to a network resource. The user has to insert their card and enter password. If the password is correct the system will accept the transaction or else, it will display the appropriate error message. Medicine Dispensing: Once the authentication process has been carried out, user will select the medicine and pillbox will dispense it.

Database Updating: Once the medicine has been dispensed the balance and database will be updated. User's database will be updated with current balance and number of pills dispensed. Stock database will be updated with current stock value.

Inventory Control: Controlling the inventory of drugs is critical to functioning of machine. If the medicine gets over, the system will send notification to refill it.

Medicines Any Time

T G Nithya[1], Sheethal J Rao[2], Ravi Teja M[3], Sachin M G[4], Dr.Sangappa S B[5]
[1]ECE Dept, K S Institute of Technology, Bangalore, tgnitya549@gmail.com
[2]ECE Dept, K S Institute of Technology, Bangalore, yadhavsheethal@gmail.com
[3]ECE Dept, K S Institute of Technology, Bangalore, raviteja.m360@gmail.com
[4]ECE Dept, K S Institute of Technology, Bangalore, sachimg1210@gmail.com
[5]Associate professor, K S Institute of Technology, Bangalore,sangappasb@ksit.edu.in

***Abstract*— Medicines are used to cure, halt, or prevent disease; ease symptoms; or help in the diagnosis of illnesses. Medicine Any Time (MAT) is a machine which provides the medication in crisis cases and guarantee accessibility of medications 24x7. MAT will be extremely valuable in sparing life. It can be used on parkways, remote ranges, provincial territories and spots where therapeutic stores are not near the event of crisis. In any emergency first help can be made effectively with this framework. Sub frameworks like Global System for Mobile correspondence (GSM), RFID Reader, pharmaceutical allocator, and stock control are controlled by ARM processor. RFID tag identifies the specific client and GSM sends the message to the stock control when the medicines should be refilled. Pharmaceutical allocator of the machine stores the prescription and medicines are provided to patients on regular basis.**

Keywords—Global Positioning System and Global System for Mobile (GSM); Radio Frequency Identification (RFID) tags.

I. INTRODUCTION

In India, we see more than 15 street mishaps for every hour.2153 individuals passed on in Delhi and 2843 individuals kicked the bucket in Kolkata. In Bangalore, 832 individuals kicked the bucket in 2010. Thus with the help of pills, many lives can be saved during an emergency. In various regions, there is no prescription accessible and this is a basic issue to have restorative accessibility in patient's reach. The problem emerges when patients need medicine during night time and all the shops all closed at that time this system is useful to save the lives of the people.

The medications are accessible at a reasonable rate and its accessibility will be 24*7 thus named our venture as "MEDICINE ANY TIME". It monitors the health based on wireless sensors network. The machine can convey mostly over the counter (OTC) drugs, so It will be useful to the general public.

(MAT)Medicine Any Time, where the device can send out medicines. The device can fetch out the medicines automatically for the basic common symptoms free of cost. It is helpful for the people staying in rural areas. Thus this project will be helpful for emergency purposes in places such as drugstores, malls, bus /railway stations, on highways, areas where medical stores are limited and this system is used for taking precautionary measures but also ensures the availability of drugs 24x7. It is designed under the intention that it saves the life of a person in an emergency case and the medicines are available in all the rural and urban areas.

II. LITERATURE SURVEY

This section clarifies existing issue that the general public is confronting. General Sale List (GSL) prescriptions (i.e., those that might be acquired from common retail outlets, for example, grocery stores) might be sold or provided from a candy machine. Clients will have the capacity to get essential Over-The- Counter (OTC) solution whenever (24x7) [10]. Over-the-counter(OTC) medications sold straightforwardly to a purchaser without a medicine from a social insurance proficient, when contrasted with physician recommended drugs, which might be sold just to buyers having a legitimate remedy by RFID [5].

Individuals will be ready to get to the pharmaceutical with the assistance of this machine even at the evening. With this, first help can be given to the client. Before we have an issue of refilling of drug and there is no message sent to the specific specialist to refill, yet every one of these cases are overcome by utilizing IOT application in this venture. Medicine for which these confinements apply are basically headache medicine and paracetamol. [3] Products containing these substances ought not to surpass 16 tablets in a bundle available to be purchased.

Issue emerges when there is need of some pharmaceutical in pressing and medication stores are not open or medication is not accessible in stock, particularly amid evening time and in trips [1].

The medication gave by the machine is just for the opportune alleviation and in crisis case, where the individual needs to meet the specialist in advance [7].

In remote ranges, country zones andplaces where open turnover is less, the accessibility of pharmaceuticals for the patient and its span is a basic issue [2].

These are a portion of the principle issues that are being confronted by the general public in present situation [8]. The point of the venture is that individuals would have the capacity to get to the medication by means of patient who can stand in broad daylight place, for example, shopping centers, transport station, railroad station, air terminal, on

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 02 | Feb 2020 www.irjet.net p-ISSN: 2395-0072

A Survey on Automation of Manually Operated Devices

Likhitha Y[1], Brunda S[2], Deepika M[3], L S Babyram[4], Dr. B. Sudarshan[5]

[1,2,3,4]*Student Dept. Electronics & Communication Department, K.S Institute of Technology, Bangalore, India*
[5]*Professor, Dept. Electronics & Communication, K.S Institute of Technology, Bangalore, India*

Abstract - Water is an essential resource in the world and currently household drinking water is an important asset to save the life due to shortage of water in the earth. In this busy world everybody are interested in making their routine works automated and also want to monitor the elderly people and patients at home. This system describes the design and development process of an automatic control system for tap water using IR sensor and servo motor which can save wastage of water. The physically disabled persons require special assistances from caretakers or other persons to lead their normal life and even at home, it is not convenient for them to control the house apparatus system according to their wish. In this project, automation system is implemented which consists of automatic control of lights by ON or OFF of switches using remote. The project is implemented using low-cost components and based on microcontroller platform with an aim to develop a system which will be effective to reduce water wastage in real time.

Key Words: **Automation, IR sensor, Microcontroller, Servo motor, Water Wastage.**

1. INTRODUCTION

Overuse and misuse of usable water are the common problem in our daily life, sometimes we go out keeping water tap open (absent mind and forget to close), which causes a huge water misuse. To overcome or minimize this problem we build an automatic control system for water taps using sensors and motors. Automation system is mainly for the physically disabled and elderly people to make them self dependent and easy to lead their life. In our project we design and implement an external adapter to control the electrical switches through remote. Water is a fundamental human need. Each person on Earth requires at least 20 to 50 litres of clean, safe water a day for drinking, cooking, and simply keeping themselves clean". This is an era of automation where it is broadly defined as replacement of manual effort by mechanical power in all degrees of automation. The operation remains an essential part of the system although with changing demands on physical input as the degree of mechanization is increased.

The working principle of water taps is very simple and effective. Taps are normally constructed from solid brass for a longer life and then chrome or gold plated to add an easy to clean finish. The water pipe is connected to the bottom. Water is then held in a chamber until required. When you want water all you need to do is turn the handle anticlockwise which unscrews an internal valve and starts the flow of the water. The role of the electrical switch is to regulate the current that travels between the load and the power source and the on/off toggle switch is the most commonly used switch. Three way circuits and dimmer circuits work on a similar design. Three-way circuits are made up of two separate switches that control the same device (like a lamp); whereas a dimmer circuit merely regulates the amount of electricity that gets through. Electrical circuits only work when the electricity is free to move through a continuous loop and once that loop is broken, the electricity is cut off. An on/off toggle circuit breaks the current when it's in the "off" position and when it's in the "on" position, the current or loop is completed.

2. LITERATURE SURVEY

Water is an essential resource in the world and a precious resource which sustains our lives. Therefore, if sustainably is not done properly then it can be devastating to our communities. The ability to closely monitor water level and to protect water from wastage is an important issue through the fields of engineering as well as environment. A research proposed on the design of automatic controlling system for tap-water using float less level sensor. This automatic system consists of a solenoid valve; relay, float-less level controller and electrodes. When the electrodes are in contact with liquid, the circuit is closed (the liquid completes the path for electricity to flow) and the electrical current that flows in this circuit is used to detect the level of the liquid. [1].

The systems that can automatically control the water tap accordingly when level sensor can sense the lower level of water tank and have ability to activate the relay which starts solenoid valve. This system uses three level sensor at different positions, if one of the sensors fails then solenoid valve is not controlled properly. A paper on automatic voice based home Navigation system for the elderly and the physically challenged person has been discussed in [2]. If obstacle is detected then it takes left and moves in straight line until it detects the line. If the line is detected then the wheelchair follows the line till it receives any signal from IR TSOP. By analysing the data received from the TSOP the system determines if the destination is the particular room in the house dictated by the voice and then enters the room and stops. However, the main defect of this system is that it is applicable only for wheelchair used persons.

The GSM and internet modules are designed to access the home appliances from a remote place and the speech controlled module is designed when someone wants to control the appliances from inside the house without using

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 05 | May 2020 www.irjet.net p-ISSN: 2395-0072

SURVEY PAPER ON POWER GENERATION USING PIEZO ELECTRIC MATERIAL

Shreya Srinivas[1], Sarah Ahmed[2], Saurav Kumar[3], Spurthi MK[4], Vishalini D[5]

[1,2,3,4]*Student, Dept. of ECE, K.S. Institute of Technology, Bangalore, Karnataka*
[5]*Asst.Prof, Dept. of ECE, K.S. Institute of Technology, Bangalore, Karnataka, India*

Abstract - *In the last few years the use of power electronic devices has been increasing rapidly. The devices are being used in large numbers to comfort our daily lives with the energy consumption of these portable electronic devices, the concept of harvesting alternative renewable energy in human surroundings arise a new interest among us. Here we focus on such advanced materials in order to harvest energy from people walking vibration for generating and accumulating the energy. Piezoelectric materials can be used as mechanisms to transfer mechanical energy, usually ambient vibration, into electric energy that can be sorted and used to power other devices. A piezoelectric substance is one that produces an electric charge when a mechanical stress is applied.*

Key Words: Energy harvesting, Piezoelectric material, External pressure.

1. INTRODUCTION

In the recent years there has been an increasing interest in research and development of advanced smart phone technology. But as technology evolves so do the problems associated with it. One among those is the fast draining out of the battery. Almost every smart phone user wishes he had more battery life. Now, imagine charging your batteries where ever you go. This is possible by piezoelectric power generation and wireless transfer mobile charging techniques.

Mechanical energy is one of the most ubiquitous energies that can be reused in our surroundings. The sources of mechanical energy can be vibrating structures, a moving object, and vibration induced by flowing air or water. Harvesting mechanical energy from human motion is an attractive approach for obtaining clean and sustainable electric energy. Piezoelectricity is the energy produced when pressure is applied on a piezoelectric sensor piezoelectric charge is produced on the expanded side and a positive charge is produced on the compressed side of the piezoelectric crystal. Once the pressure is relieved, electrical current flows across the material. Wireless power or wireless energy transmission is the transmission of electrical energy from a power source to a load without any physical connector such as wires or conductors.

Energy is harvested from the human movements and is transmitted wirelessly through wireless power transfer technique and is used to charge the mobile battery.

