Criterion 3

3.3: Research Publication and Awards

3.3.1 Number of research papers published per teacher in the Journals notified on UGC care list during the last five years

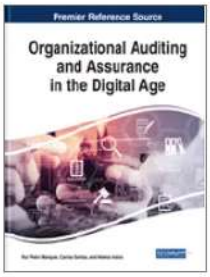
Sr. No.	Parameter	Academic Year	No. of Research papers
1	Research Papers	2021-22	85
2		2020-21	65
3		2019-20	71
4		2018-19	68
5		2017-18	22

M. College of Engineering Pune-52

Academic Year
2018-19

Academic Year
2018-19

Academic Year
2018-19



To Monitor and Detect Suspicious Transactions in a Financial Transaction System Through Database Forensic Audit and Rule-Based Outlier Detection Model

Hermeet Kaur Khanuja (Marathwada Mitra Mandal's College of Engineering, India) and Dattetraya Adane (Shri Ramdeobaba College of Engineering and Management, India)

Source Title: Organizational Auditing and Assurance in the Digital Age
Copyright: © 2019 | Pages: 32
DOI: 10.4018/978-1-5225-7356-2.ch012

Abstract

The objective of this chapter is to monitor database transactions and provide information accountability to databases. It provides a methodology to retrieve and standardize different audit logs in a uniform XML format which are extracted from different databases. The financial transactions obtained through audit logs are then analyzed with database forensic audit. The transactions are examined, detected, and classified as per regulations and well-defined RBI antimony laundering rules to obtain outliers and suspicious transactions within audit logs. Bayesian network is used in this research to represent rule-based outlier detection model which identifies the risk level of the suspicious transactions.

Chapter Preview

Top

Introduction

As per, FICCI- Federation of Indian Chambers of Commerce and Industry – Pinkerton India Risk Survey 2017, 'Information & Cyber Insecurity' has become more distinct due to the change that the nation which is undergoing towards digitization of various assets. It is said in the FICCI release, that the recent demonetization saw a spike in the number of people resorting to online platforms for financial transactions. This is posturing greater risks for users, including businesses, e-commerce etc. Also there is tremendous increase in subscribers to the Unique Identification Number (UIN) where personal information is stored as data which are linked to the banking details. The businesses are legally required to retain certain types of information and data in their databases for various periods of time as per requirements in every state and country; hence it becomes critical to stop deleting any form of electronic records that might be related to the case. This is giving opportunities to hackers to commit a breach. This may also lead to increase in existing risks in the cyber domain, such as money laundering and identity theft.

Monitor and Detect Suspicious Transactions With Database Forensic Analysis

Harmeet Kaur Khanuja (MMCOE, SPPU, Maharashtra, India) and Dattatraya Adane (Shri Ramdeobaba College of Engineering and Management, Nagpur, India)

Source Title: Journal of Database Management (JDM) 29(4)
 | Pages: 23
DOI: 10.4018/JDM.2018100102

Abstract

The extensive usage of web has given rise to financially motivated illegal covert online transactions. So the digital investigators have approached databases for investigating undetected illegal transactions. The authors here have designed and developed a methodology to find the illegal financial transactions through the database logs. The objective is to monitor database transactions for detecting and reporting risk level of suspicious transactions. Initially, the process extracts SQL transactions from logs of different database systems, then transforms and loads them separately in uniform XML format which gives the transaction records and its metadata. The transaction records are processed with well-defined rules to get outliers present as suspicious transactions. This gives the initial belief of the transactions to be suspicious. The belief value of transactions is further rationalised using Dempster-Shafer's theory. This verifies the uncertainty and risk level of the suspected transactions to assure occurrences of fraud transactions.

Article Preview

Top

Introduction

The technological advancement and the globalization of online banking provisions for finance and the payment systems have widened the scope of concealing illegal money and easy mobility of funds across the borders. These are known as suspicious activities or illegal transactions incorporating money laundering. Theodosios Tsiakis et al. (2015) recommend the need to manage and regulate the risks calls for Information Technology Security Governance (ITSG) program as a means to deliver value business and mitigate Information Technology (IT) risks. Their objectives are to implement information security governance (ISG) approaches for e-banking through standards, guidelines on governance, risk management methods and internal controls for e-banking. Streff (2007) outlines the importance of IT security to banks which must comply with law and regulation of banks. D. Rafal et al. (2012) mentioned an illegal transaction of money is now a global problem which can undermine the integrity and stability of financial markets and financial institutions (FI). As per Reserve Bank of India (RBI, 2017), the Banks and FIs should exercise ongoing due diligence with respect to every customer and closely examine the transactions to ensure that they are consistent with the customer's profile and source of funds as per extant instructions. Palshikar et al. (2014) suggests that prevention, detection and control of money laundering are crucial for the financial security and risk management of financial institutions. Conversely, Anti-Money Laundering (AML, 2015)

Enhanced e-Learning Experience using Case based Reasoning Methodology

Swati Shekapure[1], Dipti D. Patil[2]
Research Scholar, Sant Gadge Baba Amravati University, Amravati, India[1]
Information Technology Department, MKSSS's Cummins College of Engineering for women, Pune, India[2]

***Abstract*—In recent year's improvement in innovation includes new limits for verifying data that will incite essential changes in eLearning. The user can see e-learning material subject to the reference given to them and select the best approach to see the resources. This proposed system addresses retrieval, reuse, revise and retain phases of CBR. For building personalized e-Learning, this work identifies different feature set such as learning style, learning object, knowledge level, and problem list. For constructing this model used case-based reasoning along with a k-nearest neighbour. Role of the K-nearest neighbour method is to identify the perfect k factor for better analysis for calculation of accurate retrieval process. There is further addition of new cases based on the simulation of new user history limit to a certain threshold value. This model acquires dynamically incremental dataset for classification. Further, there is time and accuracy comparison on dataset done by K-nearest neighbour, decision tree and support vector machine. Eventually, eLearning spares time, upgrades the learning knowledge and gives scholarly achievement.**

Keywords*—K-nearest neighbour method; eLearning; learning objects; learning style; case based reasoning

I. Introduction

The world has changed generously over the most recent 100 years, and instruction needs to change also to guarantee our youngsters are completely arranged Today, a customized learning approach that utilizes innovation in the class room to pace guidance to coordinate student's needs and tailor figuring out how to their interests function for the both students and instructors [4].

