Lokmanya Tilak Jankalyan Shikshan Sanstha's
PRIYADARSHINI BHAGWATI COLLEGE OF ENGINEERING
Harpur Nagar, Umred Road (Near Bada Tajbagh), Nagpur-24
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TO WHOMSOEVER IT MAY CONCERN

This is certified that Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five year.

Year	2022	2021	2020	2019	2018
Number of proceedings	84	18	32	29	13
Total					176

Certified Document from page No.1 to 38

Principal

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3.3.2 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five year.

table				
For Year 2019				
Sr. No	Name of the Teacher	Title of the paper	Title of the book/chapters published/ Title of the proceedings of the conference	ISBN No.
1	Mr. K. N. Hande	Real Time Wireless hopper material status Monitoring system	Real Time Wireless hopper material status Monitoring system	9781728137780
2	Mr. Vishesh Gaikwad	A Review on Enquiry Automation and Classified Ad System	A Review on Enquiry Automation and Classified Ad System	2395-1990
3	Deepa K Khadse	Video Playing Using QR Code	Video Playing Using QR Code	2321-9939
4	Deepa K Khadse	VANET :- Survey Of Routing Protocols	VANET :- Survey Of Routing Protocols	2348-1269
5	R Dagde, D Radke. Ms A A Lokhande	A clustering Approach using PSO optimization technique for data mining	A clustering Approach using PSO optimization technique for data mining	978-93-80544-32-8
6	Ms. Archana A. Nikose	A SURVEY to Track Intrusion Detection in the System by using Data Mining	A SURVEY to Track Intrusion Detection in the System by using Data Mining	2395-0056
7	Ms. ARCHANA A. NIKOSE	A Survey: Resolving Distributed Denial of Service Attack in Manet	A Survey: Resolving Distributed Denial of Service Attack in Manet	2395-0056
8	Ms. ARCHANA A.	Voice Based Mail System for Blind	Voice Based Mail System for Blind	0972-1347

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	NIKOSE			
9	Ms. Dipeeka Radke	A Survey On Smart Parking System Using Arduino	A Survey On Smart Parking System Using Arduino	2348-1269
10	Ms. Shruti Tiwari	Register Police Complaint via Android Application	Register Police Complaint via Android Application	0972-1347
11	Ms.Shrunkhala Wankhede	Automatic College Timetable Generation	Automatic College Timetable Generation	2456-3307
12	Ms.Shrunkhala Wankhede	Online Payment Gateway Using Visual Steganography and Cryptography	Online Payment Gateway Using Visual Steganography and Cryptography	2349-5162
13	Dr. A. R. Golhar	Structural and morphological characterization of mixed spinel nano ferrites and Ca-W nano hexaferrite	Structural and morphological characterization of mixed spinel nano ferrites and Ca-W nano hexaferrite	2394-0697
14	Prof. Durga Motwani	Fabrication and study of thick film SnO_2 doped with TiO_2 gas sensor to sense O_2 gas	Fabrication and study of thick film SnO_2 doped with TiO_2 gas sensor to sense O_2 gas	2456-3463
15	Prof. V.Atkari	A study on financial inclusion of Rural women workers in Nagpur district	A study on financial inclusion of Rural women workers in Nagpur district	2583-729X
16	Dr.(Mrs) A.R. Chaudhari, Prof. U. V. Gaikwad	Book Chapter : "Application of Smart Polymers in emerging areas" in Novel applications in Polymer & Waste Management	Novel Applications in Polymes and Waste Management	978-1-315-36584-8

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17	K.V.Madurwar	Compressive Strength of Cement & Fly Ash Mortar:- A Case Study	Compressive Strength of Cement & Fly Ash Mortar:- A Case Study	3376014
18	Mr K V Madurwar	Fabrication and study of thick film and SnO2 doped with TiO2 gas sensor to sense O2 gas.	Fabrication and study of thick film and SnO2 doped with TiO2 gas sensor to sense O2 gas.	24563463
19	Mrs. S. H. Chaflekar	An Android Application for Animal Welfare	An Android Application for Animal Welfare	23951990
20	Mr. Y. B. Malode	Design and Implementation of Traffic Forecasting Model Using Data Mining	Design and Implementation of Traffic Forecasting Model Using Data Mining	245633307
21	Mr. Manoj Choudhary	A novel IoT Based Approach for Fire Warming System	A novel IoT Based Approach for Fire Warming System	23956011
22	Rupali Shinganjude	IOT Based Smart Agriculture System	IOT Based Smart Agriculture System	23956011
23	M.R. Moroliya	PG Test of 250 TPH, 9.8 Mpa Circulating Fluidized Bed Combustion Coal fired boiler and 4X61.5MW Condensing steam Turbine	PG Test of 250 TPH, 9.8 Mpa Circulating Fluidized Bed Combustion Coal fired boiler and 4X61.5MW Condensing steam Turbine	3765-3771
24	Shubhangi Gurway, Pranjali Tete	Future of Nanotechnology	Future of Nanotechnology	978-0-7354-1836-3
25	A.D.Anjikar	Design and calculation of various components of GOKART system	Design and calculation of various components of GOKART system	978-0-7354-1836-3

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26	Dr. P.R. Bokde	Design of Dual Antenna Passive Repeater based Machine Learning	Design of Dual Antenna Passive Repeater based Machine Learning	2278-8719
27	Dr S.B.Dhoble	UWA Channel for Data Communication of UWASN using OFDM	UWA Channel for Data Communication of UWASN using OFDM	2320-2882
28	Dr S.B.Dhoble	Analysis of Gram-Negative Escherichia Coli Bacteria in Dairy Experimentation	Analysis of Gram-Negative Escherichia Coli Bacteria in Dairy Experimentation	2581-6659
29	Ms T. U. Pathan	Sensor Based smart farming and Plant Diseases Monitoring	Sensor Based smart farming and Plant Diseases Monitoring	2249 – 8958

Principal

Real Time Wireless Hopper Material Status Monitoring System

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Abstract-- **The basic idea of proposed work is to monitor automated system and communicate wirelessly. The multiple hopper material level status is communicated wirelessly to distant control room. Hopper material level status is sent by PLC to Slave unit and slave unit transmit the data to master. Both communications are bidirectional. The system unit uses bidirectional transreciever operate on 2.4GHz of Nordic. The system is controlled through well-known Arduino boards and also monitors the input from PLC. The communication protocol designed with minimal contents for query-response. The unit has tested with obstacle accurately in the range of 100m and tested in line of sight of 250m.The monitoring system is at 100m location. The system reduces cost of number of cables lay for communication. The slave unit location can be portable. Such type of system is very useful to control and monitor data of multiple devices wirelessly. The system has tested and test results are presented here.**

Keywords-- Hopper Arduino, transreceiver, master, slave, PLC, monitoring unit etc.

I. INTRODUCTION

Today's digital era based on wireless communication and automation. When communication becomes wireless, it is worth notable [1-2]. Cities are becoming smarter and government is also in process of providing internet at affordable cost. Data acquisition process of plant is done at some control room and output of the system is transmitted to display unit at monitoring room for viewing by supervisor. Automation system and processing technologies like monitoring and controlling along with networking and wireless communication helps to increase productivity [3].Automatic loading of material without human intervention is developed for easy operation, time saving and cost effective performance.

Monitoring plays main role in any alert system. The wired system is complex as well limited to distance and location. The emerging wireless technologies have been developing rapidly through years [4]. The advantage of this system has significantly reduce cost and extra work of wiring and allows configuration that permit data communication over longer distance. Devices can be portable with low power consumption. Recent development in wireless technologies opens the new world of open source hardware and software. The latest trends of open

source provide development easy with open source board with inbuilt libraries [5]. This paper takes advantage of such Arduino open source hardware platform and nrf24L01 transceiver module to interface with PLC for monitoring status of raw material available in hopper. This system design is low cost, low power, portable as compared to wired system and implemented over longer distance.

Some existing system a short-range communication network has been developed which can be used for sending and receiving data between different Zigbee (XBee) Radio Frequency (RF) modules[6] .Many of the existing system face lack of flexibility, scalability, reliability, portability, size miniaturization, power consumption, wiring complexity, periodic maintenance. All these features are taken care by Master-Slave network communication system implemented in this paper. The system focuses on designing tiny automatic application to make possible wireless communication.

Hoppers are large containers with a tapering end with a small opening at the bottom as one of the type shown in Fig.1 and Fig.2.
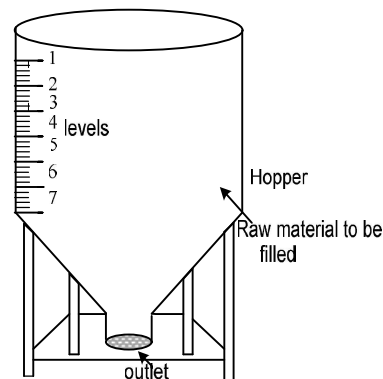

Fig.1 The cross section view of hopper

They hold materials in solid and liquid or powdered form. It can be grains, different snacks or other materials depend upon final product. There are numeral examples on it. For example preparation of mixture of different spices, multiple hoppers are used for each individual spices and

A Review on Enquiry Automation and Classified Ad System

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ABSTRACT

Recently with the development in innovation, there is a ceaseless move of the media business from print media towards online media. Amid the most recent years, online media has been making strides to the inconvenience of print media and keeps on doing as such. In created nations, most people get to the web a few times each day through PCs, workstations and cell phones, for example, advanced cells, ipads, tablets, blackberries and so forth. Probably a few of us are online day and night through at least one gadgets. In the meantime, an expanding number of individuals access the web additionally in creating nations. In this paper, we study the various platforms related to communication between customers and vendors.

Keywords: Classified Ad, Web Classified Ads, Enquiry System.

I. INTRODUCTION

A publicizing office or advertisement office is an administration business committed to making, arranging and taking care of promoting (and here and there different types of advancement) for its customers. An advertisement office is autonomous from the customer and gives an outside perspective to the exertion of moving the customer's items or administrations. An office can likewise deal with largely showcasing and marking procedures and deals advancements for its customers.