2. LITERATURE SURVEY AND SUMMARY

2.1 ENERGY HARVESTING BY PIEZOELECTRIC ELEMENTS

The fundamental idea of research work in paper (1) is to present an approach to energy harvesting, which basically uses piezoelectric technology and is implemented in a shoe. It takes advantage of the energy that the user waste when walks and thus is able to convert it into electric energy and can be use in an electronic device that requires low power. For measuring the power generated and construction, by the plantar pressures of the foot during the walking or running cycle. As seen in the results there is more power in the running test than in the walking test because higher speed and jumping while running produce higher pressure and more power. Also, it is observed that there is not much difference between the right foot and the left foot since almost the same power is generated. It can be concluded that the greater the weight of the person, the more the pressure generated in the piezoelectric sensors and then the power is great. (1)

This is a process of designing a hybrid energy harvesting system for small powered battery applications. The system is constructed with two separate systems that are the mechanical harvesting system and piezoelectric harvesting system. They are coupled together with an efficient power management circuit with the intention to generate electricity through walking while acting as a battery charger. The system has shown positive results when used to charge up a small battery powered electronic gadget such as a mobile phone. The proposed prototype has clearly demonstrated its ability to charge up a mobile phone. This project integrates both the mechanical harvesting system and piezoelectric harvesting system in order to convert kinetic energy from human movement into electrical energy while at the same time the electrical energy generated is processed by their respective efficient power management circuits. Although both the harvesting systems are playing an important role in generating a power source, yet the efficient power management circuits

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 06 | June 2020 www.irjet.net p-ISSN: 2395-0072

Operation Theatre Automation and Control (OTAC)

Ayush Raj[1], Rahul Kumar[2], Vishalini D[3]

[1] *Student, KSIT, Bengaluru 560109, India*
[2] *Student, KSIT, Bengaluru 560109, India*
[3] *Assistant. Professor, E&C Dept., KSIT, Bengaluru 560109, India*

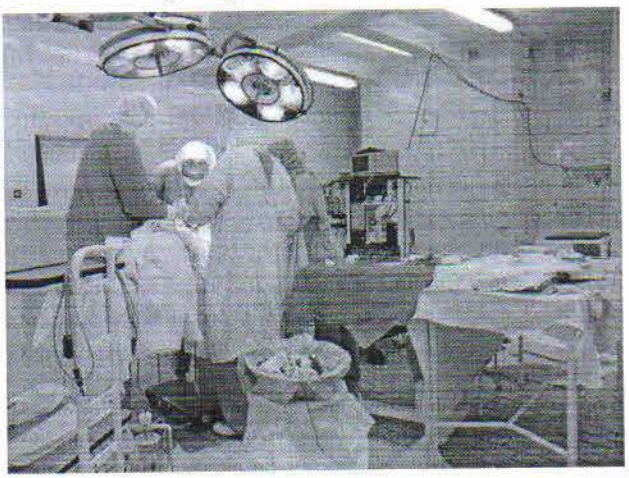
Abstract - Smart bed to non-intrusively monitor patient respiration, heart rate and movement using spatially distributed integrating multimode fiber optic sensors. The research is focused upon allowing more automation of patient care, an especially important matter for the elder population, which is a rapidly growing fraction of much of the world population today. Two spatially integrating fiber optic sensors are investigated, one of which was based on inter-modal interference and the other on mode conversion. The sensing fiber was integrated into a bed and test subjects were monitored in different positions. The sensor outputs were then correlated with subject movement, respiration rate and heart rate. The results indicated that the inter-modal sensor could detect patient movement and respiration rate while the mode conversion sensor could detect patient movement, respiration rate and heart rate. Results and analysis of the research are presented and future research activities discussed in this project we present the results of research aimed at the development of a 'smart' bed to non-intrusively monitor patient respiration, heart rate and movement using spatially distributed integrating multimode fiber optic sensors. The research is focused upon allowing more automation of patient care, an especially important matter for the elder population, which is a rapidly growing fraction of much of the world population today.

***Key Words*: anaesthesia control level bed monitor temperature monitor rectangular slab**

1. INTRODUCTION

The continuing shortage of medical staff and the increase in the elder population due to the baby boom after World War II make the automation of health care an ever-increasing priority. In particular, patient monitoring is very intrusive and labor intensive. In this project we have aimed at the development of a 'smart' bed to non-intrusively monitor patient respiration, heart rate and movement using spatially distributed integrating fiber optic sensors. In nursing homes and extended care facilities. The measurement of the respiration rate and heart rate provides an immediate indication of whether a patient is in any distress, while the measurement of patient movement can be used to determine Monitoring of essential vital signs is an integral part of medical care. The pulse rate can be determined by placing of electrodes on the skin and monitoring of the electrocardiogram. Any of these sensors can cause skin irritation or breakdown and may contribute to patient discomfort. Pressure sores are a major cause of morbidity and mortality in the healthcare setting. Finally, future planned research activity is described.

The main aim of this project conceals itself to the automation of the medical treatment to arise to a smart bed system providing comfortable care to the patients & meet the needs of the trending technology by monitoring patient respiration, heart rate and movement using spatially distributed integrating multimode fiber optic sensors.



2. LITERATURE SURVEY

In this paper we also illustrate the application of the model to the weekly planning of the OT in a medium-sized hospital in Tuscany. In particular, we explicitly take into account various tactical strategic issues raised by the hospital management.

Perspectives in Communication, Embedded-Systems and Signal-Processing (PiCES) – An International Journal
ISSN: 2566-932X
Part of the Proceedings of the 1st All India Paper writing Competition on Emerging Research - PaCER 2020

Implementation of an Off-Hospital Rural and Urban Public Access Defibrillator

Sahana D
Student, Dept. of ECE, K S Institute of Technology, Bangalore, Karnataka

Sahana K G
Student, Dept. of ECE, K S Institute of Technology, Bangalore, Karnataka

Madhu G
Student, Dept. of ECE, K S Institute of Technology, Bangalore, Karnataka

Jayasudha B S K
Asst. Prof., Dept. of ECE, K S Institute of Technology, Bangalore, Karnataka

Abstract: ***The occurrence of out-of-hospital cardiac arrest (OHCA) is a critical life-threatening event that often warrants initial defibrillation with a semi-automated external defibrillator (SAED). In INDIA, about 4280 deaths in 1Lakh are due to SCA. The optimization of allocating a limited number of SAEDs in various types of communities is challenging. Hence this paper presents the implementation of an off-hospital rural and urban public access defibrillators. This defibrillator is a semi-automated defibrillator, a medical device which analyse the patient's electrocardiogram in order to establish whether he/she is suffering from ventricular fibrillation and if necessary, delivers an electric shock, or defibrillation, to help the heart re-establish an effective rhythm.***

Keywords: ***Sudden Cardiac arrest; Ventricular defibrillation; Electrocardiogram; Semi automated external defibrillator; Cardiopulmonary resuscitation***

I. INTRODUCTION

Cardiovascular diseases accounts for 24.8% of total deaths in the country. Primarily the age population is affected by this disorder.

Most unexpected cardiovascular passing are brought about by strange heart rhythms called arrhythmias. The most widely recognized perilous arrhythmia is ventricular fibrillation, which is a flighty, complicated terminating of driving forces from the ventricles (the heart's lower chambers). At the point when this happens, the heart can't siphon blood and demise will happen in practically no time, whenever left untreated. The only solution to ventricular fibrillation is to defibrillate the patient's heart by providing a short-termed, high voltage shock.

An AED is a device that delivers therapeutic dose of shocks to assist with re-establishment of constant heart rhythms of a cardiovascular distress victim. With simple pictorial commands, AEDs are design to be simple to use for the layperson.

An AED can be used on an adult, child, or infant by following the prompts and commands given by the equipment.

The proposed design of an Off-Hospital Rural & Urban Public Access Defibrillator consists of 3 stages of operation-

- Power Supply stage
- Oscillator stage
- Voltage Booster stage

which are explained in detail further in the later stages of the paper.

II. LITERATURE REVIEW

In [1], the paper basically speaks about the importance of Automated External Defibrillators as an immediate clinical assistance for SCA patients. Defibrillation is the most reliable method of treating a SCA, namely a medical dose of electric energy. The need to perform defibrillation within a few minutes of SCA has led to the development of AEDs: their timely use after SCA can improve outcome.

For this reason, AEDs were designed to be used with little or no medical knowledge and technical training that would allow the global reach of these devices to reduce victims of SCA. [1] also states that "AEDs should be present in public places with the highest probability to have SCA events, such as public transportation areas (train stations or airports), shopping malls, schools and colleges, working areas etc."

In paper [2], untrained laypersons can use semi-automated AEDs sufficiently quickly and with minimal instructions. The finding that realistic performance metrics (i.e. time to first shock, precision of the positioning of the electrode pad and safety) were substantially improved after limited theoretical guidance, but without technical instruction in the use of the instrument. One of the most extraordinary findings is that after giving marginal instructions, all tested laypeople were able to deliver a shock in less than 1 min, irrespective of whether the automatic or semiautomatic mode was being used. Finally,

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 06 | June 2020 www.irjet.net p-ISSN: 2395-0072

A Survey on Detection of Ventricular Fibrillation using Wavelet Analysis

Aaliya Zainab[1], Neha J Kotwal[2], Anusha Raj D[3] ,Jayasudha BSK[4], PN Sudha[5]

[1]Student, KSIT, Bengaluru 560109, India
[2]Student, KSIT, Bengaluru 560109, India
[3]Student, KSIT, Bengaluru 560109, India
[4]Research Scholar, E&C Dept., KSIT ,Bengaluru 560109, India
[5]Professor, E&C Dept., KSIT ,Bengaluru 560109, India

Abstract-*Ventricular tachycardia (VT) and Ventricular fibrillation (VF) are common ventricular arrhythmia which are life threatening and require immediate attention. They can be detected using an electrocardiogram (ECG) signal. It is crucial to detect these arrhythmia conditions at an early stage for proper treatment. This paper attempts on discriminating between the two conditions to provide the correct clinical decision. Hence developing an automated, computer-aided detection tool is very useful. The methodology here makes use of the mean heart beat interval using an appropriate algorithm. Using the Continuous Wavelet Transform (CWT) we propose a wavelet transform based detection algorithm for electrocardiogram (ECG) signals such as VF, VT and so on. The detector further helps decide whether the defibrillator must provide a shock to come out of the ventricular fibrillation condition or avoid the shock in case of ventricular tachycardia. The results are tested for precise detection and the proposed algorithm is compared to other existing algorithms to test it's reliability. In this project on the basis of Continuous Wavelet Transform (CWT) we propose a wavelet transform-based detection algorithm for electrocardiogram (ECG) such as sinus rhythm (SR), VF and so on by using Matlab software.*

Key Words :Ventricular arrhythmia, ECG signal, Continuous wavelet analysis, Detection algorithm, shock, precision.

1.INTRODUCTION

Ventricular arrhythmia is a condition of the heart where the heartbeat of a person tends to be irregular, either too fast or too slow. These arrhythmia's are one of the major causes of death all over the world. Ventricular arrhythmia's are the unusual rapid irregular heart beat rates that occur in the ventricles of the heart. It damages the heart muscles. The ventricular fibrillation is the fast disorganized beating of the heart ventricles which leads to sudden death of the person. It mainly occurs due to the abnormal electrical activity of the ventricles of the heart. It even stops blood flow to the brain and other vital organs of the body.

It is well known that such a sudden cardiac arrest caused by VF decreases the survival rates by 7% to 10%. For such a serious condition, the timely usage of an defibrillator may lead to an increase in the survival rates. The American Heart Association (AHA) is being considered and has recommended for both "continuous cardiac massage" and the "early defibrillator" if VF is come across.