Instead of passively accepting and emphasizing data, students' in 21st century customized learning situations play a functioning job in their training and adds to their very own learning. They can work with instructors to set learning objectives [1] for themselves, and can move in the direction of them through mixed getting the hang of, consolidating face to face collaboration with their educator and the utilization of training innovation.

II. Case Base System

The term case-based reasoning [8] comprises of three words: case, experience, and problem. A case is an experience of previously occurred problems which are stored in a case base. The representation of cases would do in many ways. A case base is nothing but a collection of represented cases. Store cases are a primary foundation for reasoning. The reasoning to be done in a CBR system is different from an argument in logic and databases. CBR is not based on true rulebooks and accurate decisions. Applying CBR is approximate reasoning. It may happen that the solution in a recorded case was reasonable for its original problem, this would not be the case for a new-fangled problem. This option is created on the universal fact that the condition in the noted knowledge may not be accurate or similar to that in the new-fangled problem. The result of the reuse of similar case depends on the similarity of previous experience to a new challenge.

A. CASE

The evidence documented historical knowledge will be essential, be subject to the area of the inventor, it is called problem space. In the design of a problem-solving a CBR system, the particulars will generally comprise the requirement of the problem and the appropriate characteristics of the situation that are the conditions of the problem. The dynamic part of the case is the explanation that was functional in the previous state. CBR system solution may include facts of the solution or process that are involved in obtaining the solution. It also consists of the attained measure of success in the case explanation, if the cases in the case base have reached different grades of success or failure. When an assessment finished amongst the information stored in a model/rule-based system, and that warehoused in a case base, it seems that the evidence in the case base is of a further detailed nature than that of the model/rule-based system. Although the information in a model/rule-based system has preoccupied so that it related in the broadest diversity of circumstances as possible, the information controlled in case base residues precise to the case in which it is stored. [6] Since the accurate information of a case base, it has been discovered that associated information and knowledge relevant in a particular condition warehoused in neighboring contiguity. Therefore, relatively illustrating information from an extensive net, the information desired to answer a precise unruly instance can establish a cluster. The case base in the CBR structure is the recollection of all earlier warehoused cases [14]. Three broad areas have to consider when creating a case base.

- The construction and illustration of the instances themselves.
- The recollection prototype used for establishing the entire case base.
- The choice of keys which are used to categorize every case.

International Journal of Engineering and Techniques - Volume 4, Issue 4, July - Aug 2018

RESEARCH ARTICLE OPEN ACCESS

Proposed Approach for Detection of Suspicious Activity using Provenance Data in Cloud Environment

Minal Bharat Pokale, Dr. Sandeep Chaware

(Computer Engineering, Savitribai Phule Pune University/MMCOE, Karve Nagar, Pune)

Abstract:

Cloud computing is one of the powerful computing that connect the whole world. Huge amount of data get uploaded over cloud so that it can be accessible by the user at any time and any point. Security must be concerned related to confidentiality of data, integrity of data, availability etc. Data stored over cloud is physically not accessible to the user. Data modification can be done by unauthorized user or by some malicious activity so user needs to be ensure that their data is secure or not. Therefore mechanism is required where user can check if integrity of its data is maintained or compromised. There are various methods are available such as mirroring but it require more storage space. Sometimes we need TPA to verify the data. In this, user check the integrity of its data store over cloud environment and detect the suspicious activity. For this new scheme "Data Provenance" is used, that collect the history data of user. On the basis of which, suspicious activity is detected. Provenance data is used to collect the history data and identify the user behaviour. Using this we reduce the need of TPA and replication of data item on client side for integrity checking as checking part is done over cloud infrastructure.

Keywords **— TPA (Third Party Auditor), Provenance Data, SHA (Secure Hash Algorithm), Cloud Server.**

I. INTRODUCTION

Cloud Computing changed the world around us. Since data is getting bigger and needs to be accessible from any point on any devices, people moving their data to the cloud environment. Therefore storing data to the cloud is gaining popularity. Cloud Computing is nothing but the virtual pool of various resources. Centrally all the information of customer is stored over cloud so that it accessible from anywhere. As cloud computing is pool of resources, these resources are offered to the user via internet. Cloud computing offers storage services. In recent year, storage in cloud computing gained popularity among both companies and private users. However the issues such as availability, confidentiality, reliability and interoperability is need to be considered. But the most important point that need to be considered is security how organizations gives assurance about the security of the document or information that stored by user over cloud. Cloud Computing is an important concept in computer development. This concept refers to the use of capacity and storage of computer and servers over the internet. Hardware Software resources used by user at remote locations is managed by third party. Examples of cloud services are online file uploading, storing, social networking site, google drive, web mail etc.

Clouds can provide many types of services like applications (e.g., Google Apps, Microsoft online) ,infrastructures (e.g., Amazon'sEC2,Nimbus), and platforms to help developers write applications (e.g., Amazon's S3, Windows Azure).We store sometimes sensitive data over cloud, for example, medical records and social networks. The user validity is who stores the data is also verified. The cloud is not totally secure because anyone can do modification and violates the integrity of the data store over cloud. So the data must be stored in the form that is not readable to the outsider or unknown person.

Sports Team Prediction and Analyzing Data

[1]Komal Laghate, [2]Kamlesh Laghate, [3]Rohan Memane, [4]Shounak Kulkarni ,
[5]Dr. Sandeep Chaware
[1 2 3 4]TE students,MMCOE,Pune,India.
[5]HOD,MMCOE.Pune,India.

Abstract : Prediction is something which is likely to happen. Pre means before and diction is the kind of talking. Predictive analysis helps us to collect proper data out of raw data available which is need of the day since data keeps on diversifying and changing every time. Predictive models includes classification models, regression models. So this models consists of various algorithms which are applicable in various domains and sports team prediction is one of them.This presentation mainly focuses on naive bayes technique which is used for prediction. Prediction in wide areas is the necessity of the day so naive bayes classifier is the appropriate technique for having efficiency and optimality in prediction.