Common advertisement office customers incorporate organizations and partnerships, non-benefit associations and government offices. Offices might be procured to create a publicizing effort. Enquiries and openings encompass the universe of Facilities Management and Service arrangement. Regardless of whether from a business point of view or interior intrigue, enquiry types are tremendous and changed.

CAFM contains a coordinated Enquiry Management framework to precisely follow and deal with every enquiry type, all the way. For specialist organizations, common enquiry types would frame the arrangement of items or administrations from point of view or existing customers. Enquiries for Facilities Managers may include overseeing inward or outer gathering keen on subletting spaces, occasions, providing food or convenience appointments. Regardless of the enquiry type or approach, the Enquiry Management System will give the stage proficiently deal with every enquiry.

II. Related Work

A. Offline vs. Online Advertising Agency

If you are a marketer, you may want to consider the differences between online vs offline advertising. The main reason for this is that we are so conditioned by offline advertising for example television, radio,

Video Playing Using QR Code

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Abstract — this system aims at giving authorized knowledge to the user at ease via visual sensing i.e. videos. Especially this android application made for the persons for whom understanding via visual medium is easier than theory. Here, in this system a demo book will be provided in that book, in Index topic wise name and QR code will be given. So even if the user doesn't have a single idea about the book he still can just scan the QR code via app from his mobile phone and the video will just simultaneously start playing in inbuilt video player. Specially meant for user to provide ease and authorized knowledge. In this system, as soon as the QR is scanned from the android device, the video will start playing instantly. A QR (quick response) code is a two-dimensional barcode readable by QR scanners, smart mobile phones with a camera. QR codes can be used to link to any URL. They can also be used to automatically add information into a user's Smartphone such as a calendar event, map or personal contact information. A QR code is capable of storing several hundred times more information than conventional barcode and is readable from any direction. A QR Code system is used in combination with a QR Code printer (or QR Code creation software) and QR Code scanner. QR Code is generated with QR Code creation software and a special printer. A QR Code is a matrix code (or two-dimensional bar code) created by Japanese corporation Denso-Wave in 1994. The "QR" is derived from "Quick Response" as the creator intended the code to allow its contents to be decoded at high speed. QR i.e. "Quick Response" code is a 2D matrix code that is designed by keeping two points under consideration, i.e. it must store large amount of data as compared to 1D barcodes and it must be decoded at high speed using any handheld device like phones.

Index Terms— QR code, 3D barcode, android, scanner, camera, barcode, video player.
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I. INTRODUCTION

Image processing is a method to perform some operation on an image in order to get an enhanced image or to extract some useful information from it.

Image processing is a method to perform some operations on an image, in order to get an enhanced image or to extract some useful information from it. It is a type of signal processing in which input is an image and output may be image or characteristics / features associated with that image. Nowadays, image processing is among rapidly growing technologies. It forms core research area within engineering and computer science disciplines too.

Image processing basically includes the following three steps:

1. Importing the image via image acquisition tools.
2. Analyzing and manipulating the image.
3. Output in which result can be altered image or report that is based on image analysis.

There are two types of methods used for image processing namely, analogue and digital image processing. Analogue image processing can be used for the hard copies like printouts and photographs. Image analysts use various fundamentals of interpretation while using these visual techniques. Digital image processing techniques help in manipulation of the digital images by using computers. The three general phases that all types of data have to undergo while using digital technique are pre-processing, enhancement, and display, information extraction.

An image is an array, or a matrix, of square pixels (picture elements) arranged in columns and rows. In a (8-bit) greyscale image each picture element has an assigned intensity that ranges from 0 to 255. A grey scale image is what people normally call a black and white image, but the name emphasizes that such an image will also include many shades of grey.

Each pixel has a value from 0 (black) to 255 (white). The possible range of the pixel values depend on the colour depth of the image, here 8 bit = 256 greyscales. A normal greyscale image has 8 bit colour depth = 256 greyscales.

There are two general groups of 'images': vector graphics (or line art) and bitmaps (pixel-based or 'images'). GIF an 8 bit (256 colour), non-destructively compressed bitmap format.

Quick Response Code or better known as QR Code is a two dimensional barcode that allow high speed data encoding and decoding capabilities. It was invented by Denso-Wave a Toyota subsidiary in 1994 in order to track the various parts during the vehicle manufacturing. Generally QR Codes are used for distributing small information like URL, a phone number or even small text. The Government of Canada uses QR Codes for efficient and faster processing of the Passport application forms. A QR Code is embedded on the first page of their application form and the code gets updated as the form is being filled.

There are many freeware decoding applications that are available on the Internet one of which is zxing. If users don't have access to smart phones they can access websites such as Xzing in order to decode the QR Codes, all they need to do is upload the QR Code image to the website and they website decode the information and display it to the user. There has been increase in the use of QR Codes and the reason for this increase is due to the various features offered by the QR Codes. One of the most

VANET :- Survey Of Routing Protocols

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Abstract : **Vehicular Ad-hoc Network today has become a research sector for anatomization and headway. It is a subclass of MANET (Mobile Ad-hoc Networks), which provides a transmission among nearby vehicles and predetermined fundament. VANET is different from MANETs in terms of high mobility and dynamic topology. Sustaining inflated mobility and information routing in vehicular ad-hoc networks is very demanding and formidable job. Key characteristics of VANETs are time-varying nature of vehicle density, time critical welfare implementations, self-organizing, distributed communication, road pattern restrictions and high mobility. Sudden change in network topology and connectivity are also the characteristics of VANET. VANET provides amenities regarding road safety, traffic management, internet access, map location, for passengers and drivers. In this paper we've described a brief overview on topologies based protocol: proactive and reactive routing protocols.**

Keywords:-VANET, MANET, Protocols

1.INTRODUCTION

A transport impromptu Network (VANET) consists of vehicles that communicate with one another and exchange information via wireless communication links obtainable between the vehicles that area unit in communication ranges of vehicles to boost the road safety in town. The communication between vehicles is employed to produce road safety, comfort and diversion. The performance of communication depends on however higher routing takes place within the network. Routing information between the supply and destination vehicle depends on the routing protocols being employed in transport ad-hoc network. VANET may be a taxonomic category of painter (Mobile Ad-hoc Networks), that provides a communication among close vehicles and between vehicles and close mounted infrastructure. VANET is totally different from MANETs in terms of high quality and dynamic topology. Maintaining High quality and knowledge routing in VANETs is incredibly tough and difficult task. In VANET moving vehicles area unit thought-about as node and therefore the distance between moving vehicals area unit thought-about as nodes and therefore the distance between them on the road is taken into account as network.

CHARACTERISTICS OF VANET:-

VANET area unit characterized by high relative speed suggests that high quality and area unit ruled by restricted rules. Frequent configuration changes cut back overhead for exchanging new topology data. Safety messages that area unit the most goal of VANET should be delivered on time and vehicles use GPS (Global Positioning System) with nice accuracy in VANET.

2. ROUTING PROTOCOL

Routing protocols make sure that data is exchange between entities, and follow the procedure in establishing a route, call in forwarding and covering or maintaining from route failure. These protocols square measure classified on the premise of application. Topology primarily based routing protocol, cluster primarily based routing protocol, and position primarily based routing protocol, and Geo solid routing protocol and broadcast routing protocol.

Proceedings of the 13th INDIACom; INDIACom-2019; IEEE Conference ID: 46181
2019 6th International Conference on "Computing for Sustainable Global Development", 13th - 15th March, 2019
Bharati Vidyapeeth's Institute of Computer Applications and Management (BVICAM), New Delhi (INDIA)

A Clustering Approach using PSO Optimization Technique for Data Mining

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Abstract— The cluster analysis is incredibly huge conception of information mining several researchers square live offer attention on cluster downside. The cluster is member of unattended learning technique during that teacher is absent. throughout this analysis primarily based paper we've got developed the efficient hybrid data processing algorithmic rule. The obtained algorithmic rule known as as BKPSO that contain the Bisecting K-mean algorithmic rule and Particle Swarm optimization algorithmic rule. By victimization this 2 algorithmic rule the hybrid model can get. This hybrid model will increase the accuracy of clustering. The Bisecting K-mean algorithmic rule is use for the clustering. it'll kind the cluster suggests that organizing the article into cluster according their price that is analogous in how. The bisecting K-mean algorithmic rule is modification of the fundamental K-mean algorithmic rule. {it can|it'll} cut the most cluster into 2 sub clusters till the K-cluster will kind. It reduced the computation time and additionally reduces the complexness of the information cluster. it's a drawback like initializing the beginning cluster center. to beat this downside and realize the optimum path the particle swarm optimization rule is used throughout this analysis based mostly project the information sets square measure transfer from the UCI Repository. it's one among the general public analysis based mostly University of Golden State in Irvine.

Keywords- UCI Repository data(Car machine Learning Data set; Iris Plants Database); K-mean; Bisecting K-mean algorithm; Particle swarm Optimization technique.

I. INTRODUCTION

Data mining technique finding the prognostic data from recent information and this technology is to assist corporations specialist in the important data in their information bases. Data processing technique means that applying technique on information set for finding helpful data. This method of compliance to electronic necessities that facilitate the analyzing invisible prognostic data from the massive information set. it's wont to testing the recent information to seek out the helpful data. Data processing technique has some technique like classification, clustering, association. In this paper the bunch technique is employed. it's one among the foremost necessary techniques in data processing. it's assignment that splits the info into the quantity of teams. The clustering test on very big data and it

will also test on historical data its give the important data which is help for the prediction. In this research based project the data sets are downloading from the university of Californian in Irvine. We have download two data sets [1] Car machine learning data [2]Iris plant data set.

[2] The second data set is related to the plant data which contain the 150 total numbers of instances 4 attributes like

S_length, S_width, P_length, P_width and 3 classes I_setosa, I_versicolor, I_verginica.

In this scientific research the Bisecting K-mean algorithm is employed for the Grouping analysis. it's the modification of the K-mean algorithmic rule. It produces the cluster in line with their attributes and given range of clusters. In bisecting K-mean algorithmic rule the initial K-mean cluster is splits into sub cluster means that into 2 components. It decreases the complexions of cluster and reduce the computation time. This agglomeration algorithmic rule has downside [1] To initialization of place to begin means that it's tough to perform to initialize the beginning center of the cluster. because of that the optimization technique is employed. during this project the particle Swarm optimization technique used for optimization purpose. It overcome the Bisecting K mean downside and finds the optimum resolution to create the clusters. it'll facilitate to enhance the accuracy of the agglomeration. In real word the optimization drawback square measure dynamic. The optimization technique provides the optimum or best resolution from the difficult optimization drawback.