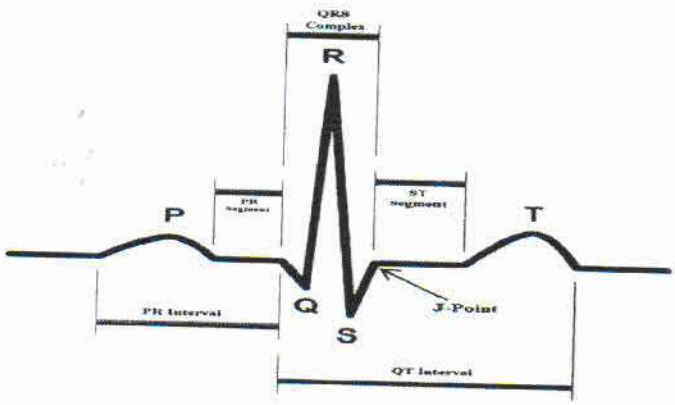


Fig.1. ECG Signal

Fig.1 explains the method we have implemented i.e PQRST may refer to one complete heartbeat in the ECG (P-wave, QRS complex, T-wave).The P wave is a small deflection wave that represents atrial depolarization. The QRS complex represent ventricular depolarization. For the inexperienced, one of the most confusing aspects of ECG reading is the labeling of these waves. The rule is: if the wave immediately after the P wave is an upward deflection, it is an R wave; if it is a downward deflection, it is a Q wave. T waves represent ventricular repolarization (atrial repolarization is obscured by the large QRS complex).

We will be following the wavelet analysis technique as shown in [7], because the differentiation performed by Hidetoshi oya et al , is the best according to the analysis performed by them , at the best of our knowledge.

2. LITERATURE SURVEY

Ventricular fibrillation and Ventricular tachycardia occur when the heart rate has 180 beats per min. They may proved

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 02 | Feb 2020 www.irjet.net p-ISSN: 2395-0072

SWARM ROBOTICS FOR AGRICULTURE

Ravi Nandan[1], Lokesh S[2], Nikita Balappa Narasannavar[3], Pratyusha S A[4], Sampath Kumar S[5]

[1234]*Department of ECE, K S Institute of Technology, Bengaluru, India*
[5]*Assistant Professor, Dept. of ECE, K S Institute of Technology, Bengaluru, India*

Abstract - *The swarm behavior of the social insects led to development of swarm robot technology. There are different algorithms to perform successful navigation but most commonly used algorithm is Practical Swarm Optimization (PSO) algorithms. The main issue in swarm robotics is to establish communication between them. This paper demonstrates how robot switch state between centralization and decentralization mode using implicit communication. With the help of IR sensors (1 meter range) and RF Transceivers (2.4GHz) obstacles can be avoided by the robots. If the main robot couldn't detect any obstacle while performing the task, then robot continues to follow the main robot as per centralization behavior mode. Suppose if obstacle is in between the two robots then it can be avoided with the help of IR sensor's information. The prototype of robots consists of Arduino Uno ATMEGA328P which is used as the control unit for both main robot and follower robot with a transceiver pair of NRF24L01 (2.4 GHz) to establish communication between them.*

Key Words: **Arduino Uno ATMEGA328P, transceiver pair NRF24L01, Swarm**

1. INTRODUCTION

Agriculture is a backbone of Indian economy. In India about 64% of the total population is dependent on agriculture. It faces two main problems; the first is to meet the ever increasing demand of food and second is uneven development of agriculture and changing pattern of agriculture land use. In earlier days, before using technology in agriculture field it was a difficult task for various agricultural operations and farmers could not meet the required productivity of crops. So in this paper we represent a system (model) which helps to reduce burden of farmers.

To coordinate large number of multi robots swarm robotics approach is employed. Field of artificial swarm intelligence is one of the emerging approaches. Swarm intelligence focuses of simple physical on collective behavior exhibited by natural grouping systems such as ant, bees, birds, fishes, etc. Some of agricultural applications of swarm robots are sowing seeds, harvesting, and storing grains in the warehouse. To reduce the work load of farmers and to increase their productivity swarm robotics has played a important role in the field of agriculture.

Swarm robotics concentrates on communication an interaction between the robots. An individual robot takes much more time for doing a particular work compared to swarm system and performs limited work in a given time period and has limited capability. Swarm robotics will reduce the cost, eliminate the major problem of unavailability of work-force, reduce waste of land drastically, increase productivity, and constantly monitor the crops throughout its growth period.

2. LITERATURE SURVEY

Karthik Narayanan, et al. [1] proposed a coding scheme designed for data compression in multi-robot systems. Huffman encoding for lossless data compression was used and here time and power optimization is obtained. The proposed method is implemented and tested on the Intel Edison platform with custom robot chassis. In Huffman encoding a minor change in any bit of the encoded string would break the whole message.

Dario Albani, et al. [2] proposed a roadmap to bring swarm robotics to the field within the domain of weed control problems. This paper presents automatic detection and identification of weeds. A swarm of UAVs which will be recruited to monitor those areas in the field that have been identified as potentially containing weed patches, while weed less areas are quickly abandoned by the swarm. But this concept has limited coverage area.

Syed IrfanAli Meerza, et al. [3] proposed a method to direct the mobile robot toward a target and navigation through the environment without any prior knowledge about the environment. This paper introduces particle swarm optimization (PSO) with dynamic obstacle avoidance technique for robot path planning. Our proposed systems are simulated and tested in Processing IDE, for different environments. Computational simplicity is the feature of this system and it also requires less memory.

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 02 | Feb 2020 www.irjet.net p-ISSN: 2395-0072

SEGREGATION OF WASTE-A SURVEY

Bhoomika P M[1], Sonika V[2], Suma B S[3], Vismitha S S[4], Mrs. Sangeetha V[5]

[1,2,3,4]Student, Dept. of ECE, K.S. Institute of Technology, Bangalore, Karnataka
[5]Asst. Prof., Dept. of ECE, K.S. Institute of Technology, Bangalore, Karnataka

---

Abstract - *Waste segregation and recycling are effective ways of reducing trash. In our country, recycling centers do manual process of sorting wastes so it increases human interface. For this we implement a system which minimizes human interference in the waste collecting and segregation process. The main objective of this project is to design a system using Arduino UNO for automatic segregating of waste at source and capable of cleaning. It is based on the principle of EM induction. Ultrasonic sensor estimates the distance and the status of the bin will be send through GSM. This bin can be used at places like offices, apartments, shopping malls etc. This system will be useful in making Waste Management in smart cities automated without the human intervention.*

***Key Words*: Arduino UNO, GSM, Ultrasonic sensor, IR sensor, L293D H-Bridge, Moisture sensor.**

1. INTRODUCTION

As the world is in a stage of up gradation, there is one stinking problem. We have to deal with Garbage! In our day to day life, we see the pictures of garbage bins being overfull and all the garbage spills out. This leads to many diseases as large number of insects and mosquitoes breed on it. A big challenge in the urban cities is solid waste management not only in India and also in many parts of the world. Hence, such a system has to be built which can eradicate this problem or at least reduce it to the minimum level. Based on estimates, the world cities generated 1.3 billion tons of waste annually with Asia accountable for 1 million tons per day.

More than half the world's population does not have access to regular trash collections which have caused troubles, are at a crisis level. With the upcoming smart cities, large numbers of responsibilities need to be fulfilled. A smart lifestyle begins with cleanliness, and cleanliness begins with waste management in proper way. A society will get its waste dispatched properly only if the dustbins are placed well and disposed well. The main problem in the current waste management system is the unhealthy status of dustbins.

2. LITERATURE SURVEY AND SUMMARY

In [1] Rapid increase in volume and types of solid and hazardous waste due to continuous economic growth. It is estimated that in 2005-06 the total amount of municipal solid waste generated globally reached 2.02 billion tones, representing a 7% annual increase since 2003. The segregation, transport, handling, and disposal of waste needs to be properly managed to minimize the risk to the health and safety of patients, the public, and the environment. This paper proposes an Automated Waste Segregator (AWS) which is a cheap as well as easy to use solution for a segregation system for household use, so that it can be sent directly for processing. It is designed to sort the refuse into dry and wet waste. The AWS employs capacitive sensors to distinguish between wet and dry waste. Experimental results show that the segregation of waste into wet and dry waste has been successfully implemented using the AWS.

In [2] Waste management, both indoor and outdoor, is almost done manually. This is unhygienic, and requires significant amount of valuable human resource to get it done. Outdoor waste management is automated to an extent. Therefore, a proposal to fully automate indoor waste management, by making the existing disposal outlets more intelligent and using a movable waste collecting robot, is discussed in this paper. The filling of the dustbin is monitored by ultrasonic sensors and if it is filled to the brim, the Arduino Nano controller transmits the data to the robot with the aid of wireless Zig bee 802.15.4 protocol. The robot is designed in such a way that it effectively tracks the location of the filled dustbin and collects the waste in its storage part. The RSSI (Received Signal Strength Indicator) value from the message received is used to identify which dustbin is full and its location based on Wave Front Algorithm. In comparison with the existing systems, the proposed system exhibits appreciable efficiency in power consumption and making it an ideal candidate for waste management.

In [3] In last few decades garbage management has become a perilous matter in the developing country along with the rapid growth in the population and pollution. In most of the areas it is revealed that overflowed garbage bins are not emptied on time thus creating disease ridden environment and infirm countries. Collection of garbage in bins faces daily variation in quantity according to time as well. Waste picking vehicles of Municipal Corporation which are at fixed intervals has dwindling reliability and unmonitored collection system. The proposed model makes an IOT based smart garbage monitoring system which can detect the garbage level of the dustbin and via Wi-Fi and GSM the status and location of bins can be displayed on web server. This system will improve the coordination between the transportation process and garbage collection.

In [4] This research aimed to design and develop an autonomous robot to feasibly address waste disposal issues in common indoor places. The researchers found a path to

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 02 | Feb 2020 www.irjet.net p-ISSN: 2395-0072

A Survey on Various Methodologies used to Detect Gas Leakage and Automatic Booking System

Divyalakshmi G, Deepa R, Komal Khandelwal, Lakshmi Priya K, Mrs. Sangeetha V

Student Dept. Electronics & Communication Department
Student Dept. Electronics & Communication Department
Student Dept. Electronics & Communication Department
Student Dept. Electronics & Communication Department
Asst. Professor, Dept. Electronics & Communication
K.S Institute of Technology
Bangalore, India

Abstract - The most widely used fuel in India is LPG as it burns completely when compared to other alternatives hence used for cooking purpose. In recent years, most fire accidents are caused due to the improper use of LPG or carelessness which leads to serious injuries caused by gas leakage and explosion. This project focuses on automatic protection from the LPG leakage or reduction of the hazards that can be caused due to unawareness of the user about the gas leakage and also providing an automatic gas booking facility by applying advanced communication technology by monitoring the level of LPG using load cell, MQ-6 gas sensor, and Arduino UNO R3. Our system detects smoke and also controls the exhaust fan automatically and in case of fire accidents, the fire brigade will get a notification immediately. This system activates the indicators even if a small amount of LPG is detected near the gas sensor. Also when the level of gas falls below some predefined value it automatically alerts the user and sends a message to the gas agency for booking a refill, it also detects smoke and controls the exhaust fan. This system detects fire during fire accidents and reports to the concerned authorities through an alert message. This system is cost-effective and reliable when compared to other systems.