Keywords - *naive bayes, machine learning*

I. INTRODUCTION

In case of sports, team decision is the important factor which is related to win or loss of the match, so naive bayes will help us to choose the players which will help us win the matches. In many real-life sports games, spectators are interested in predicting the outcomes and watching the games to verify their predictions. Traditional approaches include subjective prediction, objective prediction, and simple statistical methods. However, these approaches may not be too reliable in many situations. We will present a sports data mining approach, which helps discover interesting knowledge and predict outcomes of sports games such as cricket. Our approach makes predictions based on a combination of different measures on the historical results of the games. This work presents a system that facilitates prediction of the winner in a sport game. The system consists of methods for: collection of data from the Internet for games in cricket, preprocessing of the acquired data, feature selection and model building.[2]

II. SYSTEM ARCHITECTURE

THE FOLLOWING FIGURE GIVES THE INFORMATION OF OUR SYSTEM ARCHITECTURE:

Smart Traffic Control System:Proposed Model

Dr.S.M. chaware
Head of Department,
Department of Computer Engg,
Marathwada Mitra Mandal's college of Engineering,Pune.,India

Aditya Shelke
UG Student,
Department of Computer Engg,
Marathwada Mitra Mandal's college of Engineering,Pune.,India

Abhijeet Gajbhiye
UG Student,
Department of Computer Engg
Marathwada Mitra Mandal's college of Engineering,Pune.,India

Sanket Puranik
UG Student,
Department of Computer Engg,
Marathwada Mitra Mandal's college of Engineering,Pune.,India

Hrishikesh Patil
UG Student,
Department of Computer Engg,
Marathwada Mitra Mandal's college of Engineering,Pune.,India

Abstract : The traffic congestion problem can be considered as a major problem in development of a city.Technology based solutions provided till date, were not totally optimal to handle this issue.
Work done till now have used techniques like Ultrasonic sensor,Infrared sensor,Graph theory,Image processing,Air quality based detection etc.Every used technology used so far had its own benefits and issues.Ultrasonic-sensor model had limitations like use of too many sensors to get exact idea of traffic.Ultrasonic-sensor model also formed a bulky architecture.Infrared-sensor model has issues like short range and interference with sunlight.Graph Theory based model is poorly applicable for large scale data.Image processing model was unable to detect exact number of vehicles.Air quality based model only considers pollution as a scale to measure pollution which is unable to give exact picture of pollution.In proposed system we are using the combination of image processing and ultrasonic sensor along with pollution detection sensors to get the values of parameters like number of vehicles,pollution levels and density of traffic.Servo motor provides wide coverage of area,due to which the number of ultrasonic sensors required are reduced.Proposed system will come handy in the scenario where traffic density is varying and noise and air pollution levels are considerably high.

KeyWords **- image processing, air quality sensor, noise sensor, servo motor, dynamic traffic timer.**

I. INTRODUCTION

Traffic congestion is a severe problem in many modern cities around the world.Traffic congestion has been causing many critical problems and challenges in the major and most populated cities. To travel to different places within the city is becoming more difficult for the travelers in traffic. Due to these congestion problems, people lose time, miss opportunities, and get frustrated. Traffic congestion directly impacts the companies. Due to traffic congestion there is a loss in productivity from workers, trade opportunities are lost, delivery gets delayed, and thereby the costs goes on increasing.

To solve these congestion problems, we have to build new facilities and infrastructure but at the same time make it smart. The only disadvantage of making new roads on facilities is that it makes the surroundings more congested. So for that reason we need to change the system rather than making new infrastructure twice. Therefore many countries are working to manage their existing transportation systems to improve mobility, safety and traffic flows in order to reduce the demand of vehicle use.

This project uses simple electronic components such as cameras, sensors and a Microprocessor for auto change of signal according to traffic density.

Microprocessor is the brain of the project which initiates the traffic signal at a junction. The LED's are automatically on and off by making the corresponding port pin of the micro controller high. At a particular instant only one green light holds and other lights hold at red. During transition from green to red, the present group yellow led and succeeding group yellow led glows and then succeeding group led changes to green. This process continues as a cycle.

Vehicle Traffic Analysis System

[1]Aditya Bagad, [2]H. K. Khanuja, [3]Tejas Gawate, [4]Jayesh Gore, [5]Sarthak Mandlik
[1, 3, 4, 5]Department of Computer Engineering, Marathwada Mitra Mandal College of Engineering, Pune, India

Abstract: The volume of traffic on the roads is increasing every day. There is a dire need of developing an automation system that can effectively control the traffic on the roads. The traffic data of multiple vehicle types on roads is also important for taking various decisions related to traffic. Vehicle counting process provides vital and appropriate information about traffic flow and traffic peak times in roadways. An acceptable technique to achieve these goals is using computer vision and digital image processing methods on roadway camera video outputs. Computer Vision based techniques are more suitable because these systems do not disturb traffic while installation and they are easy to modify. This paper describes the methodology used in image processing for traffic flow counting and classification using different library and algorithms with real-time video analysis. An implementation of proposed technique has been performed using Python programming language.

Index Terms **- Vehicle Counting, Vehicle Classification, Vehicle Detection, Background Subtraction, Video Image Processing, Traffic Analysis.**

I. Introduction

The goals of Intelligent Transportation System (ITS) are to enhance public safety, reduce congestion, improved travel and transit information, generate cost savings to motor carriers and emergencies operators, reduce detrimental environmental impacts, etc. ITS technologies assist states, cities, and towns nationwide to meet the increasing demands on the surface transportation system. The efficiency of an ITS system is mainly based on the performance and comprehensiveness of the vehicle detection technology. Vehicle detection and tracking are an integral part of any vehicle detection technology since it gathers all or part of the information that is used in an effective ITS.

The traffic problem is an important issue happening in many cities in the world. Traffic volume, parking areas, the speed of a vehicle, lane changes, and vehicle classification are fundamental data for a variety of transportation projects ranging from transportation planning to modern Intelligent Transportation Systems. Traffic volume studies are conducted to determine movements of roadway vehicles, types of vehicles at a given location. This data can help organizations identify critical flow time periods, determine the influence of large vehicles, document traffic volume trends. The requirement for moving vehicle detection, tracking, and counting is getting very important for traffic flow controlling, planning, monitoring. A video sequence of the road can be processed and analysed to detect, classify and count vehicles.