In this research project we propose the hybrid algorithm that is BKPSO based on Bisecting K-mean algorithm and particle swarm optimization. Particle Swarm optimization algorithmic rule could be a population contain optimization technique that is outstanding by the behavior of swarm of birds. and every swarm is termed as a particle. every particle is said to the rate that helps to search out the new position

II. FLOWCHART OF SYSTEM

In this analysis primarily based project the info sets ar designated from the UCI repository. Its abbreviation is University of california Irvine. it's one in all the general public machines learning repository having the several information and it's machine learning university. From this

A SURVEY to Track Intrusion Detection in the System by using Data Mining

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Abstract - *In recent years, security of computer network has become main stream in most of everyone's lives. Intrusion detection is the method of identifying unauthorized use, misuse, harmful and abuse of computer systems by both system insiders and external attackers. There are several techniques for intrusion detection, many researchers used machine learning techniques for intrusion detection, but some shows poor detection, some techniques takes large amount of training time. Insider attackers, the valid users of a system who attack the system internally, are hard to detect since most intrusion detection systems and firewalls identify malicious behaviors launched from the outside world of the system only. In this paper, presents an intelligent learning approach using Hybrid Algorithm to detect intrusions in the distributed network. The algorithm improves the efficiency of intrusion detection, reduces false positives of intrusion detection by monitoring Hardware (keyboard, mouse) as well as software activity (web based, IDE, tools with Computer) activity.*

*Key Words***: Intrusion detection**, Insider attackers, Hybrid, Hardware, Software*.

1. INTRODUCTION

With the rapid expansion of computer networks during the past years, security has become a crucial issue for computer systems. An intrusion detection system (IDS) [1] is an active process or device that analyzes system and network activity for unauthorized and nasty activity. IDS maintains a set of historical profiles for users, matches and audit record with appropriate profile, update the profiles whenever necessary, and reports any anomalies detected. There are two main approaches to the design of IDS [2].

In a misuse detection based IDS, intrusions are found by looking for activities that correspond to known signatures of intrusions. On the other hand, anomaly detection based IDS, intrusions are detected by searching for abnormal network traffic. One of the most commonly used approaches in IDS is expert system based intrusion detection systems i.e. rule-based analysis but it is a static. In Soft computing approach includes an intelligent agent in the system that is capable of disclosing the latent patterns in abnormal and normal connection audit records, and to derive the patterns to produce connection records of the same class. In neural network approach [3] training is provided for intrusion detection.

2. LITERATURE SURVEY

Sufyan T. Faraj Al-Janabi and Hadeel Amjed Saeed.[1] in this paper, a back propagation artificial neural network (ANN) to learn system's behaviour. One of the issues comes in this that ANN requires a very large amount of data and considerable time to ensure that the results are accurate. Another issue is that there is some kind of compromise between increasing the classification levels and the percentage of identification.

Kapil Wankhade, Sadia Patka, Ravindra Thool[4] in this paper, describes the system architecture for intrusion detection system (IDS) based on hybrid data mining techniques. It is based on K-means clustering, which is a typical clustering algorithm. It overcomes the drawbacks of K-means thereby employing a hybrid approach.

Bini V. C, Ms. Nimmy K, Prof. P. Jayakumar[5] in this work, they explain a security system called Internal Intrusion Detection System (IIDS) using data mining and bevaviometric technique to detect the internal intrusion. Behavioral biometric includes the user behavior such as speed of typing, sound of typing on a keyboard. It is also known as keystroke dynamics. Because of uniquely find user, it is more popular among strong authentication techniques.

Hu Zhengbing, Su Jun, Shirochin V. P. [9] By defining user profiles previously, it can easily find out the anomalies and malicious accesses instantly. With the help of user's profiles, we can't only uncover which account has been misused, but also realize who the true intruder is. There is no need to update the knowledge databases of HFIDS manually, it is a self-organized and self-training system. Furthermore, we can discover cooperative attacks simultaneously submitted by the users as well by using data mining and forensic techniques as the attacks are performing. The paper proposes a framework for tracing

A SURVEY:RESOLVING DISTRIBUTED DENIAL OF SERVICE ATTACK IN MANET

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Abstract - *A Distributed Denial of Service flooding (DDoS) is biggest security concern it is overload the server, generate malicious traffic or interrupting the service. This issue crashes the host and the host service will be unavailable to the legitimate users. Although several defense systems have been proposed by researchers, the problem remains largely unresolved and unreliable for many attacks. In this paper, we present a mechanism that detects the misbehaving nodes. This approach is based on the two techniques which will be used in parallel in such a way that the results generated by one technique is further processed by the other to generate the list of misbehaving nodes. The first part detects the misbehaving link using the 2ACK technique and that information is used second part which uses AMD technique to detect misbehaving nodes.*

Key Words: *Distributed Denial of Service flooding attack, Mobile Ad hoc networks topology, nodes*

1. INTRODUCTION

Wireless Sensor Networks (WSNs) can be used in a many applications from complex military operations to simple domestic environments. This makes security a important characteristic in WSNs. There have been various studies in the field of security in sensor networks, being Intrusion Detection System (IDS) is the most used tools among other tool in this area. This study proposes a new design based on reputation and trust of the different nodes of a network for decision making and search for possible source of malicious attacks.

1.1 Manet

Mobile Ad hoc networks (MANETs) are submissive to having their efficient operation compromised by a variety of security attacks because of the features like unreliability means which not to be trusted of wireless links between nodes, constantly changing topology, limited battery power, lack of centralized control and others. Nodes may misbehave either because they are malicious or it intentionally wishes to disrupt the network, or because they are selfish and wish to protect their own limited resources such as power. Each device in a MANET is free to move in any direction, and because of its nature it will change its links to other devices frequently. Important challenge in building a MANET is preparing each device to continuously maintain the information which is required to properly route traffic. This type of network may operate by them or may be connected to the larger Internet. It has different transceivers between nodes. There are some

types of MANETs: closed and open. In a closed MANET, all mobile nodes help each other towards a common goal. In an open MANET, various mobile nodes with various goals share their resources in order to it happen global connectivity. An different mobile node may attempt to benefit from other nodes, but refuse to share its own resources, these nodes are called selfish nodes or misbehaving nodes and their behaviour is termed as selfishness or misbehaviour. Sources of energy consumption in the mobile nodes of MANETs are wireless transmission. A misbehaviour node may refuse to forward data packets for other nodes in order to conserve its own energy.

1.2 DDoS

A distributed denial of service (DDoS) attack is intended to cause damage to a computer system or steal private information from a computer system this attempt to make an online service unavailable to users, usually by temporarily suspending the services of its hosting server. This attack is different from other denial of service (DoS) attacks; it uses a single Internet-connected device (one network connection) for flooding a target with malicious traffic.

2. LITERATURE SURVEY

G. Acs, L. Buttyan, and L. Dora [1] in this paper, they of detect misbehaving routers in wireless mesh networks and then avoiding them while selecting the routes. They assume that link-state routing is used, and they propose a reputation system, where trusted gateway nodes compute Node Trust Values for the routers, which are fed back into the system and used for route selection procedure. The results show that there proposed mechanism can detect misbehaving routers reliably, it decrease the number of packets dropped due to router misbehavior considerably. At the same time, there mechanism only slightly increases the average route length. B. Awerbuch, R. Curtmola, D. Holmer, C. Nita-Rotaru, and H. Rubens [2] they discussed ad hoc networks offer increased coverage by using multihop communication. This architecture makes services influenced to internal attacks coming from compromised nodes that behave arbitrarily to disrupt the network, also referred to as Byzantine attacks. In this work, they examine the impact of several Byzantine attacks performed by individual or colluding attackers. They propose ODSBR, the first on-demand routing protocol for ad hoc wireless networks that provides resilience to Byzantine attacks caused by individual or colluding nodes. This paper demonstrates through simulations ODSBR's effectiveness in mitigating Byzantine attacks. It analysis the impact of these

Voice Based Mail System For Blind

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ABSTRACT:

Currently, unsighted individuals aren't able to use computers on their own in the main as a result of keyboards aren't easy to them. Nowadays, the advancement created in technology has opened platforms for visually impaired individuals across the globe. Here, we describe the voice based e-mail architecture which can be used by the blind people to access E-mail and multimedia functions easily and efficiently.The system will not let the user create use of keyboard instead can work solely on mouse operation and speech conversion to text. The system is totally supported interactive voice response which can create it user friendly and economical to use.

1. INTRODUCTION:

Machine learning is an application of artificial intelligence (AI) that has systems the flexibility to mechanically learn and improve from expertise while not being expressly programmed. Artificial intelligence (AI) is a technique where machine can become more human and thereby reducing the distance between human being and the machine. Therefore in simple sense AI makes human to communicate with the machine easily. The basic premise of machine learning is to make algorithms that may receive input file and use applied math to predict an output value inside a suitable vary. All functions are supported easy mouse click operations creating it terribly straight forward for any style of user to use this system. A web system is claimed be perfectly accessible provided that it is used with efficiency by all sorts of individuals whether able or disable. The current systems do not provide this accessibility. Thus the system we tend to is totally different from the current system. The complete system is based on SIT(Speech to text) , TTS(Text to Speech) , IVR(interactive voice response).

A Survey On Smart Parking System Using Arduino

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Abstract— The proposed Smart Parking system consists of an on-site deployment of an IOT module that is used to monitor and signalize the state of availability of parking space. This project introduce an IOT based efficient and easy way of parking the vehicles by checking the availability of slots.Present day's car parking has become major issue in urban area with lack of parking facilities. It is very difficult and frustrating to find a parking space in most metropolitan areas, especially during the rush hours. To solve these problem the proposed application provide an easy way for reservation of parking slot.Authorization of driver or user is the basic rule which is used to park a vehicle in a parking place. Users can access parking space information using a smartphone via an application. Especially for users who have been registered before, they have a code for login the app as per the requirement for security system and user parking convenience.The Ultrasonic Range Detection Sensor is utilized with Arduino to indicate the empty slot by measuring the distance using ultrasonic sensors. Drivers are able to find the empty slot in parking to park the car and help the driver to find the slot easily and reduce the searching time. As the parking place is found to be empty it is detectedusing ultrasonic sensors which report it further. We achieved this by programming the sensors and Arduino.