***Key Words*: MQ-6 gas sensor, Arduino UNO R3, GSM(Global System for Mobile communication) module, LCD(Liquid Crystal Display), LPG(Liquified Petroleum Gas).**

1. INTRODUCTION

LPG plays a major role in our day to day life as there are various ways to use LPG like cooking, vehicle fuel, etc. Since the gas is stored in compressed form in a steel cylinder there is a lot of chances that the cylinder may burst due to gas leakage or even cause fire accidents. Gas leakage is a major problem with the industrial sector, residential area and gas-powered vehicles like buses, cars, etc. which may lead to dangerous situations if ignored as LPG is highly inflammable even a small electric spark or a flame is enough to cause a fire when the LPG is mixed with the air due to gas leakage. One of the preventive methods to stop such accidents is to install a gas leakage detection kit at vulnerable places. Sometimes the users find it difficult to book a refill because they are not aware of the remaining amount of LPG in the cylinder as they forget the date of installation of the cylinder due to their busy lives and end up booking the cylinder either too early or too late. One of the main drawbacks of the current system is safety. The aim of this project is to present such a design that can automatically detect gas leakage in vulnerable areas and prevent dangerous situations. This system continuously monitors the level of the LPG in the cylinder using load cell which is connected to the Arduino UNO R3 which in turn displays the level of the remaining gas in the cylinder through a LCD module and also books a refill if the level reaches below the threshold value after alerting the user about the status of the gas in the cylinder. The MQ-6 gas sensor is used to detect any gas leakage, when there is a leakage and the amount of the propane and butane(LPG components) are more than the threshold value then it alerts the user about the gas leakage through buzzer, and message, also it turns off the main power supply of the house and the main supply of the gas in order to prevent explosion and fire accidents. Apart from leakage detection our system also detects smoke and automatically turns on the exhaust fan and In case of fire accidents, the system detects fire and reports to the fire brigade through an alert message.

2. LITERATURE SURVEY

Analysis of Bit Error Rate on M-ary QAM over Gaussian and Rayleigh Fading Channel

V Sangeetha, P.N. Sudha

Abstract: ***Transmission of signal over long distance through the channel will result in poor signal quality reception at the receiver. The Signal quality is affected by means of fading and it can be minimized by using effective modulation techniques. M-ary QAM is one of the effective modulation techniques as it has higher efficiency and effective form of modulation for data. M-QAM is a modulation where data bit selects M combinations of amplitude and phase shifts that are applied to carrier. The analysis carried out based on Bit Error Rate on various M - Quadrature Amplitude Modulation schemes like 16 -QAM, 64-QAM and 256- QAM over Gaussian and Rayleigh Fading channel. The input data entered into QAM modulator then transmits over Gaussian channel and the QAM demodulator is performed at the receiver. The same process repeated over Rayleigh fading channel for M-QAM. Rayleigh fading is multipath fading channel will vary randomly according to the Rayleigh distribution. The MATLAB simulation is carried out to get experimental results on M-QAM and compared. The analysis shows that improved Bit Error Rate in 16-QAM over Gaussian and Rayleigh fading channel.***

Keywords: Bit Error Rate, Fading, Gaussian, M-QAM

I. INTRODUCTION

Signal transmitted through wireless channel is interfered due to path loss, shadowing and this leads to fading. Effective modulation techniques will minimize this fading effect. Digital Modulation techniques are the effective modulation techniques for the current wireless systems. M-QAM is efficiently used by encoding wave bit per symbol for a given energy level. M-QAM is widely used by wireless systems. Good spectral efficiency, Fade rejection and Noise immunity, high spectral efficiency, power efficiency, bit error rate performance are important features of M-QAM. These properties of M-QAM play an important role to resist fading on wireless communication. To simulate the background noise during signal transmission, the Additive White Gaussian channel is used in addition to multipath Rayleigh Fading channel and widely used to describe the signal when there is no line of sight between transmitter and receiver. The following sections are described in detail: II. Literature Survey, III. AWGN and Rayleigh Fading distribution. IV. Simulation Process, V. Results and Graphs obtained from simulation of MAT LAB.

II. LITERATURE SURVEY

Lit[1] describes about error performance of M-QAM by using FFT,IFFT. The channel estimation done on pilot-aided, Rayleigh fading channel described on Clarke and Gans model. The results indicate that there is an increase in error rates as the M value increases. It is also observed that the error rate in Rayleigh fading channel is also higher compared to AWGN channel.

Lit[2] describes about BER of QAM-OFDM by using constellation diagram and the simulated data compared with the help of MAT LAB simulation tool.

Lit[3] describes about the studies done on QAM like SQAM and TQAM compared to AWGN and Nakagami-m fading channels, the subsequent BER or SER are obtained and on which highly approximated BER is achieved. The results shown optimum angles minimized the SER or BER for the specific order of M.

Lit[4] describes about the SER performance of RS Code over AWGN channel achieved simulated results effective than theoretical results for small codes. This paper also details about using RS code for long codes resulting in complicated error pattern with higher error rates.

III. AWGN AND RAYLEIGH FADING CHANNEL DISTRIBUTION

A. AWGN

Thermal noise is generated by the agitation of electrons in the input resistance of the amplifier and is described by certain statistical characteristics. This noise has a spectrum with all the frequency components, as in white light and hence it is called white noise. Another characteristic of the thermal noise is its probability distribution function, which is Gaussian. i.e., the plot of probability of occurrence against the level has a bell shape. The noise adds to signal power and hence is additive. And the noise is termed as AWGN.

B. Rayleigh Fading Channel Distribution

Rayleigh fading [2] Model is a statistical approach for signal propagation, Signal transmitted through this model, results in variation or fading in Rayleigh distribution is the sum of two uncorrelated Gaussian random variables. It is also suitable for the tropospheric radio propagation. Rayleigh fading manifests in to two mechanisms Time spreading and Time Invariant. Rayleigh distribution used to model fading in wireless communication. The random variable that describe the received signal strength has Rayleigh distribution. Rayleigh distribution is also used in the field of oceanography and at wind turbines to model the frequency of wind speeds for a year.The Rayleigh PDF is

$$p(r) = \begin{cases} \frac{r}{\sigma^2} e^{\frac{-r^2}{\sigma^2}}, & for\ r > 0 \\ 0, & otherwise \end{cases} \quad (1)$$

Revised Manuscript Received on April 1, 2020.
***** Correspondence Author
V.Sangeetha*, ECE Department, K.S. Institute of Technology (affiliated to VTU), Bangalore, India. Email: nvsangeetha@gmail.com
Dr.P.N.Sudha, Prof &Head of ECE Department, K.S. Institute of Technology (affiliated to VTU), Bangalore, India. Email: pnsudha@gmail.com

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 07 | July 2020 www.irjet.net p-ISSN: 2395-0072

AUTOMATIC SEGREGATION OF WASTE USING ROBOTIC ARM

[1]Bhoomika P M, [2]Sonika V, [3]Suma B S, [4]Vismitha S S, [5]Mrs. Sangeetha V

[1234]*Student, Dept. of ECE, K.S.Institute of Technology, Bangalore, Karnataka*

[5]*Asst.Prof, Dept. of ECE, K.S.Institute of Technology, Bangalore, Karnataka*

Abstract - *As the world is in the stage of upgradations, there is one stinking problem we have to deal with Garbage. Waste segregation and recycling are effective ways ofreducing dumped trash. Recycling is done manually by sorting the waste by the human interface.To reduce human interface and to make systems smarter. We implemented a system for collecting and segregating waste into dry and wet with no human interface. The system designed with inbuilt sensors to detect and segregate the waste, along with an arm to pick and place the waste into separate bins designed for dry and wet waste.*

Key Words: **Arduino, Ultrasonic Sensor, Wi-Fi Module, IR Sensor.**

1. INTRODUCTION

A rapid increase in volume and types of solid and hazardous waste as a result of continuous economic growth, urbanization, and industrialization, is becoming a burgeoning problem for national and local governments to ensure effective and sustainable management of waste. It is estimated that in 2006 the total amount of municipal solid waste generated globally reached 2.02 billion tones, representing a 7% annual increase since 2003 (Global Waste Management Market Report 2007). The segregation, handling, transport, and disposal of waste are to be properly managed to minimize the risks to the health and safety of patients, the public, and the environment. The economic value of waste is best realized when it is segregated. Currently, there is no such system for the segregation of dry and wet waste.

This paper proposes an Automated Waste Segregator (AWS) which is a cheap, easy to use solution for a segregation system at households so that it can be sent directly for processing. It is designed to sort the refuse into wet waste and dry waste. The AWS employs capacitive sensors to distinguish between wet and dry waste. Experimental results show that the segregation of waste into wet and dry waste has been successfully implemented using the AWS. This system employs an IR sensor moisture sensor and an ultrasonic sensor to perform the various operations. It consists of dc motors to drive the system. A Wi-Fi module is incorporated to get the notifications respectively when a certain action is performed.

2. LITERATURE SURVEY AND SUMMARY

In [1], the basic idea behind this project is to implement a smart way of handling the garbage which is done by using the IoT protocol for the dustbin status wirelessly, through email to notify the concerned persons that the system is filled with garbage and need to be replaced. The Espresso chip which is a nodemcu ESP8266 platform is

JASC
JOURNAL OF APPLIED SCIENCE AND COMPUTATIONS
An ISO : 7021 - 2008 Certified Journal
ISSN NO: 1076-5131 / web : http://j-asc.com/ / e-mail : submitjasc@gmail.com
Address : H.NO: C-72, Gali No: 3, Hardev Nagar, Jharoda, Burari, New Delhi - 110084

CERTIFICATE OF PUBLICATION

This is to certify that the paper entitled Certificate ID: JASC/3472

"DESIGN OF PORTABLE CLASSROOM ATTENDANCE SYSTEM AND PARKING LOT SYSTEM INCLUDING THE DATABASE UPDATING PROCESS BASED ON ARDUINO AND FINGERPRINT BIOMETRY"

Authored by

Christo Jain S, Assistant Professor

From

K.S Institute of Technology, VTU, Bangalore-560109

Has been published in

JASC JOURNAL, VOLUME VII, ISSUE III, MARCH - 2020

DOI : 16.10089/JASC
CROSSREF.ORG THE CITATION LINKING BACKBONE

Dr. N. BALASUBRAMANIAN
Editor-In-Chief
JASC
http://j-asc.com/

5.8 IMPACT FACTOR

International Organization for Standardization
7021-2008

AUTOMATIC RATION DISTRIBUTION

Priya S[1], Varshini KS[2], Vidhya KS[3], Vidya B[4]
Saleem S Tevaramani Assistant Professor

Email:vidhyarani487@gmail.com
Dept. of Electronics And communication
*KS Institute Of Technology
Bangalore, India

***Abstract*-Ration card is a document issued by the State Government which serves as a proof of Nationality. It indicates individual economic status as well. It is also used as an address proof and also for family member details. In the present days, many immortal activities are taking place in ration shops, which are meant to distribute the commodities to the people who are in below poverty line, as the distribution process is manually operated and due to which it consumes a lots of time. To overcome this problem, we use RFIDtechnology.**

I.INTRODUCTION

In India, the foremost functional system run by the government is the Public Distribution System with a total of almost 5 Lakh government run Fair price shops (FPS). According to survey this system is solely responsible for providing food grain and oil supply to over 45 crore Indians below poverty live (BPL) at discount prices as well as remaining above poverty line (APL) people at a concise and fixed rate. The Fair Price Shops (FPS) employ more than4.5 lakh people in Karnataka alone according to 2016 survey. Thus, the BPL population is designed to get the rationed food grains a highly subsidised prices while the APL population gets the ration at open market or wholesale rates without retail. The survey also states that 57% of the PDS food grains never reaches the entitled people, as in, in concise arithmetic, for every Rs 4 spent on PDS, only Re 1 reaches the BPL and needy people. This means that the entire budget accounts for only 25 % worth of stock yearly reaching the intended target citizens. Since the statistics paint a near crisis picture of public funds going to waste, our proposed system involves a good solution to this problem in this age of booming smart systems, IOT and automation.

II.EXISTING SYSTEM

The Planning Commission Annual report has estimated how much of the TPDS (Targeted Public Distribution System) rice and wheat are leaked. Hence, more than 57% of the grain disappears before it reaches consumer. The leakage of grains happens in the PDS in two ways.one is, the leakage due to the ration drawn through ineligible cards. The other happens during the distribution.