II. Literature Survey

Nilakorn Seenouvong, Ukrit Watchareeruetai, Chaiwat Nuthong, Noboru Ohnishi and Khamphong Khongsomboon in [1] proposed background subtraction method to find object in the frame and image processing techniques like thresholding, hole filling and adaptive morphology operations are used for detection of moving vehicles. *In* this paper the accuracy of the proposed method is 96 % and was implemented in C++ using OpenCV API.

Nilesh J. Uke and Ravindra C. Thool in [2] developed moving vehicle detection for measuring traffic count using OpenCV Application Programming Interface (API) and by using background subtraction, image filtering, image binary and segmentation methods. The implemented system can count moving vehicle from already recorded video.

Da Li, Bodong Liang, Weigang Zhang in [3] developed a real time vehicle detection, tracking and counting system. In this paper two methods are applied virtual detector and blob tracking method to verify accuracy of proposed system. Authors compared their systems with traditional and other systems. Also, the combination of Otsu's thresholding method and moving cast shadow detection method is used to overcome previous problems in vehicle tracking and detection. The accuracy rate for virtual detector method and blob tracking method is 97.1% and 98.4% respectively. The system was developed in C++ using OpenCV API.

Abirami Ramanathan, Min Chen in [4] proposed a system for vehicle tracking, counting and classification. Vehicles are tracked using block matching algorithm. The system in this paper uses shadow detection algorithm to detect shadow and find object shadow boundary location once the vehicle is detected. Challenges like detection and tracking of object when that object is hidden by other object, shadowy conditions are tackled by proposed system.

Reha Justin, Dr. Ravindra Kumar in [5] proposed a system for counting and classification of vehicles based on various video processing techniques such as object detection, edge detection, frame detection, frame difference and all the processing is executed using python. This paper describes methods of classification and counting of vehicles in real time. Kalman filter is used for filtering the noise and estimating the tracked object.

Naveen Chintalacheruvu, Venkatesan Muthukumar in [6] proposed an efficient video-based vehicle detection system based on Harris-Stephen corner detection algorithm. The algorithm was used to develop a standalone vehicle detection and tracking system that determines vehicle counts and speeds at arterial road- ways and freeways. They proposed a video-based

International Journal of Scientific Research in Computer Science and Engineering
Vol.6, Issue.6, pp.50-52, December (2018)

Research Paper

E-ISSN: 2320-7639

IOT Based Smart Parking System

Harmeet Khanuja[1*], Samruddhi Kalekar[2], Prasad Narode[3], Sanket Sanap[4], Dnyaneshwar Giri[5]

[1] Dept. of CE, Marathwada Mitra Mandal's College of Engineering, Savitribai Phule Pune University, Pune, India
[2] Dept. of CE, Marathwada Mitra Mandal's College of Engineering, Savitribai Phule Pune University, Pune, India
[3] Dept. of CE, Marathwada Mitra Mandal's College of Engineering, Savitribai Phule Pune University, Pune, India
[4] Dept. of CE, Marathwada Mitra Mandal's College of Engineering, Savitribai Phule Pune University, Pune, India
[5] Dept. of CE, Marathwada Mitra Mandal's College of Engineering, Savitribai Phule Pune University, Pune, India

*Corresponding Author: harmeetkaurkhanuja@mmcoe.edu.in

Available online at: www.isroset.org

Received: 07/Dec/2018, Accepted: 22/Dec/2018, Online: 31/Dec/2018

Abstract— There are billions of motorized vehicles on the globe. As a result, it creates the need for an efficient parking system which manages the vehicle parking. But the present parking system has many problems such as high operation cost, heavy labor support, inefficient management of vehicles, time consuming process of issuing tokens, collecting money, inappropriate management of the parking slots etc. Thus we are trying to resolve the above stated issues by RFID based automatic parking system. It uses a microcontroller such as Raspberry Pi along with sensing circuits monitoring entry and exit of vehicles. The vehicles are allowed entry only when the reader senses a valid RFID tag at the gate. An account in central database is maintained corresponding to every valid RFID tag. It enables us to monitor and store the time of entry and exit of vehicle. Also an Android application is provided for user guidance. This database can also be analyzed to find patterns of days in which the need for parking was in demand. This system allows automatic authorization of vehicles with the help of RFID tags and RFID readers and provides a statistical representation of traffic prediction for a particular place. Security check is handled with minimum delay time so that traffic jam problem will be avoided during these processes. The user application provides timely notifications about the activities. These processes allow parking system to work efficiently and require less man power to manage the parking. Thus the cost of operating the parking system is significantly reduced.

Keywords— IOT, RFID, regression, Raspberry Pi

I. INTRODUCTION

The aim of this project is to develop RFID based automatic parking system. The objective of this system is increasing the efficiency of existing manual parking systems and reducing their operation cost by reducing man power requirement, cost of operation, processing speeds at check-ins and check-outs, queue length, etc. also providing the customer with facilities which will help them to pre-book the parking slot according to the availability and time schedule. This would help in tackling the increasing demand for parking facilities by decreasing capital requirement per car slot. The users go through a onetime registration process where there are asked to fill in their personal details and an account is created for them, this account has information about them. In this system, the user pre books the parking slot according to his time and other requirements. The user's car is provided with a unique tag which he gets on registration so that each car will have a unique tag Id, this tag is linked with his account and includes his personal information, and this tag uses Radio Frequency identification (RFID) technology and is placed on the top of the user's windshield. The parking entry gate automatically authorizes the car at the entry gate and records the time till the car passes from the exit gate. It will also provide a platform for monitoring parking demand at different times of the day. The RFID based automatic parking system is an independent system in itself and does not depend on any service from any external system. All the functions needed is performed by one or other component of the system itself and all the inputs and outputs concerned with our system is handled by various components of the system itself like display, processor, RFID reader, RFID tags etc. Thus the RFID based automatic parking system is totally self-contained.