Index terms: **Arduino IDE, Firebase, Android, ESP8266, Ultrasonic Sensors.**

I. INTRODUCTION

The IoT applications in our daily life are blooming, and there is also a growing trend in the applications of smart cities which can help in improving to reduce smart cities issues. In Smart City we face many difficulties while developing, to solve smart city issues we have to develop such system which is combination of the new technology also of low cost and based on the different network combination of the Internet, such as a telecommunications, broadcast, wireless and sensor networks where Internet of Things (IoT) is base technology. In recent years, the Internet of Things has been applied in many ways. The smart parking system is one part of the technology of Internet of Things . The concept of the Internet of Things starts from advice that can be traced, controlled, or monitored over the internet. One of the systems of smart parking is to know the condition of parking lot via the internet. This is related to parking problems in which one of them is the difficulty of knowing the condition of vacant space in the wide parking and hence the driver spends his time just to find a parking place and tends to more difficulty along with the increasing number of vehicle ownership. Problems related to parking can be solved if the driver can be informed beforehand about the availability of parking space around the desired destination. As the result, the concept of the Internet of Things applies to the smart parking system.This smart parking system project is build by some system such as hardware architecture and software architecture system. In hardware part, we are using the ultrasonic sensor which is used to indicate the empty slot for the parking and ESP8266 is a small module which allows microcontrollers to connect to a Wi-Fi network and make the TCP/IP connections.In software part, Arduino which is a software used for wrote the code and upload it into ESP8266 chip to perform the specific task. MIT App inventer is used to build an mobile application which is used by user for the authentication or checking the availability of the parking space. There is number of parking slot shown on the mobile application. If the space is available for the parking then the slot on mobile application is filled with green color, if there is no space available, then the slot is filled with the red color. If the parking slot is reserved ,then it is filled with the blue color. All the updations are done at runtime.We are using firebase as database which gives the runtime information of availability of parking space.

II. LITERATURE SURVEY

"Arduino Based Moving Radar System" is a project in which Ultrasonic sensor transmits the signal in all direction and if any obstacle that is target is detected then echo pulse sense. Furthermore, this project can be enhanced by using a laser gun. When the target is detected then at this proper direction gun is fired. Arduino controller and ultrasonic sensor is the base of this project [1]

"Development of an Android Application for Smart Parking System" is the system which reduce drive frustration and traffic by providing nearest parking area and available slot. As smart parking system increase the service levels in operation, there is a lot of scope for innovations and implementation through data standardization and management, mobile phone integration, hardware and software integration.[2]

"Arduino Based Smart Parking System" is a proect to find free parking places for public. As soon as parking place is found to be empty it is detected using ultrasonic sensors which report it further. We achieved this by the sensors and Arduino. Pushing the data to webpage gives us tabular output which shows availability of parking places. The project aims at fast results so that anyone can easily find place for parking and save time in doing so. As Arduino is the latest technology programming, using it gives uniqueness to our project.[3]

"Automated car parking system commanded by android application" is a miniature model of an automated car parking system that can regulate and manage number of cars that can be parked in given space at any given time based on the availability of parking slot. Automated parking is a method of parking and existing cars using sensing device.[4]

"IoT based Smart Parking System" is the project focusing on Smart Cities that have always been a dream for humanity. Since the past couple of years large advancements have been made in making smart cities a reality. Smart parking facilities and traffic management systems have always been at the core of constructing smart cities. The system that we propose provides real time information regarding availability of parking slots in a parking area.[5]

Register Police Complaint via Android Application

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ABSTRACT –
We can see that technology is implemented in almost every aspect of our lives and business function. The use of technology is increasing day by day, we all depend on technology, and we use various technologies to accomplish specific tasks in our lives. There is technology in business, in education, in socializing and maintaining human relations, in purchasing, in agriculture, in banking, communication, and almost every part of our lives. The major part of our society that remains void of use of technology is Indian Police Department. The Indian Police Department carries out their routine chores manually. The traditional "pen and paper" method is primary method of carrying out the proceedings. These practices were comfortable when population was far less, and crime rates were minimal. But now with rapid development of big cities and towns, the graph of crimes is also on the increase. It has become difficult task to manage the complaints and related documents, manually. Digitalization in Police department is very important. The traditional method is to be replaced with online process of registering complaint. The police officer would register complaint online through application, send complainants data to the Police department on their web portal, and in this way entire interaction occurs online. This PCR system would speed up processing of complaint and save time, energy.

Keywords: PCR, android application, database.

1. INTRODUCTION

This system has been proposed to reduce the difficulties that people face during the registration of complaint at police station. As we know that registering a complaint requires the physical presence of complainant at the police station. Entire manual process is time consuming. It also consumes a lot of money and energy. Other disadvantages include getting harmed from person against whom PCR has been registered, particularly in kidnapping and ransom cases. So, this could be an essential tool to reduce manual work at thana and accelerate further proceedings of complaints.

We have proposed to develop a system which provides an easily accessible android mobile application which allows police to register complaints of complainant through application. Police officials would be provided with username and password for login. The police would be filling up the FIR form; complainant would be providing the necessary details related to the complaint. The complainant can upload images, audio files as proof. The police officials would receive details on the web portal. Further proceedings are carried out by police and details of complaint are stored on back-end server in secured manner. Complainant would be informed about the status of case through message on mobile. Thus the system helps in reducing the pen and paper work.

2. PCR REGISTRATION

2.1 Present Scenario:

In the present scenario all the work of registering complaint is carried out manually by the police officials and takes a lot of time and energy. For any offence, an PCR can be registered either by the victim of the offence or by someone else on his/her behalf. The complaint is orally described by complainant and the report is made in writing to police. PCR is an essential step towards registration of complaint because only after the PCR has been registered the police can start investigation. The present scenario is that any person who is witness of any offence and wants to lodge a complaint need to go from the spot of crime to the police station. Because of this important detail about the culprit is missed out by the witness. Many a times it so happens that important

Automatic College Timetable Generation

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ABSTRACT

Timetable creation is a laborious and tedious errand. To make timetable it takes loads of tolerance and worker hours. The timetable is made for different purposes like to compose addresses in school and universities, to make timing diagrams for train and transport plan and some more. The manual arrangement of getting ready timetable in universities with an extensive number of students is very tedious and for the most part, winds up with different classes conflicting either at same room or with same teachers having more than one class at any given moment. To conquer every one of these issues, propose to make a robotized framework. The framework will take different sources of info like subtleties of students, subjects and classrooms and teachers accessible, contingent on these information sources it will produce a conceivable time table, making ideal usage of all assets such that will best suit any of limitations or school rules. Rundown of subjects may incorporate electives just as center subjects.

Keywords: Timetable, Constraints, Chromosomes, Scheduling, Faculty Member, Time Table Generation

I. INTRODUCTION

Despite the fact that most school authoritative work has been automated, the address timetable booking is still generally done physically because of its inborn troubles. The manual address timetable booking requests significant time and endeavors. The address timetable planning is a Constraint fulfillment issue in which we discover an answer that fulfills the given arrangement of limitations.

Programmed Timetable Generator is a product used to create timetable naturally. As of now, the timetable is overseen physically. It will deal with every one of the periods naturally. It Maximum and least remaining task at hand for a Faculty for multi-day and week will be indicated for the effective age of timetable. Timetable Scheduler focuses to create programming for school so as to deal with the "Timetable Formation" for the staff. The leader of each Department has issued in appointing work to their subordinates and reaction for the work position.

The class timetabling issue is an ordinary booking issue that has all the earmarks of being repetitive employment in each scholastic foundation more than once per year [3]. In prior days, time table planning was done physically with a solitary individual or some gathering associated with the assignment of booking it physically, which requires a great deal of exertion and time. Arranging timetables is a standout amongst the most mind-boggling and mistake inclined applications.

Timetabling is the errand of making a timetable while fulfilling a few requirements. There are

Online Payment Gateway Using Visual Steganography and Cryptography

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Abstract— A new approach for online transaction in which a consumers'payment information is minimized to that is only needed for transfer of funds during online payment thereby safeguarding customer data and increasing customer confidence and preventing identity theft has been proposed. When you make a payment, the information will never be passed on your personal financial details to merchant sites, keeping your data safe and your identity protected against fraud. This is achieved by the introduction of Central Certified Authority (CA) and combined application of Steganography, and Visual Cryptography. Cryptography involves converting a message text into an unreadable cipher. On the other hand, Steganography embeds message into a cover media and hides its existence. Both these techniques provide some security of data neither of them alone is secure enough for sharing information over an unsecure communication channel and are vulnerable to intruder attack.

Keywords- Central Certified Authority,Steganography,Visual Cryptography.