According to the Planning Commission state report, it is found that total number of the genuine BPL families in Karnataka is 44 lakhs as opposed to the Government's, claim that there are 96 lakhs families. This means 52 lakh families who actually belongs to the APL category and are included under BPL list prepared by the government. Also, materials to be rationed is manipulated in quantity via inaccurate weigh bridges and placing magnets or extra weigh plates, misguiding the consumer during the process.

Fig 1: Traditional Public Distribution System

III.PROPOSED SYSTEM

Theproposed system mainly stipulates the eradication of the shortcomings of current system, regarding commodity leakage and monitoring. This system uses automatic weight monitor using a load cell and any discrepancy regarding the bulk food grains can be monitored.

Using a GSM module-based automation results in instant feedback to both consumer and shopkeeper, the amount transacted and remaining along with direct entry in the log as a proof serves the basis of proposed system.

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 07 | July 2020 www.irjet.net p-ISSN: 2395-0072

Implementation of Bit Interleavers Used in Flexible Modulation Scheme

Rashmi.S[1], Ramya.M.S[2], Haritha.K[3] Students
Saleem S Tevaramani[4] Assistant professor

[1-4]*Dept. of Electronics and Communication Engg., K S Institute of Technology, Bangalore, India*

Abstract— In satellite communication, the data transmitted by the satellite must be accurately received by the base station and commands must be sent to the satellite for further data transmission and reception. The major concern is that the satellite is available for the base station to receive and transmit data only for a short duration of time. So, the base station must be able to collect the maximum amount of data in the short interval of time. To collect maximum data at a shorter period the base station must use a higher modulation scheme. This paper presents the implementation of bit interleavers in serial concatenated convolution coding scheme. The modulation scheme is flexible, it can be changed from QPSK, 8PSK, 16APSK, 32APSK till 64APSK. As the input data rate is varied the modulation scheme can be changed to adjust to the input data rate.

Index Terms— **convolution coding; bit interleaver; puncturing; row-column interleaver; serial concatenated convolution coding**

I. INTRODUCTION

The purpose of this paper is to define an efficient and comprehensive coding modulation solution to support a wide range of spectral efficiency values and data rates. We make use of a set of a large variety of modulation techniques (including QPSK, 8PSK, 16APSK, 32APSK, and 64APSK) and a wide range of coding rates. Presently, the highest modulation scheme used is 32APSK. So, the proposed system uses the 64APSK modulation scheme which provides better and faster data transmission along with reduction of noise in the channel. Also, there is flexibility to change the modulation scheme according to change in the data rate. The modulation scheme can be changed from QPSK to 8PSK, 16APSK, 32APSK and 64APSK where APSK stands for Amplitude and Phase Shift Keying. Amplitude and phase-shift keying or asymmetric phase-shift keying (APSK) is a digital modulation scheme that conveys data by changing, or modulating, both the amplitude and the phase of a reference signal (the carrier wave). In other words, it combines both amplitude-shift keying (ASK) and phase-shift keying (PSK) to increase the symbol set. As the input data rate is varied the modulation scheme can be changed to adjust to the input data rate. A lower modulation scheme can be used if there is disturbance in the channel because if a higher modulation scheme is used during disturbance in the channel, then there is loss of data bits. The bandwidth and power restrictions in the previous modulation schemes is overcome by using a higher modulation scheme such as 64APSK. Here, we make use convolution encoder for encoding of the input data. The input data is passed to the encoder whose output is 2 bits for every 1 bit input. This encoded data is passed through puncturing system to remove some of the parity bits. These parity bits are removed to achieve the required data rate. Later, the data is passed through the bit interleaver. Interleaving is done to reduce the effect of errors. Finally, the data is stored in row-column interleaver which is used as a buffer. In this way, the bit interleaver used in flexible modulation scheme is implemented. The number of different modulation schemes available, combined with a properly selected coding rate, allows the overall system to make efficient use of the available bandwidth, adapting itself to the variable conditions of the link. The outputs of the binary encoders are mapped to the considered modulation scheme, after being interleaved. In other words, a bit interleaved coded modulation scheme is proposed. This architecture simplifies the synchronization procedure, thus further allowing fast and efficient acquisition at very high rates for the receiver.

II. PRINCIPLE

Giri S. D et al. [1] presents the design of the structure of Convolutional code to reduce the influence from multi path and channel noise is proposed. The main aim is to focus on the performance analysis of convolution encoder based on FPGA. Such a system can do flexibility relevancy ever-changing information rates, increasing vary, and increasing diversity, whereas giving economical resource utilization. This design is capable of transmitting data, in air errors and noise are tried to be minimized by using channel coding technique. The data speed can be increased by using different combinations of encoding and modulation techniques.

Hu Y., Fonseka J et al. [2] proposes the constrained interleaving based on a row/column structure to improve concatenated codes by maintaining a high MHD and a high interleaver gain. Constrained interleavers are used in constrained turbo product codes (CTPCs) and constrained turbo block convolutional (CTBC) codes. The constrained interleaver delivers an interleaver gain close to uniform interleaving while also increasing the minimum Hamming distance (MHD).

Bit interleavers for flexible modulation scheme

Rashmi.S[1], Ramya.M.S[2], Haritha.K[3]
Saleem S Tevaramani[4]Assistant professor
Email: rashmisathya2@gmail.com
Dept. of Electronics and Communication Engg.
K S Institute of Technology,
Bangalore, India

Abstract— **This paper presents the implementation of bit interleavers in serial concatenated convolution coding scheme. The modulation scheme is flexible, it can be changed from QPSK, 8PSK, 16APSK, 32APSK till 64APSK. As the input data rate is varied the modulation scheme can be changed to adjust to the input data rate. We make use of two convolution coders CC1 and CC2 for encoding of the input data. This encoded data is passed through puncturing system to remove some of the parity bits to achieve the required data rate. Later, the data is passed through the bit interleaver. Interleaving is performed to reduce the effect of errors. Then, after passing through CC2 and puncturing block, the data is finally stored in row-column interleaver. By this we implement the bit interleaver used in flexible modulation scheme.**

Index Terms— **convolution coding; bit interleaver; puncturing; row-column interleaver; serial concatenated convolution coding**

I. INTRODUCTION

The purpose of this paper is to define an efficient and comprehensive coding modulation solution to support a wide range of spectral efficiency values and data rates.The current specification presents a turbo coding/modulation scheme based on one possible realization of a Serial Concatenated Convolutional Code (SCCC). This scheme makes use of a set of a large variety of modulation techniques (including QPSK, 8PSK, 16APSK, 32APSK, and 64APSK) and a wide range of coding rates. Amplitude and phase-shift keying or asymmetric phase-shift keying (APSK) is a digital modulation scheme that conveys data by changing, or modulating, both the amplitude and the phase of a reference signal (the carrier wave). In other words, it combines both amplitude-shift keying (ASK) and phase-shift keying (PSK) to increase the symbolset. The number of different modulation schemes available, combined with a properly selected coding rate, allows the overall system to make efficient use of the available bandwidth, adapting itself to the variable conditions of the link. The outputs of the binary encoders are mapped to the considered modulation scheme, after being interleaved. In other words, a bit interleaved coded modulation scheme is proposed. The use of SCCC is intended mainly for high data rate applications. The SCCC scheme implies a Physical Layer frame of constant length. This architecture simplifies the synchronization procedure, thus further allowing fast and efficient acquisition at very high rates for the receiver.

II. PRINCIPLE

G. Caire et al. [1] presents the theory underlying bit-interleaved coded modulation, provides tools for evaluating its performance.

S. Benedetto, et al. [2] presents serially concatenated code with interleaver consists of the cascade of an outer encoder, an interleaver permuting the outer codewords bits, and an inner encoder whose input words are the permuted outer codewords. Extensive comparisons with parallel concatenated convolutional codes known as turbo codes are performed, showing that the new scheme can offer superior performance.

O.Y. Takeshita et al. [3], it is presented that an interleaver with random properties, quite often generated by pseudo-random algorithms, is one of the essential building blocks of turbo codes. Interleavers play a critical role in performance of turbo codes.

H.R. Sadjadpour et al. [4], presents the performance of a turbo code with short block length depends critically on the interleaver design. There are two major criteria in the design of an interleaver: the distance spectrum of the code and the correlation between the information input data and the soft output of each decoder corresponding to its parity bits.

R. Garello et al. [5], the basic theory of interleavers is revisited in a semi-tutorial manner, and extended to encompass noncausal interleavers. The parameters that characterize the interleaver behavior (like delay, latency, and period) are clearly defined. The input-output interleaver code is introduced and its complexity is studied. Connections among various interleaver parameters are explored.

International Journal of Electronics Engineering (ISSN: 0973-7383
Volume 11 • Issue 2 pp. 493-498 June 2019-Dec 2019 www.csjournals.com

Gyro-Assisted Multi Terrain Rover

Shrinidhi N.S[1], Shylesh Raj T.D[2], Skanda N[3], Pukkela Pragati[4]
B.E , Assistant Professor, Electronics and Communication Department, KSIT, VTU, Bangalore, Karnataka, India

Abstract: Rocker Bogie is a rover suspension system used in applications rovers like Pathfinder, Curiosity etc. The specialty of this suspension system is that it does not have any Shock absorbers. The term "rocker" comes from the design of differential chassis, which keeps the rover body balanced, enabling it to "rock" up or down depending on various positions of the multiple wheels. Bogie means links that has driven wheels at each end. This mechanism can climb obstacles like rocks which are more than twice or two times the diameter of the wheels, while the all six wheels are in contact with the ground, whereas the other suspensions tilt stability is limited to center of mass. The project deals when this mechanism is fixed with auxiliaries like stable platform that can be used as cargo carriers which can climb the obstacles. These mechanisms can take a direct 55 degree climb without overturning.
Keywords: Bogie, Rocker, Suspension system.

Introduction

The term "rocker" describes the rocking aspect of the larger links present each side of the suspension system and balance the bogie as these rockers are connected to each other and the vehicle chassis through a modified differential Chassis.
In the system, "bogie" refers to the conjoining links that have a drive wheel attached at each end. Bogies were commonly used to bare loading as tracks of army tanks as idlers distributing the load over the terrain. As accordance with the motion to maintain center of gravity of entire vehicle, when one rocker moves up-word, the other goes down. The chassis plays vital role to maintain the average pitch angle of both rockers by allowing both rockers to move as per the situation. As per the acute design, one end of a rocker is fitted with a drive wheel and the other end is pivoted to a bogie which provides required motion and degree of freedom. Bogies were also quite commonly used on the trailers of semi-trailer trucks as that very time the trucks will have to carry much heavier load. This paper presents the design and implementation of self-stabilizing dynamic mobile platform with 2-degrees of freedom on the rover. The self-stabilizing control system presented in this paper can be used in various medical, military applications and logistic devices and is objectively suitable for working in outdoor where the ground surface is not flat or uneven. The platform can freely rotate due to its mechanical structure within 2-degrees of freedom. The complete control system of stabilizing the platform has been designed on the Arduino UNO microcontroller. Longitudinal and lateral movements are controlled via servomotors for X and Y-axes. The algorithm has been developed to interpret the digital data from the gyroscope to the angular position of the system and applying complementary filter and proportional controller on it subsequently. The magnitude is then compared to a preset function to infer the angle of tilt of the platform. The tilting angle is then converted to rotation angle for the servomotors to act on.