Rest of the paper is organized as follows; section II contains motivation that leads us to find a solution to address this problem, section III contains precise problem definition, section IV explains the working of our model, section V contains applications related to our model, section VI

License Plate Recognition using TensorFlow

[1]Sanket Kale[2]Swapnil Deshpande, [3]Rohan Kalgutkar,[4]Pravin Kadam, [5]Pranali Desai, [6] Prof.Harmeet Khanuja
[1,2,3,4, 5]TE Students, MMCOE, Pune, India
[6]Assistant Professor, MMCOE, Pune, India

Abstract— The primary principle of recognition of License Plate is used ***to*** many traffic related applications such as for road traffic monitoring or parking lot access control. This paper proposes an automatic license plate recognition system for license plates. The License Plate Recognition System proposes an algorithm for the extraction of license plate and segmentation of characters.

Keywords— Tensorflow ,Open CV,CNN, YOLO.

I. INTRODUCTION

This document is a template. For questions on paper guidelines, please contact us via e-mail

Now-a-days Number plate of a vehicle is considered an integral part for security purpose. A numberplate being very unique cannot be imitated easily. Still most Government are not using ALPR system though it is very effective.with the help of ALPR system one can easily identified his/her vehicle banged by another vehicle.

By storing Number plate we can use it in parking system as we could record In-time and Out-time of particular vehicle. With help of database we can also store information of ownear of vehicle which can be accessed by Govt in case of emergency(theft).As Keras is a poweful open source iibrary which is written in Python language is capable of running on top of Tensorflow and Theano,It enables fast computation with deep neural network.It focuses on simplicity of module and it should be protractible.

II. PROPOSED METHODOLOGY

Surveillance Camera is mounted at entry gate to capture image of Number plate of vehicle which will be further process as stated below:
This system has five steps:

Step 1: Capture Image

The first step would be camera capturing image which will give image as input to YOLO. The whole image captured will be given as input to YOLO.

Step 2: YOLO Image Classification

Based of classification in which it works on two stages:

1.We are selecting interesting region from the image ,which would then be classified using Convolutional Neural Network

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 7 Issue IV, Apr 2019- Available at www.ijraset.com

Digital Wallet for Transactions

Prof. H. K. Khanuja[1], Yogini Deshpande[2], Radhika Phadke[3], Parthavi Patel[4], Neha Date[5]

[1,2,3,4,5]Department of Computer Engineering, Marathwada Mitra Mandal College Of Engineering, Pune

Abstract*— Physical wallets have their own downsides. It can be difficult as well as time consuming to have or look for the exact amount of change as the value of the purchased good or service. To overcome this drawback, one solution could be the digital wallets. The aim is to develop an online payment facility. The digital wallets provide its customers with better and faster facilities. It also reduces the manual overhead of maintaining ones account.

***Keywords*— digital wallet, digitalization, online payment, security, encryption**

I. INTRODUCTION

A digital wallet is a service that provides facility for a customer or merchant to store their personal information, payment data, etc in a single place, which can be used for online transactions. An e-wallet eliminates the need to carry cash or credit or debit cards for making payments. The purpose of our system is to have an online payment application that can be accessed throughout the organization and outside as well with proper login for the account created. This platform would be very convenient for the customers and merchants to make payments within fraction of seconds. Also, there is no chance of a decline of payment as the e-wallet is a prepaid account.

II. LITERATURE SURVEY

[1]The banking industry had an array of payment products –cheques, demand drafts, national electronic funds transfer,real-time gross settlement system, immediate payment service, net banking and mobile banking – but found that people needed an easier, simpler way to make payments.The above mentioned paper specifies various ways of making payment namely :

Contactless payment
Locating a store
Virtual cards payment
Using quick response (QR) codes

This paper reveals the working and importance of using e-wallet in today's world provided with some future use of e-wallet.

The second reference paper presented guidelines for the design of an m-wallet,found in the literature and existing solutions, and used these when developing prototypes of m-wallets and when comparing these m-wallets to existing mobile payment solutions. According to the paper m-wallet can be described as [2] An m-wallet is a personalized digital artifact that contains electronic payments instruments such as virtual currencies and payment cards, repository for receipts and tickets, identification cards such as passports, drivers' licenses and insurance cards, and personal items such as pictures and shopping lists.

The phases involved in designing the m-wallet are awareness and suggestion phase,development phase,evaluation phase and conclusion phase.

The third reference paper presented the challenges which would be faced by the customers and how a developer can overcome them by proposing new techniques.Basically the main focus was given to the security issues as any system stores some valuable data into it ,intruders or hackers are likely to attack the system .In order to protect the digital money and personal information of the wallet owner ,they choose encrytption techniques to maintain privacy. In security mechanism ,three funadamental features were proposed:

1.)Confidentiality 2.)Integrity 3.)Non-repudiation

According to this,Security mechanism at sender and buyer end were proposed.

The fourth reference paper mainly presents us the characteristics and types of E-Wallets.

It highlights the need to develop the E-wallet system and working of the system is discussed too.An Encryption algorithm mainly known as RC4 to gurantee a secure transaction.However it has some disadvantages but some of its advantages balances it very well.It also discusses the problems faced by using the e-wallet system.Discussion on replacement of digital wallet by any other mode of payment is done.

The fifth reference paper presents the various payment method systems which are adopted by Canada.Various payment systems such as Apple's ipay,Masterclass and V.me are used int the form of digital wallets.How digital wallet play an important role in citizens in Canada is elaborated.

IJCSE International Journal of Computer Sciences and Engineering Open Access
Survey Paper Vol.-6, Issue-10, Oct. 2018 E-ISSN: 2347-2693

A Critical Performance Based Survey of Tools, Research Techniques and Perspectives of Intelligent Traffic Archive models

Shailaja B. Jadhav

Dept. of Computer Engg. MMCOE, Pune- India

*Corresponding Author: jadhavsb@mmcoe.edu.in

Available online at: www.ijcseonline.org

Accepted: 26/Sep/2018, Published: 31/Oct/2018

***Abstract*:** When adding capacity is not the option due to financial constraints or due to various other reasons, operating transportation systems efficiently is the only available option, in combating congestion. More and more transportation systems are concentrating on improving efficiency of these; and Traffic Archive Modelling and ITS –use of computer and communication technology is at fore-front to achieve the above said objective. For the last two decades, intelligent transportation systems (ITS) have emerged as an efficient way of improving the performance of transportation systems. A significant change in ITS in recent years is that much more data are collected from a variety of sources. The availability of a large amount of data can potentially lead to a revolution in ITS development, changing an ITS from a conventional technology-driven system into a more powerful multifunctional data-driven intelligent transportation system.