I.INTRODUCTION

The online payment system is proposed by combining visual steganography and visual cryptography that provides customer data privacy and prevents misuse of data at merchant's side[1]. Online shopping is the retrieval of product information via the Internet and issue of purchase order through electronic purchase request, filling of credit or debit card information and shipping of product by mail order or home delivery by courier. If the user forget the secure ID and account ID, it can be easily retrieved with the protection. So automatically privacy is enhanced[2]. The method is concerned only with prevention of identity theft and customer data security. In comparison to other banking application which uses steganography and visual cryptography methods are basically applied for physical banking, the proposed method can be applied for E-Commerce with focus area on payment during online shopping as well as physical banking.
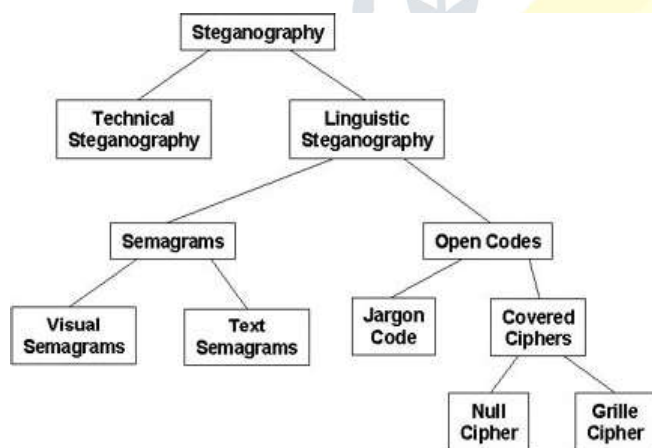

Figure 1:   Classification of Steganography

Visual Steganography

Visual Steganography is the art of "secret communication". Its goal is to transmit a message (information) hidden inside another visible message. The message is first coded by a sequence of small irregular images and then merged inside another image together with many other small images. The key concept behind steganography is that message to be transmitted is not detectable to casual eye. Text[3] , image[4] , video[5] , audio are used as a cover media for hiding data in steganography. In text steganography, message can be hidden by shifting word and line , in open spaces, in word sequence. Properties of a sentence such as number of words, number of characters, number of vowels, position of vowels in a word are also used to hide secret message.

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KDK College of Engineering, Nagpur in Association with Luminescence Society of India (LSI). He/she has presented his/her research work
as Invited Talk / Oral / Poster, entitled " **Structural Characterization Techniques of Materials** "

We wish him/her the grand success for his/her future endeavours.

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STRUCTURAL AND MORPHOLOGICAL CHARACTERIZATION OF MIXED SPINEL NANO-FERRITES AND CA-W NANO HEXAFERRITES.

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ABSTRACT

Nanoparticles of mixed spinel ferrite having generic formula of $(NiZn)xCu_{1-2x}Fe_2O_4$ and hexagonal Ca-W ferrite of formula $Ca_2Co_{2-x}Ni_xFe_{16}O_{27}$ were respectively prepared by sol gel auto combustion method and co-precipitation method. The prepared samples were annealed for 4 hrs at 800^oC to obtain the pure phase of Ni-Zn spinel ferrite and W-type Hexagonal ferrite. The X-ray diffraction confirmed the typical soft ferrite structure in spinel and magnetoplumbite hard ferrite structure formation of the ferrites with a single phase. The morphological characterization was done by using scanning (SEM) and transmission electron microscopy (TEM) respectively. The SEM reveals the randomly oriented cubic shape particles for spinel ferrite and a plate- like hexagonal structure for Ca-W ferrite. TEM counter-verified the cubic shape and further confirms that prepared sample lies within the nano meter scale. The Ca-W ferrite was studied for concentrations (x= 0, 1 and 2) for the effects of Ni^{2+} cationic substitution for Co^{2+} on the structural properties.

Keywords: Spinel ferrites, Hexa ferrites, auto combustion, co-precipitation, X-ray diffraction, SEM and TEM.

1. INTRODUCTION

The ferrites are the magnetic materials exhibiting properties which are commercially used for magnetic storage, microwave absorption and permanent magnets. The different types of ferrites include spinel type, garnet type and hexagonal ferrites. The ferrites with cubic structure known spinel ferrites are extensively attractive only because of its good performance and broad range of applications but there are also a group of ferrites with a hexagonal crystal structure, also known as hexaferrites.[1]Hexaferrites have a hexagonal crystal structure. The existing six types of hexaferrite structures are designated as: M, Y, Z, W, X and U. The general formulation of hexaferrites is MxMez(Fe2O3)y, the ratios of x/y for M, Y, Z, W, X and U are 1:6, 1:3, 1:4, 1:8, 1:7 and 2:9, respectively [2-4]. M in the chemical formula of hexaferrites represents the ions of Ba, Sr, Pb, Ca, La, and Me is usually transition element (Zn, Mn, Co, etc.). As is the same in the spinel structures, the substitution of Fe^{3+} ions can be other trivalent cations such as Al^{3+}, Cr^{3+}, etc.The Ni-Zn nanoparticles ferrite has a unique chemical and structural behaviour that makes it the prolific material in many medical and technological applications such as magnetic delivery of drugs, ferrofluids, MRI, recording media etc. The size of spinel ferrite if confined below 25 nm then the exceptional property called as superparamagnetism occurs that offers outstanding opportunities in manipulation of nanoparticles to enhance the various applications. Numerous synthesized methods are available to prepare the spinel ferrites viz. sol-gel auto combustion, co-precipitation, hydrothermal, solid state, miscelles, microemulsion etc. The present research work aimed to prepare the Ni-Zn mixed ferrites via two different chemical routes to understand how different synthesis methods

"Fabrication And Study of Thick Film SnO$_2$ Doped with TiO$_2$Gas Sensor to sense O$_2$Gas"- Environmental Study

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Abstract: *In the last few years, there has been an increasing interest in the electronic world for those aspects related to semiconducting gas sensor (SGS) materials. In the view of the increasingly strict legal limits for pollutant gas emissions, there is a great interest in developing high performance gas sensors for applications such as controlling air pollution and exhaust gases. The aim of project work is to find out the best material, which gives accurate count of gas sensitivity within shortest possible time.*

Gas sensors based on semiconductor metal oxides have been one of the most investigated devices of gas sensors. They have aroused the attention from many

researchers interested in gas sensing due to their low cost, ease of fabrication, simplicity of use and large

numbers of detectable gases. [4]. We need to develop good gas sensor working at relatively high as well as low temperature. We still need sensitive and selective semiconducting sensor in the field of sericulture, germination of seeds, utility of marshy lands, field of health etc.

The semiconductor gas sensors offer good advantages with respect to other gas sensor devices (such as spectroscopic and optic systems), due to their simple implementation, low cost, good reliability for real-time control systems and easy make [1-3].

Keywords: SEM, Semiconductor sensor, gas sensor, sensitivity etc.

I-INTRODUCTION

A gas sensor is a transducer that detects gas molecules and which produces an electrical signal with magnitude proportional to the concentration of the gas.

Unlike other types of measurement, types that are relatively straightforward and deal with voltage, temperature, and humidity, the measurement of gases is much more complicated. Because there are literally hundreds of different gases, and there is a wide array of diverse applications in which these gases are present, each application must implement a unique set of requirements. For example, some applications may require the detection of one specific gas, while eliminating readings from other background gases. Conversely, other applications may require a quantitative value of the concentration of every gas present in the area.

In this way, semiconductor gas sensors offer good advantages with respect to other gas sensor devices (such as spectroscopic and optic systems), due to their simple implementation, low cost, good reliability for real-time control systems and easy make [1-3].

Gas sensors based on semiconductor metal oxides have been one of the most investigated devices of gas sensors. They have aroused the attention from many researchers interested in gas sensing due to their low cost, ease of fabrication, simplicity of use and large numbers of detectable gases. [4]. Most of the companies provide metal oxide based gas sensors due to their applications range from detection of combustible or toxic gas to air intake control in automobile and glucose bio-sensors [5].

Characteristics of Sensors are static characteristics, dynamic characteristics, environmental conditions and structural related characteristics. Static parameters are the ones that describe the transfer function of a sensor, i.e., the relation between the input and the output of a sensor, when the input does not vary significantly with time. On the other hand, dynamic characteristic describes the performance of the sensor taking account of the variation of the stimulus with time.

Environmental, conditions are all those factors that interfere with the sensor mechanisms and thus change its

Financial Inclusion of Women Workers in Nagpur's Rural Areas

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Abstract

Since last three decades economic advancement has brought tremendous changes in the lives of rural women in developing country 'If rural area of India will develop then India become the developed country hence it is mandatory to focus on rural development especially rural women development as "she is the backbone of family". To make the India economically strong, rural women workers should be empowered. One of the paths is Financial Inclusion of rural women workers. Women who participate in any physical or psychological work on certain wages are called women workers. Rural women workers are constructively participating in the process of economic and social development of the society. In context to rural society, women workers are involved in agriculture, small scale supplementary occupations, own business, and other related occupations. Rural women workers are the key factors to eradicate poverty and improve the well-being of their families, yet they continue to face serious challenges as a result of gender-based stereotypes and discrimination that deny them equitable access to opportunity, resources, assets and service. This research focused on the real situation of financial inclusion of women workers in Nagpur's rural area. This study helps to find out the solution for financially excluded women workers and provide the recommendations regarding financial inclusion of rural women workers.

Introduction

In India women have been considered secondary due to the paternalistic family system. Men and women both are playing the equal role for survival of the society but it has been evidenced that no society in the world ever provided the equal status. Women workers play an increasing role for building the nation but they have remained backward due to the social evils, illiteracy, superstitions, male dominant culture and traditional values. Hence the profile of rural women workers has been tagged as a poor, superstitious, low skilled, illiterate and suppressed being. Rural women workers' access to information, assets and opportunities is very low because they are unorganized and underrepresented. In countries economic and social development women are playing very significant role especially rural women workers, as most of the population of India lives in rural areas. But they are always discriminated for the job opportunities, lower level of wages, poverty and lower status. This paper attempts to highlight the real factors which are required for the empowerment of rural women workers which starts from improvement of

Novel Applications in Polymers and Waste Management

Editors

Badal Jageshwar Prasad Dewangan
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CHAPTER 5

APPLICATIONS OF SMART POLYMERS IN EMERGING AREAS

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CONTENTS

ABSTRACT

Smart polymers (SPs) are one of the important classes of polymers and its applications have been increasing significantly. SPs are materials that respond to small external stimuli. These are also referred as "stimuli responsive" materials or "intelligent" materials. Last two to three decades shows explosive growth in this subject.

Smart materials field of research is wide and complex not only relative to the terms but also regarding to its technical aspects and applications. These polymers show important changes in their properties with environmental stimulation. The stimuli include salt, UV irradiation, temperature, pH, magnetic or electric field, ionic factors, etc. SPs have very promising applications in drug delivery, tissue engineering, cell culture, nanocarriers, textile engineering, bioseperation, optical storage device, and so on.

SPs including thermal, moisture, light-responsive polymers, and pH-responsive hydrogels have been applied to improve textile functionalities. SPs based on photoresponsive azobenzene moieties have been extensively explored as potential materials for high-capacity optical storage.