Principle

The rocker-bogie design consisting of no springs and stub axles in each wheel which allows the chassis to climb over any obstacles, such as rocks, ditches, sand, etc. that are up to double the wheel's diameter in size while keeping all wheels on the ground maximum time. As compared to any suspension system, the tilt stability is limited by the height of the center of gravity and the proposed system has the same model of Rocker Bogie system. Systems employing springs tend to tip more easily as the loaded side yields during obstacle course. Dependent upon the center of overall weight, any vehicle developed on the basis of Rocker bogie suspension can withstand a tilt of at least 50 degrees in any direction without overturning which is the biggest advantage for any heavy loading vehicle. The system is designed to be implemented in low speed working vehicles such as heavy trucks, Bulldozers which works at slow speed of around 10 centimeters per second (3.9 in/s) so as to minimize dynamic shocks and consequential damage to the vehicle when surmounting sizable obstacles.

Applications and Research Challenges of Underwater Communication Devices_A Review

[1]Harshini B S, [2]Meenakshi A, [3]Arpitha C V, [4]Chandrakala K S, [5]Mrs Sahana Salagare

[1 2 3 4]Department of ECE, K S Institute of Technology, Bengaluru, India
[5]Asst. Prof., Dept. of ECE, K S Institute of Technology, Bengaluru, India

Abstract:

Underwater Communication contribute to marine activities in collecting underwater data and monitoring the underwater environment. Underwater sensor devices will be useful in various applications such as oceanographic data collection, pollution monitoring, tactical surveillance applications. Despite underwater communication provides enormous amount of information about environmental conditions of an ocean it faces numerous challenges. The challenges can be technical or research problems like low bandwidth, propagation delay which needs to be solved. Aside from these constraints the main problem is battery life of an underwater device which is used to power up the device. The batteries are very complicated to recharge and substitute in the underwater environment. In this paper we present the literature survey on various applications and constraints of underwater devices.

Introduction:

The research on underwater communication techniques plays a vital role in the exploration of aquatic environment. As the technology raised rapidly, the underwater communication became most growing field since it finds application in manyfields like pollution monitoring, offshore exploration, scientific data collection, national security etc. The communication channels in underwater communication can be impacted from the marine environment. It can even be affected by noise, low bandwidth, power source and by the severe underwater circumstances. Therefore, the underwater communication channel display severe attenuation, frequency distortion, constrained bandwidth etc. Hence, an underwater communication is considered as the most complicated technique. Aside from all these challenges energy requirement for the power up the device is the most difficult constrained. The underwater device will be functioning till there is a power supply to the device else it will stop functioning. Therefore, designing an energy efficient underwater device is challenging. This paper gives the detailed survey on existing methods of energy supply to power up the devices.

Conclusion:

Underwater communication is the fast growing domain due its numerous applications in exploration and contról of deep ocean. We explained the various applications and challenges faced by the underwater device and also the methods of energy supply sources to the underwater devices to increase the lifetime of the device.

Literature Survey:

[1]. "Underwater Acoustic Sensor Networks: Research Challenges". This paper examined various features of underwater communication. In this paper the author explained about various architectures and characteristics of underwater device along with the main challenges for the development of efficient networking solutions. But this paper failed to discuss about the energy efficient solution to the network.

[2]. "Research Challenges and Applications for Underwater Sensor Networks" This paper explored the applications and challenges of underwater device. The author featured the potential applications to off-shore oilfields for seismic monitoring and underwater robotics. The author described the preliminary design on short-range acoustic communication hardware.

[3]. "Underwater Sensor Networks: Applications, Advances and Challenges" In this paper the author examined the several fundamental key aspects of underwater communication. The author also mentioned the applications of underwater communication. The main difficulty for the

A Comprehensive study of Input Output [IO] functionalities of Contemporary IO

[1]Aruna Rao B P, [2]Dr. Shanthi Prasad. M.J
[1]Assistant Professor, [2]Professor
[1]KS Institute of Technology, Bengaluru, India,
[2]Cambridge Institute of Technology, North Campus, Bengaluru.

Abstract - **As a part of on-going research towards Design, development & testing of next generation multi-functional High speed Universal IO, I undertook an exhaustive survey spanning hundreds of related research documents in the performance of IO with respect to Processors, Memories & Programmable Logic devices [FPGAs] & completed a comprehensive study of IO functionality in the above said category of devices.**

keywords - **Boundary Scan, Boundary Scan Register, Programmable IO Buffers, BIST-BSR, Spartan IOB.**

NR1 RESEARCH REFERENCE MODULE [RRM]

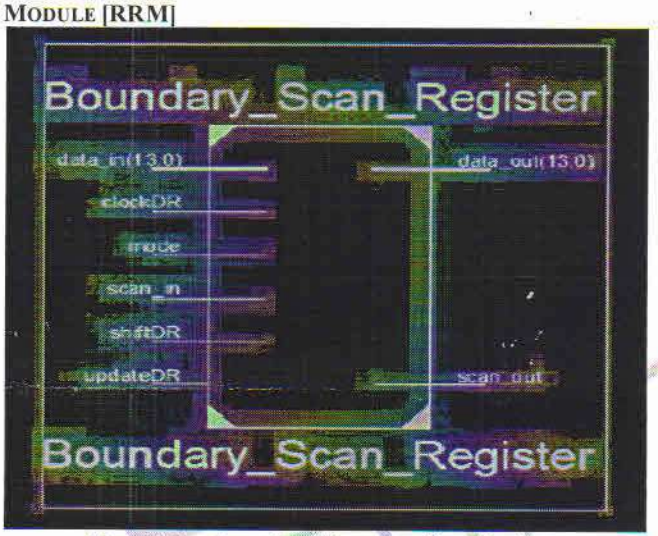


Fig.1 RTL schematic of Boundary Scan Register

In this paper, the authors claimed to have designed & implemented Boundary Scan register (BSR) for tracing & debugging a microcontroller as target device using JTAG protocol. Boundary Scan (BS) has been implemented in Verilog. They have implemented BSR whose RTL has been illustrated. This BSR has 14 bit data input & output, Clock_DR [clock for data register], mode signal to select between capture & shift mode [scan & primary input output], scan input, shift DR & Update DR & scan_out as output. They proposed to integrate this BSR with microcontroller core with an intension of debugging the interfaced microcontroller with BSR.

The technical aspect of this research that influenced my research is that BS can be interfaced with independent cores with the complexity extending up to latest microcontroller.

NR2

In this paper, a test procedure is designed & implemented to test BS cells & Test Access Port (TAP) controller on PLDs & FPGAs. The suggested Test procedure involves 3 steps: 1) configuration of PLs or FPGAs 2) Application of test vectors 3) Verification of the response to ensure high fault coverage. The configuration & application of test vectors in DUT is done through JTAG port. The author has explained in detail JTAG architecture with necessary diagrams & also explained BS cell in typical IO block. He also explained JTAG instructions like SAMPLE, PRELOAD, BYPASS, EXTEST, INTEST, RUNBIST, HIGHZ & also explained BSR & the test procedure to test DUT & also provided table of logic gates & operation performance with the application of test vectors after instruction INTEST is enabled. The table provides the TAP state during capture DR, shift DR & Update DR logic states.

The test data path for input & output cells are illustrated separately during the process of fault detection. A summarized has been provided to explain the tested logic in the IOB BS logic & corresponding struck at 0 & 1 faults.

This paper provided me with a complete knowledge of how BS logic is implemented & tested in any IOB of PLD or FPGA. My BS is an enhanced & customized version of this BS. My BS is a simple design to find out BS IO faults in the BS chain.

JASC: Journal of Applied Science and Computations ISSN NO: 1076-5131

Village 3.O

Meghashree V[#1], Namratha Ganesh[*2], Namratha Gopal[#3], Aruna Rao BP[*4]

[#]*Electronics and Communication Department, Visvesvaraya Technological University*

[1]meghashreevs16@gmail.com

[2]vathsalaganesh1970@gmail.com

[3]namrathag23@gmail.com

[4]arunaraobagre@gmail.com

***Abstract*— The project aims to bring the development in the rural areas by mainly considering three areas: Street light management system, Automatic irrigation system and Water management system. LDR sensors are mainly used to sense the light and it is used to switch off and on automatically, also the focus is made to detect fault in the street lights and alerts the base-stations . Depending upon the vehicle movement, intensity of the light is controlled. In case of Automatic irrigation system, soil moisture sensors are used to sense the dryness of soil and controlled amount of water flows into the field. pH sensors are used to segregate the water into two blocks with help of pH value content.**

***Keywords*— rural areas, LDR sensors, base-stations, intensity, soil moisture sensor, pH sensors**

I. INTRODUCTION

Till today 65% of our population is staying in villages. So there is a need to develop our villages and the rural areas for effective implementation. In recent times, there is an immense interest in the development of cities. But as it is perceived in Indian context, villages are the heart of the nation. Hence, for the development to percolate to the grass root level, focus must be devoted to the progress of villages. The proposed model aims at making optimal and sustainable use of all resources, while maintaining an appropriate balance between social, environmental and economic costs. Street light is the most critical element for any rural areas which has to ensure safety and moreover the manpower has to be reduced by making it automated. Also, the power consumption has to be minimized and the fault has to be taken care. In case of Automatic irrigation system, proper watering of plants has to be ensured for the healthy growth of the crops. This has to be automated for controlled watering for the field through the alert to farmers. Furthermore, Water is an essential intake for all the human beings and it has to be ensured that water is pure else cause of health problems is more. By segregating the water that comes from the main source in the village into two blocks, this can be implemented.

NR1 [1]

This paper analyzes the core requirements of street light management system which are representative IoT system. This paper establishes a NIO server to interact with terminals and successfully solves the connection maintenance problem between a large number of terminals, server and proves the stability & high performance of the scheme through experiments. Secondly, a distributed deployment scheme that meets the system management requirements is designed. By deploying terminal servers in different regions and using a database sub-library scheme, it can meet both the management and performance requirements. The solution can ensure strict permission control, unified user management and load balancing of terminals, and can be applied to a variety of IoT systems that require multi-region deployment. Thirdly, optimization schemes are given during the database interaction process. Finally, through two specific performance experiments this paper verifies the stability, usability, high efficiency of the terminal service node, data interaction and the usability of permissions management which indirectly proves the reliability of the overall system architecture.

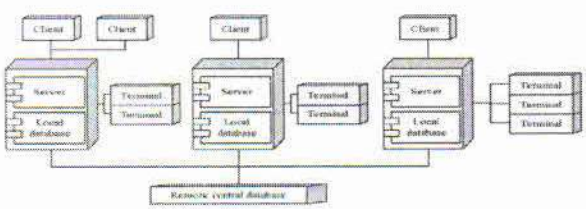


Fig. 1 The deployment of streetlight management system

International Journal of Research in Engineering, Science and Management
Volume-2, Issue-11, November-2019
www.ijresm.com | ISSN (Online): 2581-5792

Modern Day Washing Machine

B. P. Aruna Rao[1], V. Supriya[2], A. Monisha[3], Penujuri Naga Sai Snehitha[4], Pratima P. Agnihotri[5]
[1]*Assistant Professor, Dept. of Electronics and Communication Engg., KS Inst. of Technology, Bangalore, India*
[2,3,4,5]*Student, Dept. of Electronics and Communication Engg., KS Institute of Technology, Bangalore, India*

***Abstract*: This paper presents an overview on modern day washing machines.**

***Keywords*: washing machine**

1. Introduction

Washing machine is a machine that quickly washes clothes, linens and other items. Shown below is one of the earliest washing machines which was manual and imitated the motion of the human hand on the washboard, by using a lever to move one curved surface over another and rubbing clothes between the two ribbed surfaces.

The rapid advancement in technology has given rise to the fully automatic washing machine which is widely used in the present day. These machines have thousands of components and are much sophisticated and user-friendly than the ones used at early stages of development. The main purpose of this report is to discuss the functionality, raw materials and their life cycles of the Fisher & Paykel Eco Smart GWL10 washing machine. Major concerns with these life Cycles from a sustainability perspective and possibilities of increasing efficiency of the machine are determined followed by a discussion on how a service could be used to replace the product and foreseeable advantages and problems encountered in implementing such a scheme.