In this paper, we provide a critical performance based survey on the development of intelligent transportation systems, discussing the functionality of its key components and some deployment issues associated with it. Future research directions and a roadmap to future is also presented.

Keywords: Data Mining, data-driven intelligent transportation systems machine learning, Hierarchical clustering, GPS, mobility, Traffic Density.

Organisation of Paper:
Section 1 gives Introduction, Section 2 discusses the data collection tools, Section 3-Research Techniques, Section 4-Roadmap and future research directions and finally Section 5 is conclusion.

I. INTRODUCTION

Currently, transportation systems are an indispensable part of human activities. It was estimated that an average of 40% of the population spends at least 1 hour on the road each day. As people have become much more dependent on transportation systems in recent years, transportation systems themselves face not only several opportunities but several challenges as well. First, congestion has become an increasingly important issue worldwide as the number of vehicles on the road increases. Second, accident risks increase with the expansion of transportation systems, particularly in several developing countries.[1].Third, land resources are often limited in several countries. It is thus difficult to build new infrastructure such as highways and freeways. The effectiveness of transportation systems is increasingly tied to a country's capability to handle emergency situations (e.g., mass evacuation and security enhancement) [21]. The competitiveness of a country, its economic strength, and productivity heavily depend on the performance of its transportation systems [20].

For the last two decades, intelligent transportation systems (ITS) have emerged as an efficient way of improving the performance of transportation systems, enhancing travel security, and providing more choices to travellers. A significant change in ITS in recent years is that much more data are collected from a variety of sources and can be processed into various forms for different stakeholders. The availability of a large amount of data can potentially lead to a revolution in ITS development, changing an ITS from a conventional technology-driven system into a more powerful multifunctional data-driven intelligent transportation system : a system that is heterogeneous, multisource, and learning algorithm driven to optimize its performance. Furthermore, it is expected to become a privacy-aware people-centric more intelligent system. In this paper, we provide a critical performance based survey on the functionality of its key components and some deployment issues.

The success of any traffic archive system will largely depend upon the optimization of the use of the existing transportation system by analyzing the data that are

IJCSE International Journal of Computer Sciences and Engineering Open Access
Research Paper Vol.-7, Issue-5, May 2019 E-ISSN: 2347-2693

Validation Of Warranty Defect Codes To Ensure Vehicle Quality Within Warranty

Shailaja Jadhav[1*], Sanika Bhide[2], Sakshi Borse [3], Parimal Ghodke [4], Utkarsha Sane [5]

[1]Dept of Comp. Engg., Marathwada Mitra Mandal's College of Engineering, Savitribai Phule Pune University, Pune, India

Corresponding Author: sanikabhide.comp@mmcoe.edu.in, Tel.: +91-7774890652

DOI: https://doi.org/10.26438/ijcse/v7i5.873876 | Available online at: www.ijcseonline.org

Accepted: 15/May/2019, Published: 31/May/2019

***Abstract*—** Vehicle maintenance is getting increasingly important as the transport solutions become more complex and the transport industry seeks new ways of being competitive. Generally, Service Engineer receives customers claim for repair or replacement or compensation for nonperformance in the warranty period. When the customer claims his warranty, the claim contains customer voice, dealership investigation and claim manager's action pertaining to particular "Defect Code". Analyzing the correct defect code based on the description provided by customer requires a lot of efforts. So, our goal is to design an automated system using Natural Language Processing and Machine Learning which will decode the description and will find the most appropriate Defect Code. For this, techniques used are TF-IDF (Term Frequency-Inverse Document Frequency) and Naive Bayes Algorithm. Also, the system will help us in providing quick results, avoid wastage on time on manually validating the warranty claim by the customer. Thus, we can increase the efficiency in the process of vehicle maintenance. Completion of this project will make sure that incorrect faults are not addressed during warranty claim analysis.

***Keywords*—**Defect Codes, TF-IDF, Natural Language Processing

I. INTRODUCTION

Natural Language Processing (NLP) is the interaction of Computer Science, and Machine Learning that is concerned with the communication between computers and humans in natural language. NLP is all about enabling computers to understand and generate human language. Applications of NLP techniques are Machine Translation and text-filtering. NLP is one of the fields that heavily benefited from the recent advances in Machine Learning, especially from Deep Learning techniques. The field is divided into the three following parts:

1) Natural Language Understanding-The computer's ability to understand what we say.

2) Natural Language Generation-The generation of natural language by a computer.

The significance of "Defect Code" is that the entire failure analysis and rectification process at design/manufacturing/supplier end, happens on the vehicle parts or aggregates that the defect code is related to.

Using the detect fault and diagnosis (DFF), the problems can be shortlisted. Vehicle manufacturers will discover issues through description provided by the dealers of vehicles. As the description is written by local non-technical knowledge-based workers, so it will be processed and required data will be gathered from it. There are a lot of technical complaints regarding vehicle which are commonly described from which the exact complaint should be extracted which will give the correct solution to the problem. Using analysis techniques in NLP like phrase extraction etc. helps analysts in the task of extracting relevant task to some extent. But the drawback of using these tools they do not perform well on noisy text data which contains incorrect grammar and spellings.

Pure dictionary-based analysis mechanisms are also not completely reliable for analysing noisy text data due to spelling errors and non-standard vocabulary.