Smart polymeric nanocarriers are an important emerging area in drug delivery research. Conductive polymers have been recently used in fuel cells, computer displays and microsurgical tools, and also in biomaterials. This chapter is focused on the entire features of SPs and their most recent and relevant applications.

5.1   INTRODUCTION

The synthetic polymers can be classified into different categories based on their chemical properties. Out of these, some special types of polymers have emerged as a very useful class of polymers and have their own special chemical properties and applications in various areas. These polymers are coined with different names, based on their physical or chemical properties like, "stimuli-responsive polymers"[1] or "smart polymers (SPs)" or 'intelligent polymers" or "environmental-sensitive" polymers. The characteristic feature that actually makes them "smart" is their ability to respond to very slight changes in the surrounding environment.[1,15]

Compressive Strength of Cement & Fly Ash Mortar:- A Case Study

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Abstract— **The use of ash as a cement replacement makes the mortar less leaky to harmful ions because of its finer particle size distribution and pozzolanic reactions. This ends up in an increased high performance and additional sturdy mortar. Variety of studies of the results of the fly ashes on the behavior of cement pastes, mortars, and concretes were additionally distributed. Paper has examined the impact of ash used as replacement addition to the Ordinary Portland cement (OPC) on the compressive strength development of cement mortars of Khaperkheda thermal station. the mix proportion 1:3 of cement mortar within which cement is part replace with ash as 0%, 5%, 10%, 15% and 20% by the burden of cement. Compressive strengths of the mortar specimens were determined at seven and twenty eight days. Results show that strength will increase with the rise of ash up to an optimum value, beyond which, strength values begin decreasing with more addition of ash.**

Keywords- **Fly Ash, Mortar, Compressive Strength**

I. INTRODUCTION

Mortar may be a worldwide accepted building construction material altogether civil engineering structures. Most of the walls of buildings and residential homes are masonry walls, fabricated from stones, bricks or concrete blocks. Mortar will increase performance of the structure as very little as percentage of the overall volume of a masonry wall which might play as important role in concrete structure. (1)

Compressive Strength of Cement & Fly Ash Mortar: A Case Study

Proceedings of Sustainable Infrastructure Development & Management (SIDM) 2019

9 Pages
Posted: 29 Apr 2019

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Abstract

The use of ash as a cement replacement makes the mortar less leaky to harmful ions because of its finer particle size distribution and pozzolanic reactions. This ends up in an increased high performance and additional sturdy mortar. Variety of studies of the results of the fly ashes on the behavior of cement pastes, mortars, and concretes were additionally distributed. Paper has examined the impact of ash used as replacement addition to the Ordinary Portland cement (OPC) on the compressive strength development of cement mortars of Khaperkheda thermal station. the mix proportion 1:3 of cement mortar within which cement is part replace with ash as 0%, 5%, 10%, 15% and 20% by the burden of cement. Compressive strengths of the mortar specimens were determined at seven and twenty eight days. Results show that strength will increase with the rise of ash up to an optimum value, beyond which, strength values begin decreasing with more addition of ash.

Keywords: Fly Ash, Mortar, Compressive Strength

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   The Open Civil Engineering Journal , volume 14 , issue 1 , p. 188 Posted: 2020
   Crossref (https://doi.org/10.2174/1874149502014010188)

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"Fabrication And Study of Thick Film SnO$_2$ Doped with TiO$_2$Gas Sensor to sense O$_2$Gas"- Environmental Study

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Abstract:In the last few years, there has been an increasing interest in the electronic world for those aspects related to semiconducting gas sensor (SGS) materials. In the view of the increasingly strict legal limits for pollutant gas emissions, there is a great interest in developing high performance gas sensors for applications such as controlling air pollution and exhaust gases. The aim of project work is to find out the best material, which gives accurate count of gas sensitivity within shortest possible time.
Gas sensors based on semiconductor metal oxides have been one of the most investigated devices of gas sensors. They have aroused the attention from many
researchers interested in gas sensing due to their low cost, ease of fabrication, simplicity of use and large
numbers of detectable gases. [4]. We need to develop good gas sensor working at relatively high as well as low temperature. We still need sensitive and selective semiconducting sensor in the field of sericulture, germination of seeds, utility of marshy lands, field of health etc.
The semiconductor gas sensors offer good advantages with respect to other gas sensor devices (such as spectroscopic and optic systems), due to their simple implementation, low cost, good reliability for real-time control systems and easy make [1-3].

Keywords: SEM, Semiconductor sensor, gas sensor, sensitivity etc.

I-INTRODUCTION

A gas sensor is a transducer that detects gas molecules and which produces an electrical signal with magnitude proportional to the concentration of the gas.

Unlike other types of measurement, types that are relatively straightforward and deal with voltage, temperature, and humidity, the measurement of gases is much more complicated. Because there are literally hundreds of different gases, and there is a wide array of diverse applications in which these gases are present, each application must implement a unique set of requirements. For example, some applications may require the detection of one specific gas, while eliminating readings from other background gases. Conversely, other applications may require a quantitative value of the concentration of every gas present in the area.

In this way, semiconductor gas sensors offer good advantages with respect to other gas sensor devices (such as spectroscopic and optic systems), due to their simple implementation, low cost, good reliability for real-time control systems and easy make [1-3].

Gas sensors based on semiconductor metal oxides have been one of the most investigated devices of gas sensors. They have aroused the attention from many researchers interested in gas sensing due to their low cost, ease of fabrication, simplicity of use and large numbers of detectable gases. [4]. Most of the companies provide metal oxide based gas sensors due to their applications range from detection of combustible or toxic gas to air intake control in automobile and glucose bio-sensors [5].

Characteristics of Sensors are static characteristics, dynamic characteristics, environmental conditions and structural related characteristics. Static parameters are the ones that describe the transfer function of a sensor, i.e., the relation between the input and the output of a sensor, when the input does not vary significantly with time. On the other hand, dynamic characteristic describes the performance of the sensor taking account of the variation of the stimulus with time.

Environmental, conditions are all those factors that interfere with the sensor mechanisms and thus change its

An Android Application for Animal Welfare

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ABSTRACT

The Animal Welfare Application has been created to give assistance to the harmed or meandering animals in the city. This application encourages individuals to purchase just as sell residential animals. Also, this application will support the region and NGOs to connect with the animals who needed assistance. This application will be an added advantage to the NGOs and municipalities to convey their work in a smooth and viable way. This application gives a straightforward interface to their preferred clients to scan for animals and furthermore how to purchase or offer them. The client simply needs to post photos of the harmed or meandering animals, where does the animal has damage (assuming any) and include their area. There are likewise recordings in the application to give medical aid to the harmed animals by local people. No formal learning is required for the client to utilize. Along these lines by this all, it demonstrates it is easy to understand the application.

Keywords: Knowledge Sharing, Web Portal, Job Portal, Online Recruitment.

I. INTRODUCTION

The social association is bolstered by the web from a miniaturized scale level that incorporates two-route discussion to full-scale level that incorporates of making a worldwide online informal organization that interfaces a large number of individuals from everywhere throughout the world and causes them to interface with one another. Online life today symbolizes the motivation behind web-based life advertising is to advance a brand, expanding its permeability by creating associations with the purchasers through web-based social networking stages [1].

Web-based social networking was begun starting with no outside help to empower correspondence between individuals of two better places. This has made the world a little worldwide town where everybody can associate with one another effectively and successfully. It isn't utilized for setting up correspondence in any case, additionally to showcase about some item or even a few contemplations. Web-based life has turned into the exemplification of spreading social mindfulness about some immense societal issues, for example, ladies upliftment, Pet amicable networks, bigotry, and so on. The purpose for why online life is utilized as a stage for spreading such mindfulness is on the grounds that every individual in this world invests a portion of his/her leisure time via web-based networking media stages

Design and Implementation of Traffic Forecasting Model Using Data Mining

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ABSTRACT

The exploration and use of Intelligent Transportation System have grown quickly because of the interest in safe , helpful, agreeable and data based present-day transportation. It is a vital piece of the examination of the Intelligent Transportation System to think about various structures, activity administers on traffic stream and set up rapid, steady, and powerful traffic stream show. With the advancement of Intelligent Transportation System, mass traffic, stream information have been aggregated in the Intelligent Transportation System. An ever-increasing number of specialists have begun to dissect the data of traffic stream by utilization of innovative information mining technique, and find concealed transportation mode and guideline among the data of traffic stream. Information mining innovation gives an incredible examination and handling capacity of mass traffic information. This paper breaks down the attributes of traffic information in intelligent transportation framework and advances the framework show and the various leveled engineering of traffic information mining framework.

Keywords: Traffic Analysis, Data Mining, Technical Analysis, Traffic Flow

I. INTRODUCTION

Data mining innovation is a sort of data handling innovation created as of late. It gives a ground breaking and adaptable data investigation and handling work in substantial scale data. It has been connected in choice emotionally supportive network (DSS). Wellbeing, accommodation, comfort and the traffic request of the data, the exploration and utilization of intelligent transportation framework has accomplished fast improvement. Different propelled data innovation has been generally utilized in intelligent transportation framework, intelligent transportation framework has collected tremendous and complex traffic data, complex traffic data has advanced new prerequisites to the administration and preparing of data. The paper proposed the utilization of data distribution center, data incorporation stage, and so on. To arrange and oversee complex intelligent traffic data, and to complete data combination, data pressure, data institutionalization, data mining, data examination and handling. Data mining innovation is a sort of data investigation and preparing innovation that is delivered in the application and is situated to the application. It very well may be utilized to break down the gigantic traffic data rapidly and viably, and to unearth a lot of traffic data. In this paper, the traffic stream

A Novel IoT Based Approach for Fire Warning System

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ABSTRACT

The IoT Based Fire Warning System utilizing Arduino Uno R3, which is temperate and reasonable by all. This framework recognizes fire amid the presence of smoke or fire at a specific level and alerts the owner of the property effectively and rapidly by utilizing Wi-Fi Module. AT Mega micro controller of Arduino controls every one of these exercises like flame sensor, smoke sensor and Wi-Fi module. This framework would help everyone and it is affordable by all to have one at their home and it likewise alert from the human misfortune and harm, which may occur because of fire.