A. Functionality of the Machine

The Eco Smart GWL10 is a fully automatic washing machine that has a separate set of controls to determine all of its operations. User can choose whether the machine should use hot, warm or cold water during its wash and rinse cycles, set controls to select the length of washing and rinsing time and also the amount of water entering the machine by selecting the load size. Water enters the machine through hoses connected to household cold water pipes and need not be connected to a separate hot water line since it's got a built-in electric heating system.

Fig. 1. The Fisher and Paykel Eco smart GWL10 washing machine [3]

Once the wash and spin cycles are completed an alarm beeps to let the user know that the laundry is ready to be taken out and further dried. This allows the user to attend to other work while the laundry's being done instead of monitoring the whole process. If unattended for more than 5 minutes' power is cut off automatically thus saving energy. Some of the main functions of the Eco Smart GWL10 washing machine can be listed as follows.

- Minimum water level uses only 14 gallons to further conserve water compared to the 18 gallons used by most other washing machines.
- Three cubic feet washing capacity helps to wash large sized loads up to 17lbs.
- This machine has five different water temperatures and sensors for accurate temperature control. This provides greater care for clothes containing raw materials such as silk and wool which require delicate handling.
- The 1000-rpm spin speed helps to dry the laundry in a quick and an efficient manner.

B. How efficiency of the product can be improved

Fisher & Paykel Eco Smart GWL10 washing machine has been named as the America's most energy efficient washer for this year and awarded 5 stars by The Consortium of Energy Efficiency, which rates washing machines in the market on three main factors, Energy Factor, Water Factor and Remaining Moisture Content. Although it is very efficient compared to most other washers, its efficiency can be further improved by following means. Even though this machine is a top loader, it

Perspectives in Communication, Embedded-Systems and Signal-Processing (PiCES) – An International Journal
ISSN: 2566-932X, Vol. 4, Issue 2, May 2020

Design of Functionalities of a Programmable High Speed I/O

Aruna Rao B P
Asst. Prof, Department of ECE, K.S Institute of Technology, Bangalore (affiliated to VTU), India, arunaraobagre@gmail.com

Dr. Shanthi Prasad M J
Professor, Department of ECE, Cambridge Institute of Technology, North Campus, Bengaluru, India, prasadmjs1952@gmail.com

Abstract: ***In this paper we have made an attempt to discover different functionalities of a programmable IO like data conversions (parallel, serial),a buffer and an arbiter depending upon the situation the IO designed should be able to act on the data accordingly and support the speed of data movement.***

Keywords: Parallel Transmission; Serial Transmission; FIFO (First in first out buffer); Arbiter, input/output

I. INTRODUCTION

With respect to the present technology the i/o which are present can be programmable and the modules coded and verified in this paper are a part are sub modules. Most of the above indicated sub modules of the proposed High speed programmable I/O are designed, simulated & implemented to verify the functionality. Later these sub modules will be integrated at the top level to have a multi-functional & multi-dimensional Next generation High speed I/O.

Basic Input/output System functions are:

- Communicate between chip and external world
- Drive large capacitance off chip
- Operate at compatible voltage levels
- Provide adequate bandwidth
- Protect chip against electrostatic discharge
- Use small number of pins (low cost)

A. The serious I/O Challenges

There are 2 major challenges to continued scaling of high-speed I/Os: band-limited channels and timing uncertainty.

- *Challenge 1*: As data rate increases, channel bandwidth becomes limited by the frequency-dependent loss of the channel. Therefore, handling large data or highspeed data in limited band width is a challenge
- *Challenge 2*: As signal rates scale, the timing jitter of a high speed I/O must decrease to remain a constant fraction of a bit-time or unit interval. It is important to know the value of jitter so that loss of data is minimum

B. Key Research challenges

- I/O Specifications are normally Analog, but we have to implement & achieve Digital Functionality
- Hot swap of logic levels – implementing programmable pull up & pull downs
- Implementing & achieving GPIO & SPIO is very complex process
- Implementing high speed Gigabyte PIN TRANSCEIVER is very difficult

II. METHODS

A. Serial to parallel converter

a) Parallel Transmission:

Parallel transmission uses one line for communication for each bit of the message. The accompanying figure depicts the transmission for an eight-bit message using a parallel an eight-bit bus, as shown in Fig. 1.

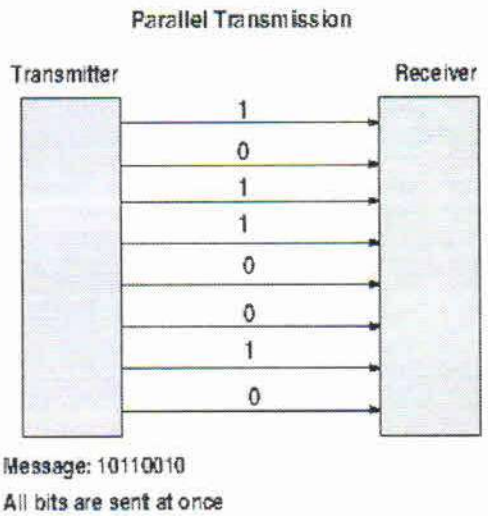


Fig 1. Parallel Transmission

b) Serial to parallel converter

To convert serial data to parallel data a set of flip-flops are required. The number of flip-flops is exactly the size of the serial data to be transmitted. For example, to transmit four-bit serial stream four flip-flops a required. A schematic of a four-bit converter is depicted.

Cost-Effective Spectrum Utilization for Futuristic Cognitive Radio based Services

Chanda V. Reddy

Abstract: The proliferation of various mobile users in the context of advanced wireless technologies, spectrum scarcity arises as a crucial problem. The notion of cognitive radio (CR) principle offers cost-effective spectrum reusability with intelligent mode of transmission model. It basically enables a radio-driven technology to utilize dynamic spectrum accessing to meet the quality-of-services (QoS) requirements by satisfying enormous communication and connectivity demands. To alleviate the spectrum scarcity problem the study proposes a novel analytical solution of spectrum allocation considering a simplified evolutionary learning model. The prime target of the formulated concept is to detects the spectrum holes effectively for reusability and the possibility of identification has be maximized for best possible spectrum allocation to the radios. And on the other hand also the occurrence of false positive identification has to be minimized. The outcome obtained after performing the simulation shows promising aspects in the context of effective spectrum allocation for higher priority user with better throughput performance.

Keywords: Cognitive Radio, Spectrum Allocation, multi-objective optimization, Throughput performance

I. INTRODUCTION

In the recent scenario researchers from IEEE and many other communication societies are more concerned towards improving the communication paradigm in the context of 5G wireless technologies. The underlying principle of cognitive radio (CR) technology opens up a new opportunity for effective spectrum utilization and also aroused significant attention for its wider prospects [1] [2]. CR has been introduced to tackle the issue connected with the constraints of bandwidth availability of conventional wireless communication standards which is tightly licensed and restricted by the Government policies. Thereby, it can be seen that mobile devise are restricted to utilize a certain value of frequency and hence a bottle-neck scenario arises in reality due to limited bandwidth where the number of mobile users are tremendously increasing. Thereby maintain quality of service aspects (QoS) with effective spectrum utilization has become crucial. CR technology can easily handle this issue of spectral scarcity by meeting the growing demand of mobile user requirements and also has become a reliable solution to solve the spectral congestion problem in the modern wireless communication [3][4]. CR is utilized as an extended technology component of software defined radio (SDR) and also incorporates an intelligent system of sensing and channel management functionality. There exist various time-critical applications of CR such as into public safety networks, disaster relief and emergency networks etc. and it is highly agile for advanced intelligent communication systems considering its autonomous mode of selection of operating parameters [5][6]. The figure 1 presents and overview of the advanced paradigm in CR based radio communications.

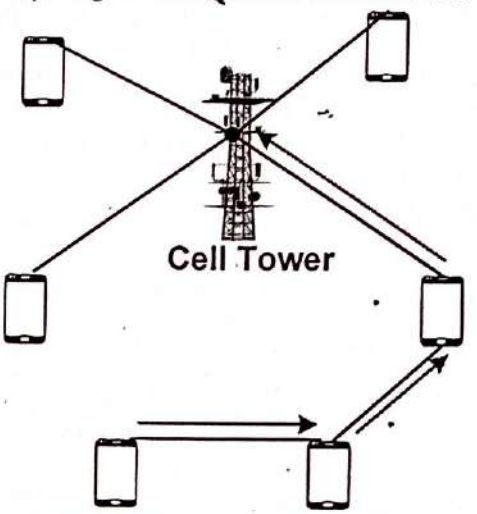


Fig 1 Radio communication in CR

Fig.1 shows that how the CR enabled communication facilitates mobile devices to communicate with each other so that communication between a mobile client and cell-tower can be established with higher throughput efficiency [7][8]. This research study addresses the spectrum allocation problem in the modern wireless communication technology and aims to formulate an energy efficient optimized transmission model based on CR to attain better end-to-end throughput performance. The system modeling of CR is designed with an objective to perform intelligent resource scheduling in variable traffic conditions in the context of advanced cellular networking operations. For this purpose the methodology aims to maximize the spectrum utilization performance considering a metaheuristics evolutionary learning model with lower complexity to attain best possible outcome. The entire manuscript is presented with respect to different sections, *section II* highlights the existing trend of research based studies on CR and outlines the gap in reality. *Section III* finally extracts the cumulative research problem which is jointly addressed in this study with problem formulation aspect.

Finally section IV highlights a comprehensive discussion on proposed analytical system design for CR assisted effective spectrum resource management.

The mathematical modeling is formulated for best possible available spectrum allocation to the SDR with higher possibility of available spectrum detection and also minimizing

Revised Manuscript Received on February 06, 2020.
* Correspondence Author
Dr. Chanda V.Reddy*, Professor and Head, Department of TCE, Kammavari Sangham Institute of Technology, Bangalore, India, Email: chandavreddy@ksit.edu.in

International Journal of Electrical and Computer Engineering (IJECE)
Vol. 9, No. 5, October 2019, pp. 4010~4019
ISSN: 2088-8708, DOI: 10.11591/ijece.v9i5.pp4010-4019

A novel and integrated architecture for identification and cancellation of noise from GSM signal

Rekha N[1], Fathima Jabeen[2]
[1]Department of Electronics and Communication Engineering, K.S. Institute of Technology, India
[2]Islamiah Institute of Technology, India

Article Info

Article history:

Received Des 20, 2018
Revised Apr 18, 2019
Accepted Apr 28, 2019

Keywords:

Acoustic
Denoising
Filter
GSM signal
White noise

ABSTRACT

There are multiple reasons for the evolution as well as the presence of noise over transmitted GSM signal. In spite of various approaches towards noise cancellation techniques, there are less applicable techniques for controlling noise in acoustic GSM signal. Therefore, the proposed manuscript presents an integrated modelling which performs modelling of noise identification that could significantly assist in successful noise cancellation. The proposed system uses three different approach viz. i) stochastic based approach for noise modelling, ii) analytical-based approach where allocated power acts as one of the prominent factors of noise, and iii) wavelet-based approach for effective decomposition of GSM signal for assisting better noise cancellation technique followed by better retention of signal quality. Simulated in MATLAB, the study outcome shows that it offers a cost-effective implementation, A Practical Approach for Noise identification, and Effective Noise Cancellation with Signal quality retention. The proposed system offers approximately 24% of enhancement in noise reduction as compared to any existing digital filters with 1.6 seconds faster in processing speed.