II. RELATED WORK

Literature Survey

The paper "vehicle detection and defect discovery from social media "by Alan S. Abrahams is based on extracting the relevant data from the social media feedback and comments. This paper had compiled an alternative set of automotive smoke words that have higher relative prevalence in defect detection. But on the other side this system was designed only for non-technical description provided by comments in social media. Another paper "An Integrated Text Analytic Framework for Product Defect Discovery", which resulted in Proposed a smart integrated analytic framework that links the quantitative text features to underlining existence of a

RECOMMENDATION OF LEARNING OBJECTS BASED ON LEARNING STYLE

[1]Swati Shekapure, [2]Dipti D Patil
[1]Assistant Professor, [2]Associate Professor
[1]Department of Computer Engineering,
[1]MMCOE, Pune, India
[2]Department of Information Technology,
[2]MKSSS's Cummins College of Engineering for women, Pune, India

Abstract: In recent years e-learning is an asynchronous or synchronous accomplishment. It has a global reach, can be accessed by people around the worlds. For learning mobile devices, computers can be used such online courses literally in the hands of the world who need them, at any time. Online Learning results in cost reduction of organization which replace their traditional instructor commanded teaching. Online resources maintain consistency and quality in delivering content. However, most of the e-Learning systems had not altered as per learner's interest. Even today e-Learning platforms are providing the same educational content which could not relevant to learner's search interest. So there is a need to create specific strategies that will build personalization of e-Learning system. Recommended e-Learning system will gather student's learning preferences from the different discussion and provide learning objects.

Index Terms **- e-Learning, Learning Objects, Learning Style, Ontologies**

I. INTRODUCTION

Due to advancement in technology the requirement of providing e-learning material has increased day by day. For the construction of it, we need to deliberate learner's requirements, and the learning resources and data could be suitably adjusted to satisfy those requests. There are three models of education processes such as a. Models as scientific tools: It is used for understanding and forecasting a particular aspect of an educational situation, b. Models as a component: It corresponds to characteristics of learning and teaching methods and uses as a component of educational objects and c. Models as a basis for the design of educational artifacts: It assists in developing design methodologies and system components by compelling the range of tools that strength capability of learning by learners. The goal of developing an e-Learning system is to generate the learning style of the learner and recommends learning object to them for a better understanding of the concept.

II. EXISTING METHODOLOGIES AND ANALYSIS

There are many procedures and approaches used for construction for personalized e-Learning system; this work summarizes a few of the techniques and approaches.

In paper [1] they have considered textbook resources for learning, the collection of near about 100 text resources used for classification. From classification cluster analysis was conducted to identify significant clusters of learning resources. Further study shows that these learning resources are suitable for low order to mid order learner's. However, for high order learner system needs specific advancements, such as evaluate and create extensive interaction and collaboration among learners in e-Learning platform.

In paper [2], represent e-learning system for personalization of learning content. It is an adaptive e-Learning system for proving most suitable content to the learner. Based on parameters such as knowledge level of the learner, Learning style, interactive level, complexity level of learning objects this system provides suitable content to students. Personalizing e-Learning process had done through a genetic algorithm. Research work improves genetic algorithm efficiency by providing compatibility of learning objects in large sample space. Ultimately it provides a reduction in sample space with better chromosomes. Improved genetic algorithm generates better results as compared to standard algorithms.

E-Learning system developed in the paper [3], considered knowledge level and learners need for personalization. For recommendation of learning resources social tagging and collaborative techniques were used. This system provides tag based guidance by analyzing the suitability of various methods as a result tensor factorization techniques most appropriate for the proposal. For reducing sample space, they used the cluster based approach on learning style. It ultimately reduces time and memory and provided a quality recommendation.

Work Presented in the paper [4] used cased based reasoning approach for personalized e-Learning system. In general Case-based reasoning procedure is as follows:

a. Retrieve the most analogous case (or cases) by matching the case to the reference library of earlier cases;
b. Reuse the retrieved case to attempt to resolve the present problem;
c. Revise and adjust the future solution if needed;

Cloud based Android App for college Canteen Management System

[1]Shreya Mhalgi, [2]Prajakta Marne, [3]Mahesh Kulkarni, [4]Samir Kapure, [5]Swati Shekapure
[1,2,3,4]UG student, [5]Assistant Professor
Department of Computer Engineering,
Marathwada Mitra Mandal's College Of Engineering, Pune, India

Abstract: Any institute canteen is a chaotic place since in short time the student has to eat and the canteen persons have to prepare to serve the food. The delay in getting and serving the order often results in missing the next lectures after the lunch recess. To avoid this situation a new application is proposed. This paper proposes a system to reduce manual and paper work for efficient canteen management systems at college canteens. It can lead to reliable and fast management system for better services to students during lunch breaks. Using cloud storage for canteen app will help organizations to maintain computerized records avoiding redundant entries. This system makes the process from token counter to service counter much easier and time-efficient with the use of digital order tokens. It also encourages use of digital payment modes through the app.

***Keywords*- Android application, cloud storage, digital token, e-wallet, database**

I. INTRODUCTION

In the existing system, ordering meal and having food during recess slots is time consuming due to overcrowded canteen area. In addition, a lot of paper waste is generated for coupons. The focus of our proposed system is to have a mobile application for college students wherein every order will be identified using a unique token id. After successful login the student can access the menu and place order through the app. The order gets finalized after the payment process. If the student cancels order after certain amount of time, fine gets generated. The student also receives notification, when order is ready. The details of every individual are stored in the cloud database which helps to maintain account of student orders. This is an advantage over the manual record keeping. The system at the chef side maintains received order as per the token numbers and notifies user when order is ready.

This system reduces the load on the canteen's end, as the entire process is automated. Within this system, all items in the order are displayed, in a concise and easy to read manner. This allows canteen employees to quickly go through the orders as they are placed and produce the necessary items with minimal delay and confusion. [1]

II. EXISTING SYSTEM

The traditional college canteens are based on pen-paper records, cash and manual record keeping systems, resulting in crowded canteens during recess. .Since the existing system is paper based it can be manipulated easily thus, it lacks data integrity. [2] Traditional practices follow manual distribution of coupons to students which needs to be given at the service counter and receiving the order. Also there is a queue at the coupon counter and orders may get mismanaged. The disadvantages of current system can be overcome in an automated, cloud based canteen management system.

The following figure represents the existing canteen scenario where the student takes a coupon (token) from the order counter, submits it to serving counter and waits till the order is ready. The chef receives order in large numbers which increases the waiting time and chaos during lunch breaks.