Keywords: A Novel IOT Based Approach for Fire Warning System, Fire Detection, AT Mega, Arduino

I. INTRODUCTION

Fire risks can be exceptionally hazardous and cause human misfortune. The main answer for moderate these misfortunes is reacting to such a crisis circumstance rapidly. In developed nations like USA, Singapore and so on, it is government guideline to introduce a fire caution in all homes towards alarming property holder and Fire administration workforce in time for activity. Such sort of Fire Alarm framework doesn't exist in creating nations like India which result in a parcel of misfortunes and harm.

In such circumstances, distinguishing the fire well ahead of time and cautioning would diminish misfortunes of property and life. A fire or smoke alert framework can be observed locally or remotely as suitable. Remote caution framework gives the advantage of observing the reason from a far off area and making quick move dependent on message got

dissimilar to manual framework. These Remote checking frameworks can be created in different ways utilizing advances like remote sensor systems, Ethernet, picture handling and other computerized correspondence innovations. Fact that these frameworks are dependable and have the parcel of focal points, there are still bunches of concern being perplexing, in the compact, non-independent, costly and having excess appurtenances. So there is necessity for building up a framework that is dependable and responsive just as basic, effectively implementable and financially savvy from the point of view of the family unit in creating nations.

Fire risks cause miserable occurrences throughout the world, particularly in creating nations where the fire-wellbeing measures are unstable and regularly lacking.

Fact that various propelled frameworks are utilized in commonsense situations, a dependable, simple

IOT Based Smart Agriculture System

Archana Dattu Thakare[1], Yogeeta Eknath Devghare[1], Vaishnavi Pradip Lanjewar[1], Shubhangi Baban Batki[1], Shubham Prakash Dhande[1], Rupali Shinganjude[2]

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ABSTRACT

Technological significance has been an extraordinary help for settling on choices in different fields particularly in agriculture. The improvement of agriculture has been on a work in progress for as far back as couple of years because of absence of Agriculture information and ecological changes. Here, it principally concentrating on the enhancement of rustic and farming improvement through cutting edge data and correspondence forms. It stretches out the agriculture association's capacity to address the issues of its ranchers. By utilizing IoT, it upgrades the simple access monitoring framework to lessen the human worry in agriculture. The monitoring got, through Arduino Uno and send to the controller in case of crisis, he can ready to see the factual study report by independent of area and engine has been ON/OFF consequently if the water level is diminished. This examination gives the ideal data at any moment of time from any piece of world and review their concern quickly at any piece of the area.

Keywords : Internet of Things, Soil Sensor, pH Sensor, Motor pump

I. INTRODUCTION

Agriculture has been the most imperative practice from soonest reference purpose of the human advancement. It has seen various cycles of enhancement in advancement with time. A not too bad cultivating practice is so far workmanship. Natural parameters, for instance, soil clamminess, temperature, stickiness, pH, sun put together radiation thus with respect to accept crucial part when all is said in the done enhancement of the plant. Temperature impacts countless activities, for instance, treatment, germination, etc. It is watched that, at the higher temperature, breath rate extends that result in reducing of sugar substance of nourishments developed starting from the earliest stage. At cut down temperatures photosynthesis activity is supported off [1].

Humidity is responsible for moistness incident and temperature organization of the plant. For high damp condition, evaporation will be less and more water will be submerged in the leaf an area. This results in expansion and improvement of life form in the porous domain of the leaf. Moistness is essential for seed germination and take-up of enhancements by the plant. Excess water may stop vaporous exchange among soil and the air which diminishes root breath and root improvement. The perfect dimension of clamminess ensures the strong improvement of the root and general progression of the plant [2]. A supportable methodology is required to keep up alter between these parameters and condition. In this way, there is a need of successful monitoring and control structure. In the present time, the standard systems that are used for irrigation, for instance, overhead sprinkler and flood form, isn't that much benefit. They realize a significant proportion of wastage of water and can similarly propel ailment, for instance, development improvement due to over sogginess in the earth. Automated irrigation structure is crucial for assurance of the water and by suggestion

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PG test of 250 TPH, 9.8 Mpa Circulating Fluidized Bed Combustion Coal Fired Boiler and 4 X 61.5 MW Condensing Steam Turbine.

Manish .R. Moroliya, K.D. Ganvir, N.D. Pachkawade

Abstract: The objective of this paper is study the various methods and procedures involved in performance guarantee of 250 TPH, 9.8 Mpa CFBC (Circulating fluidized bed combustion coal fired Boiler and 4 X 61.5 MW, 238 TPH, 8.83 MPA, 537 °C condensing turbine. Contractor has to demonstrate the guaranteed performance in accordance with relevant section of the Contract Document. The tests will be carried out as per ASME PTC 4.1 - 1991 code for 04 hours duration. The various values, parameters, conditions mentioned herein are in line with the contract specifications. In case of any clarification, the Purchase order shall be referred. This paper describes the procedure of performance test to be conducted for testing of 61.5 MW Steam turbine generator. Performance test will be conducted to establish the following agreed performance requirements. 1) Heat Rate 2) Auxiliary Power consumption

Keywords: performance guarantee test, circulating fluidized bed combustion, heat rate, auxiliary power consumption, power factor.

I.INTRODUCTION

The objective of this paper is study the various methods and procedures involved in performance guarantee of 250 TPH, 9.8 Mpa CFBC (Circulating fluidized bed combustion coal fired Boiler and 4 X 61.5 MW, 238 TPH, 8.83 MPA, 537 °C condensing turbine. Contractor has to demonstrate the guaranteed performance in accordance with relevant section of the Contract Document. The tests will be carried out as per ASME PTC 4.1 - 1991 code for 04 hours duration. The various values, parameters, conditions mentioned herein are in line with the contract specifications. In case of any clarification, the Purchase order shall be referred. This paper describes the procedure of performance test to be conducted for testing of 61.5 MW Steam turbine generator. Performance test will be conducted to establish the following agreed performance requirements. 1) Heat Rate 2) Auxiliary Power consumption.

Manuscript published on 30 September 2019.
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II.PG TEST OF 250TPH CFBC BOILER

The Boiler when working with its associated equipment is guaranteed to give the following performance:

Sr. No.	Parameters	Unit	Performance specified
1	MCR at outlet of Superheater	TPH	250
2	Steam temperature at Boiler Outlet	°C	540 ± 0/5
3	Steam pressure at Boiler Outlet	MPa (g)	9.8
4	Efficiency with specified fuel	%	87
5	Power Consumption at motor terminals and ESP corona power.(60MW)	KW	To be discussed

Also the above figures are guaranteed based on operating the Boiler as per the fuel quality and feed water quality mentioned below and following operating conditions.

Sr. No.	Indian Coal on ARB	Unit	Values
1.	Carbon	%	39.70
2.	Hydrogen	%	2.50
3.	Nitrogen	%	1.00
4.	Sulphur	%	0.50
5.	Oxygen	%	9.00
6.	Moisture	%	7.30
7.	Ash	%	40.00
8.	Volatile	%	20.00
7.	GCV	Kcal/Kg	3750

Feed water temperature at economizer inlet = 235 °C

Ambient Temperature = 30 °C

Relative Humidity = 60 %

Future of nanotechnology: An overview

🛒

Shubhangi P. Gurway ✉ ; Pranjali R. Tete

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Life is getting interesting because of the invention of new technologies every day. With the growing world it becomes necessary to boost up the level of technology and carry out extensive scientific investigations and also ensure the large-scale application of new advanced technologies. Nanotechnology is one of the advanced technologies nowadays which represents that the 21st century would be the century of nanotechnology. Entire world of Science & Technology focusing their research on reducing the size of particles and compacting the size of material. Nanotechnology is the promising method for manipulation of individual atom & molecules. It is defined as the study and use of structures between 1 nanometer and 100 nanometers in size. To give an idea of how small that is, it would take eight hundred 100 nanometer particles side by side to match the width of a human hair. The objective of this paper is to introduce nanotechnology as a powerful tool of science & technology in future.

Topics

Nanotechnology

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Design and calculation of various components of GOKART system 🛒

A. D. Anjikar ✉ ; Mr. Aditya Wani; Mr. Sarvesh Mankar; Mr. Hitesh Bhude

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This paper concentrates on explaining the design and engineering aspects of making a Go Kart for Students Kart Design. This report explains objectives, assumptions and calculations made in designing of Go Kart. The primary objective is to design a safe and functional vehicle based on rigid and torsion-free frame. Well mounted power train and to understand the finer aspects of vehicle design with the ulterior motive of fabricating prototype vehicle, while strictly adhering to the safe drive. The secondary objective is to enhance driver's comfort and safety, and to increase the performance and the manoeuvrability of the vehicle.

Topics

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Design of Dual-Antenna Passive Repeater Basedon Machine Learning

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Electronics and Communication, PBCoE, Nagpur

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Abstract: *In 5G communications, Small cells are one of the main approaches to achieve data diversion and improve network capacity. The problem of blind area is partially solved by this way, because the distances between small base stations and users are cut short. However, the intensive deployment of small base stations will bring about complex disturbances and large amount of energy consumption. To overcome this challenge, we propose a new approach of dual antenna passive repeater, which consists of a four-element patch antenna array, a feeding network and an improved micro-strip antenna with added parasitic patches. It can be used in co-operation with small base stations to replace the function of the small base station in a certain point, change the beam pointing, and achieve wide-angle scattering to realize the blind area signal coverage. The unsupervised learning which is a branch of machine learning is used to optimize the antenna parameters. Simulation results show that our proposed passive repeater can effectively reduce the path loss and improve the signal power of the receiving end.*

I. Introduction

THE fifth generation (5G) of mobile communication system should have ultra-high spectrum utilization and ultralow power consumption, and will be significantly improved in transmission rate, resource utilization, wireless coverage performance and user experience, compared with 4G. The demand for future data traffic grows exponentially, and the most feasible solution to increase network capacity is cellular densification. However, more cellular network infrastructures and data lead to a huge energy consumption in mobile cellular networks, and Small Cell Networks (SCNs) technology therefore comes to its way. The small base stations with dense deployment are low in transmission power, close to the users, small in size and low in cost.