Corresponding Author:

Rekha N,
Research Scholar, Department of Electronics and Communication Engineering,
K.S. Institute of Technology, Bengaluru, India.
Email: rekhaphd2014@gmail.com

1. INTRODUCTION

Since last few years, the GSM-based wireless communication has been accounted for emerging growth in the telecom industries. The GSM was introduced as a progression of second-generation cellular technology specified with digital modulation service. At present, the development of the GSM standard has reached the level of meeting daily needs of users and enterprises by providing cost-effective voice services as well as efficient data services which can be accessed 24x7 irrespective of user's location [1]. GSM technology supports various features for its global acceptance and rich popularity [2]. Such features are like it has efficient spectrum, good voice quality service supports low-cost cellular devices, compatible with ISDN and new services and provides roaming services globally. With the evolution of GSM, there are many advances made in digital devices, such as personal digital assistants, PCs, mobile phones, wireless LANs, etc [3]. These devices are enabled with the support of cellular communication module in order to deliver on-demand services and entertainment in various fields of application such as schools, office, healthcare, transport, Industrial area, and many more [4].

In a cellular communication system, the speech and data information transmitted via a radio link communication channel where the quality of transmitted data suffers from many degradation factors such as background noise and channel interferences [5]. The 'term' noise and interference basically refers to unwanted destructive signals introduced into use-full speech and data signals. The sources of noise are varied in nature it can be generated from an environmental factor such as acoustic disturbance form traffic, blowing

The current issue and full text archive of this journal is available on Emerald Insight at:
www.emeraldinsight.com/2049-6427.htm

Implementing and analysing FAR and FRR for face and voice recognition (multimodal) using KNN classifier

Dinesh Kumar D.S.
TJIT, Visvesvaraya Technological University, Belagavi, India and KSIT, Bangalore, India, and
P.V. Rao
TJIT, Bangalore, India and VBIT, Hyderabad, India

Received 14 February 2019
Revised 3 April 2019
Accepted 4 July 2019

Abstract

Purpose – The purpose of this paper is to incorporate a multimodal biometric system, which plays a major role in improving the accuracy and reducing FAR and FRR performance metrics. Biometrics plays a major role in several areas including military applications because of robustness of the system. Speech and face data are considered as key elements that are commonly used for multimodal biometric applications, as they are simultaneously acquired from camera and microphone.

Design/methodology/approach – In this proposed work, Viola–Jones algorithm is used for face detection, and Local Binary Pattern consists of texture operators that perform thresholding operation to extract the features of face. Mel-frequency cepstral coefficients exploit the performances of voice data, and median filter is used for removing noise. KNN classifier is used for fusion of both face and voice. The proposed method produces better results in noisy environment with better accuracy. In this proposed method, from the database, 120 face and voice samples are trained and tested with simulation results using MATLAB tool that improves performance in better recognition and accuracy.

Findings – The algorithms perform better for both face and voice recognition. The outcome of this work provides better accuracy up to 98 per cent with reduced FAR of 0.5 per cent and FRR of 0.75 per cent.

Originality/value – The algorithms perform better for both face and voice recognition. The outcome of this work provides better accuracy up to 98 per cent with reduced FAR of 0.5 per cent and FRR of 0.75 per cent.

Keywords FAR, LBP, MFCC, DCT, KNN

Paper type Research paper

1. Introduction

In the modern world, biometrics is used to authenticate and identify a person. Biometrics combines the physical traits and behavioural characteristics for identity verification. It provides a suitable solution to our security needs with better accuracy. A person can be identified accurately using biometrics based on unique physical or behavioural characteristics. Multimodal biometric authentication is widely used in banking security, credit card transactions and passport verification combining different biometric traits.

1.1 Problem statement

Biometrics is widely used for authentication and identification of a person based on physiological and behavioural traits such as face, iris, palm print, signature, etc. There are several drawbacks of unimodal biometric systems such as intra-class variation, inter-class

The authors would like to express sincere thanks and acknowledgement for the constant resource utilization of DIST-FIST, VBIT, Hyderabad and also concurrent support provided by T John Institute of Technology (TJIT), Bangalore.

International Journal of Intelligent Unmanned Systems

2049-6427
DOI 10.1108/IJIUS-02-2019-0015

Power-Cognizant Proactive Routing Protocol for Amending Energy in Ad-hoc Networks

B. Devika(✉) and P. N. Sudha

KSIT, Bengaluru, India
{devikabgowda, pnsudha}@gmail.com

Abstract. The execution of an Ad hoc Wireless Network is controlled by a key factor "power", as it is the essential resource of any communication system. Utilizing such power effectively and efficiently is the most important Task. Power has to be optimized according to the requirement. In an ad hoc network, nodes exchange information with each other by forming a multi-hop wireless network & sustaining connectivity in a localized fashion. Optimizing power in such a network is a significant challenge ad hoc routing protocols are power hungry as they expend a substantially large amount of battery power contained in the nodes. Hence routing in an ad hoc network is eminently power restricted. Research has been done choosing the appropriate routing protocol at the network layer and power aware protocol at MAC layer. In this paper, a proactive routing protocol has been implemented which is power aware. FSR is the routing protocol chosen and MAC 802.11 standards have been used in combination of a routing protocol to optimize power. The simulation is executed using NS-2 and the power consumption has reduced.

Keywords: Ad hoc networks · Fisheye state · Manet · Mac · Power cognizant

1 Introduction

Wireless communication is the quickly expanding & most vital technological areas in the communication field. Our lives are unimaginable without Wireless communication like TV, Radio, Mobile, Radar, GPS, Wifi, Bluetooth, RFID etc. In Latin ad hoc means "for this purpose". Ad hoc networks are group of self-organizing nodes or terminals that exchange information with each other by combining a multi-hop wireless network and sustaining connectivity in a suburbanized manner in an infrastructure less environment. Several classifications of Ad hoc networks are MANET, VANET, FANET, WSN etc. Ad hoc network operate with IEEE 802-11 standards. Initially ad hoc networks were designed for military and disaster recovery applications, due to their fast deployment feature without the existence of any infrastructure. But with rapid growth of mobile communication, MANETs are regarded as important contemplate in the future inception of system technologies [1].

Various power optimization techniques are existent in Ad hoc networks. Optimization of power is of at most importance in Ad hoc networks as their structure is autonomous and non-existence of central governing body. Various layers are affected while optimizing power in ad hoc network like physical, network & MAC layer [2].

A. Kumar et al. (eds.), *ICDSMLA 2019*, Lecture Notes in Electrical Engineering 601,
https://doi.org/10.1007/978-981-15-1420-3_17

International Journal of Advanced Research in Engineering and Technology (IJARET)
Volume 11, Issue 7, July 2020, pp. 191-200, Article ID: IJARET_11_07_017
Available online athttp://www.iaeme.com/IJARET/issues.asp?JType=IJARET&VType=11&IType=7
ISSN Print: 0976-6480 and ISSN Online: 0976-6499
DOI: 10.34218/IJARET.11.7.2020.017

A COMPARATIVE ANALYSIS OF DES AND BAES FOR MANET

Srividya R
K. S. Institute of Technology, Bangalore, Karnataka, India

Ramesh B
Department of Computer Science and Engineering,
MCE - Malnad College of Engineering, Hassan, Karnataka, India

ABSTRACT

The exponential increase in digital data exchange in Mobile Ad hoc network paves a way for authentic research in the horizon of securing data using cryptographic methods. This paper proposes a comparative analysis of existing DES and proposed Biometric Advanced Encryption Standard (BAES) cryptographic algorithm. BAES implementation includes design of robust biometric key generation algorithm that can mitigate malicious attacks by extending security definitions of existing Advanced Encryption Standard.

Key words: MANET, BAES, DES, Fingerprint, Minutiae.

Cite this Article: Srividya R and Ramesh B, A Comparative Analysis of DES and BAES for MANET, *International Journal of Advanced Research in Engineering and Technology*, 11(7), 2020, pp. 191-200.

http://www.iaeme.com/IJARET/issues.asp?JType=IJARET&VType=11&IType=7

1. INTRODUCTION

Mobile Ad hoc Network (MANET) is known for its self configuring and dynamic nature and its capability to exchange data between mobile nodes. Due to MANET's dynamic nature, proviiding secure data mobility is a challenging task. Passive or active attacks can be launched effortlessly in such networks with no centralized management and firewall. To secure the data from being permuted or eavesdropped is a confronting assignment. It is intricate to detect passive attacks like eavesdropping. Hence the outstanding schema would be to use a cryptographic method and encrypt the data before transmitting it into MANET. The past few decades have seen an exponential rise in the genre of cryptographic algorithm innovations and inventions. The study of literature illustrates ample of encryption algorithms and their applications. Here we propose and develop a cryptographic method Biometric Advanced Encryption Standard (BAES), which is a petty contribution to the sphere of cryptographic algorithms. An effort is put in, to compare BAES with Data Encryption Standard (DES) considering time and memory parameters.

International Journal of Electrical and Computer Engineering (IJECE)
Vol. 9, No. 5, October 2019, pp. 4266~4276
ISSN: 2088-8708, DOI: 10.11591/ijece.v9i5.pp4266-4276

Implementation of AES using biometric

Srividya R[1], Ramesh B[2]
[1]Department of Telecommunication Engineering, K.S. Institute of Technology, India
[2]Department of Computer Science and Engineering, Malnad College of Engineering, India

Article Info

Article history:

Received Des 4, 2018
Revised Apr 25, 2019
Accepted May 4, 2019

Keywords:

AES
Biometric
MANET
Minutiae extraction
S-Box

ABSTRACT

Mobile Adhoc network is the most advanced emerging technology in the field of wireless communication. MANETs mainly have the capacity of self-forming, self-healing, enabling peer to peer communication between the nodes, without relying on any centralized network architecture. MANETs are made applicable mainly to military applications, rescue operations and home networking. Practically, MANET could be attacked by several ways using multiple methods. Research on MANET emphasizes on data security issues, as the Adhoc network does not befit security mechanism associated with static networks. This paper focuses mainly on data security techniques incorporated in MANET. Also this paper proposes an implementation of Advanced Encryption Standard using biometric key for MANETs. AES implementation includes, the design of most robust Substitution-Box implementation which defines a nonlinear behavior and mitigates malicious attacks, with an extended security definition. The key for AES is generated using most reliable, robust and precise biometric processing. In this paper, the input message is encrypted by AES powered by secured nonlinear S-box using finger print biometric feature and is decrypted using the reverse process.

Corresponding Author:

Srividya R,
Department of Telecommunication Engineering,
K.S. Institute of Technology,
#14, Raghuvanahalli, Kanakapura main road, Bangalore-109, India.
Email: srividya.ramisetty@gmail.com

1. INTRODUCTION

MANET is a wireless Adhoc Network which is dynamic in nature. It has the capability to transmit signals in between mobile nodes. Its self-configuration property essentially deals with dynamic property of moving nodes. MANET does not have organized network infrastructure in order to establish communication, because of its agility. This imposes limitations on network infrastructure, data security, processing ability, throughput and performance of the system [1]. Data security for MANET is to be designed keeping processing power and speed into consideration. Hence the deployment environment defines an extensive security at the cost of low processing power and at high data rate. MANET has on-demand need for high level security systems incorporated in network infrastructure. The literature stream lines wide number of security systems applicable to network systems. Most popular Cryptographic system illustrated in literature is advanced encryption system (AES). AES is distinguished encryption and decryption system used widely in vital computer networking applications. Key generation used to encrypt input message is again a very important aspect in data encryption/decryption systems. Use of symmetric key and asymmetric key remarks its own merits and demerits in securing data and data mobility in MANETs.

Main motivation behind data security in context of MANET is not only to secure data at high speed, but also at reduced processing power. Hence the usage of key generation is limited to implementation of symmetric key generation. However symmetric key generation is also made complex by generating the key