Intensive deployment of SCNs can also alleviate the problem of radio blockage in some blind areas. In the macrocellular mobile communication environment, the large penetration loss and reflection loss caused by barrier occlusion greatly weaken the signal level from the base station to the user's Non-Line-of-Sight (NLOS) path, dramatically reducing the efficiency of the data transmission and cutting down the Signal Noise Ratio (SNR). These areas constitute a blind areathatcan'tbeilluminated by the signal. The small base stations can be widely deployed in the narrow streets, high buildings in the commercial area, multiple wall-blocking indoor office areas, shopping malls, subway stations and other complex areas surrounded by walls, forming a full coverage of communication. These small base stations can effectively increase the channel capacity and improve the communication quality while realizing data shunting. However, there are many problems in the intensive deployment of small base stations.

i) The interference between the base stations is very serious and complex, causing severe impact on the user experience in the small cell, especially around the edge. Since the small cell has a smaller coverage radius and is closer to the user, the interference between small cell networks is more serious than that between traditional macro-cells. In a hybrid network, cross-layer interference also exists between small cells and macro-cells.

ii) The energy consumption of small cell network base stations is huge. Research statistics show that the energy consumption of the base station accounts for about 60 percent to 80 percent of the entire communication network. When there is less communication data transmission at night, the energy consumption of the base station will account for about 90.

Due to the random deployment and resource allocation of small base stations, it is difficult to find a balance between distance and quantity. In order to solve this contradiction, many passive repeaters are designed to be used in cooperation with the small base station to replace the function in a certain position. By installing a

UWA Channel for Data Communication of UWASN using OFDM

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ABSTRACT

In this paper, the Underwater Acoustic Channel modeling and its estimation for successful data communication between the underwater nodes is presented, since the underwater wireless communication is a rapidly growing area of research and engineering. For designing the underwater sensor network, underwater channel is required for efficient communication. The acoustic channel used for propagating the underwater data from transmitter to receiver, in place of RF signal because RF signal attenuates under the water and Optical signal can be used for long distance communication. Therefore; the acoustic signals are used for data transmission. This channel is having formidable challenges like slow transmission of data, prescribed bandwidth, varying transmission delay and many more, which gives multipath fading and Doppler Effect. In this paper, we present the estimation and modeling of efficient underwater acoustic channel for data communication. The channel is modeled based on designed algorithm for noise interference, transmission losses, multipath fading effect, Doppler Effect, transmission delay and bandwidth limitation. Acoustic signal scattered and propagates very slow under the water, due to which data may get scattered and lost. These issues are solved using OFDM approach. As the signal gets scattered in to the water, therefore orthogonal frequency division multiplexing technique is implemented, which divide the carriers into equivalent sub-carriers. Here 16 to 64 sub-carriers at the frequency of 3.6 MHz and each sub-carrier are made to process 256 bits per sub-channel; therefore, maximum 4096 bps to 16384 bps can be actually transmitted with the help of each sub-carrier. Based on this concept, the system is simulated for 25 numbers of nodes. Here, we design the acoustic channel is particularly modeled based on Gaussian distribution, where the delay varies with time rapidly. The Orthogonal Frequency Division Multiplexing technique, which is used to overcome the problem of scattering by using the method called maximum entropy modeling method. In this method, the delay between transmitting signal and received signal has been calculated referred as Doppler Spread. It also calculates the bit transmitted rate and bit error rate by diving the channel in to sub-channels using OFDM. Because acoustic signal when travel under the water it get scattered in almost all direction due to which fading problem increases also it increases the issues of Doppler spread, Doppler shift, Doppler delay, etc. In this work, the system design and its simulation results are shown, the underwater acoustic communication channel is model using Maximum Entropy modeling technique for Acoustic channel simulation with its root mean square. Doppler spread is calculated as 0.5 to 2 Hz. The Acoustic communication channel satisfy smart antenna approach by using IEEE standard 802.15.4 which gives the data transmission rate up to 250 Kbps at 2.4 GHz carrier frequency for at least 2m vertical communication link and

Analysis of Gram-Negative Escherichia Coli Bacteria in Dairy Experimentation

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Abstract - Consumers purchase pasteurized fluid milk with the belief that they are taking home a wholesome, nutritious, good quality product. Microbial contamination directly affects the quality of food material. The standard procedure for isolating bacteria from samples was followed. For each sample, bacteria colony count was calculated and also analysed that E. coli contamination is present or not.

Keywords - *E.Coli., SPC count, micro-organism, bacteria.*

I. INTRODUCTION

To check the quality of milk and milk product, generally conventional methods are used for microbiological analyses. These analyses are maintained for various stages of life of milk from its raw condition up to finalised stage of market.

To detect contamination and microorganisms, a number of modified tests or stress tests, have been developed. To check the quality of milk material, two essential tests have been performed at every milk industries.

1. Bacteria population counting
2. Coliform contamination testing in milk sample

A. Bacteria Population Counting

This is a classical conception, but the different phases have not always been defined in the same way.

1. Lag phase: growth rate null;
2. Acceleration phase: growth rate increases;
3. Exponential phase: growth rate constant;
4. Retardation phase: growth rate decreases;
5. Stationary phase: growth rate null;
6. Phase of decline: growth rate negative.

This is a generalized and rather composite stage of the growth of a bacterial culture.

B. Coliform contamination testing in milk sample

Coliform add up is performing by plating milk model on violet red Bile agar (VRBA), which is discriminating for these categories of gram-negative microorganisms. The plates are incubated at 32°C for 24 hours after which dark red colonies are counted. Since VRBA may allow growth of non-coliform gram-negative bacteria (generally smaller, light coloured colonies), any growth would indicate a PPC concern.

II. EXPERIMENTATION

A. Milk Sample Preparation

The experiment has been set up to record various information at different range of temperature and then to establish relationship between bacteria content and pH, and the accuracy of this relationship in different temperatures. In dilution process, 9 ml sample of each milk sample used for testing has prepared. Comparing the pH measurements for three temperatures could establish that temperature differences do not affect the

Sensor Based Smart Farming and Plant Diseases Monitoring

Tarannum U. Pathan, Saurabh Chakole

ABSTRACT--- In India, farming is the primary source of income in almost all villages. Depending upon the weather conditions and availability of power supply, farming systems in India are strategically utilized .With the acute water crisis being faced by our country and the depleting water level, farmers now face optimum water management issues. Power supply to farmers is untimely and not reliable, nearly one-fifth of India's rural households still remain in acute darkness. The proposed system mitigates and provides a cost effective solution to address these issues. The system detects the water requirement of the soil based on soil moisture, temperature and humidity sensors. A threshold water level is set based on the plant type to automate the motor on/off operations. This is a convenient and affordable system which detects the supply voltage to automatically control motor operations. This system detects the phase voltage by using a phase detection circuit and sends a message to the farmer regarding availability of power supply. By using above sensors this system can also be tuned for disease monitoring. It also consists of a look up table which provides early stage plant disease prediction based on disease monitoring. ARM-7 LPC2148 is used which works on 3.3V power supply. The proposed model provides optimum use of resources for irrigation, reduces water requirement and helps to increase the crop yield.

Keywords: ARM 7, Automated Irrigation, Disease Monitoring, GSMSIM 800, Optimum Irrigation

I. INTRODUCTION

Indian Economy mostly depends on agricultural sector as about 70% of the population depends on it either directly or indirectly and about 58% of the employment is through agriculture. Also, Indian farmers' livelihood depends largely on agriculture [1, 2]. Crop failure is one of the major reason for mass farmer suicides in vidarbha and across the country. Some common reasons of crop failure include lack of proper monitoring of soil moisture, humidity and temperature. The diurnal temperature and humidity variations is observed in the real field conditions [3]. Due to high level of humidity loss of yields, root diseases and foliar problems may occur. While low humidity leads to hard growth, crops may take longer time to gain a salable size and the overall growth would not be good [4]. Thus, loss of quality varies according to the level of humidity/moisture levels, which in turn decreases the selling price and increases the cost price thereby reducing the profit of farmers.

To improve the crop production with better quality of crops, optimal irrigation is required with regular monitoring. Apart from the optimum irrigation, proper monitoring of crop health and plant diseases will further help to increase the crop yield and avoid crop wastage. Hence, in this paper we propose a system which can provide the optimal irrigation to crops by controlling the water pump. Further, this system can also be used for the plant disease monitoring.

II. LITERATURE SURVEY

Researchers in [5, 6] presented a new wireless multi-sensor based technology for the automatic measurement of soil moisture consisting of three different sensors with different sensing techniques. The proposed system takes advantage of resistive, capacitive and Dual Probe Heat Pulse (DPHP) [7] based soil moisture sensors. Here, each sensor node was equipped with a controller, a wireless data communication module, a solar powered battery module and instrumentation. Each sensor measured the moisture content of soil once per hour.The results of these sensors were then compared on the basis of power, accuracy and cost.

Researchers in [8] have proposed a scheme to make agriculture smart using IoT and automation. Following were the highlights of the proposed scheme.

A robot controlled by GPS was used to perform tasks like spraying, weeding, keeping vigilance, bird and animal scaring, moisture sensing, etc.

Accurate real time field data was collected using an intelligent and smart control decision making system.

Theft detection, Temperature maintenance and Humidity maintenance using Smart warehouse management.

All the devices used in this scheme were controlled through either computer or any smart remote device. The hardware devices used in this scheme includes micro-controller, actuators, Wi-Fi or ZigBee, sensors and camera.

Researchers in [9] have presented a smart irrigation system in which sensors were used to sense where and when irrigation was required based on the environmental parameters and a Truth table. The proposed system comprises of a decision making system which includes a micro-controller and its interfacing circuitry, sensors and a water pump. In the proposed system, the locations that require irrigation were narrowed down using sensors and only that particular part was sprinkled using the sprinklers. In this way, the water was not sprinkled over already damped locations. Sensing parameters that were taken into consideration include moisture, humidity and temperature. In order to determine the orchard soil condition remote transmission and automatic precise irrigation was used. System was equipped with a low power MSP430F149

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