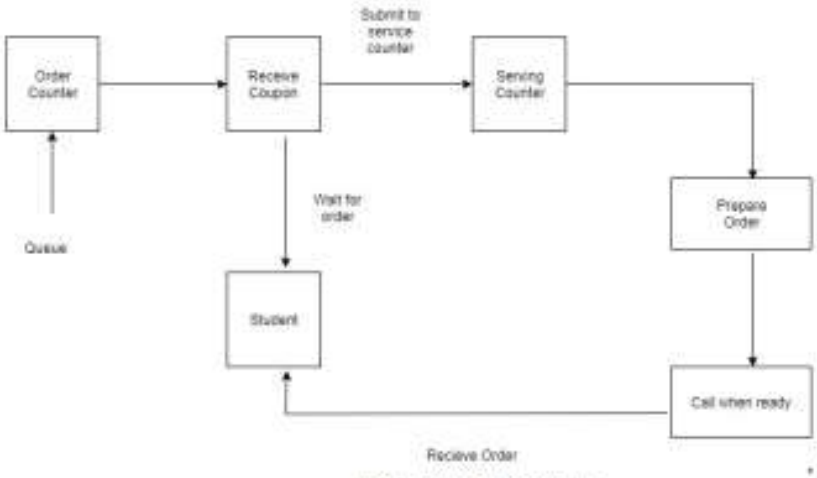


Fig.1 Existing System

Sādhanā (2018) 43:212
https://doi.org/10.1007/s12046-018-0973-0

Dielectric constant measurement of low loss liquids using stacked multi ring resonator

ANAGHA A KUNTE[1,2,*] and ARUN N GAIKWAD[3]

[1]Department of Electronics and Telecommunication, Sinhgad College of Engineering, Pune 411041, India
[2]Department of Electronics and Telecommunication, Marathwada Mitra Mandal's College of Engineering, Pune 411052, India
[3]Department of Electronics and Telecommunication, Zeal College of Engineering and Research, Pune 411041, India
e-mail: anaghakunte7@gmail.com; arungkwd47@gmail.com

MS received 16 December 2017; revised 11 June 2018; accepted 5 July 2018; published online 3 December 2018

Abstract. The concept of dielectric constant measurement has been extended and applied in agriculture, pharmaceutical and food industry for quality control of liquids. Dielectric analysis of material at microwave frequencies can be done using novel shielded stacked multi-ring resonator (SMRR). The dielectric constant of liquids and paste has been calculated using SMRR with greater accuracy than the planar resonator, boxed resonator and stacked resonator. SMRR contains a ring resonator with fed patch and parasitic patch with different numbers and sizes of rings. The dimensions of rings on the parasitic patch are optimized to achieve Quality factor Q greater than 100 and return loss less than −2 dB. Due to dual resonance in novel SMRR, structure losses are reduced by 50% than planar resonator structure. The behavior of SMRR structure at the 2.45 GHz frequency is studied with E field and H field. 3D model is designed in Computer Simulation Technology Microwave Studio (CST MWS) using TLM (Transmission Line Modeling) solver. Electromagnetic field analysis as well as impedance bandwidth of SMRR using CST MWS 3D model prove that electromagnetic coupling in SMRR structure increases thus improves quality factor. In SMRR quality factor increases and losses reduce help us to predict the complex permittivity of material for quality analysis.

Keywords. Stacked multi ring resonator; dielectric constant; quality factor; return loss.

1. Introduction

The dielectric constant of liquids is necessary to find adulteration in food, agriculture, pharmaceutical and petroleum industry. There are always better and newer techniques which are upcoming in the market for determining dielectric constant. Various techniques have been developed like microwave resonant techniques, open-ended waveguide technique, resonant cavity, etc. These nondestructive resonant techniques are based on reflection and transmission coefficient measurements. One of the techniques is microstrip ring resonator [1, 2] which can be used for dielectric constant measurement. [3] Resonant method can be applied to low loss material as this is a narrow bandwidth method. To evaluate low loss material microstrip resonator can be used. The newly developed structure of SMRR can be utilized for complex permittivity measurement of liquids and paste. The objective of this paper is to enhance the accuracy of the stacked resonator by unique placement of multiple rings on the parasitic patch. The SMRR structure consists of the fed patch and parasitic patch. It is also simpler in construction. It is easier to handle liquid material and measure dielectric constant compared to those from the literature.

The tested liquid like N-Hexane, diesel, wax, etc. have the low permittivity and loss, long relaxation time and a broad frequency dispersion region. Hence, the permittivity spectrum has to be measured with high sensitivity over a broad frequency range (typically 1 kHz to 10 GHz), which requires sensitive measurement cells and adequate models for calculating the permittivity [4]. Thus to fulfil the said requirements, we have designed a novel SMRR for complex permittivity measurement in the frequency domain. The SMRR consists of the lower patch of the ring called as the fed patch which is excited by resonating frequency of 2.45 GHz, and the upper patch is known as the parasitic patch.The tested liquid fills the partial space inside the SMRR.

The geometry of shielded ring resonator is as discussed in [5]. RT Duroid 5880 substrate is used for the fed patch.

*For correspondence

Praise Worthy Prize
International Journal on Communications Antenna and Propagation (I.Re.C.A.P.), Vol. 8, N. 6
ISSN 2039 – 5086
December 2018

Boxed Ring Resonator for Liquid Dielectric Constant Measurement

Anagha A. Kunte[1,2], Arun N. Gaikwad[3]

Abstract – *The present study describes a compact and low-cost microstrip based resonant sensor that is specially developed for measurements of dielectric constant for liquid and paste at a frequency of 2.45GHz. The sensor utilizes shielded, boxed microstrip annular ring resonator structure, enabling a simple method to place a sample of liquid to be measured. The Transmission Line Model (TLM) of the multilayer system is successfully developed. The inverse algorithm is used to calculate real (ε') and imaginary parts (ε") of the permittivity for the liquid sample with the inputs of the changes in the resonant frequency (f_r) and the quality factor (Q). Experimental data is testified against the related theory and compared with the results obtained by other researchers. CST MWS simulation software is used for the optimization of the boxed annular ring and concentric ring resonator structure. The comparison is done for the annular ring and concentric ring resonator boxed structure. Annular ring resonator structure has better accuracy than concentric ring resonator structure. This measurement system indicates high potential towards the development of a portable technique for quality analysis of liquids.*

Keywords: *Microstrip Ring Resonator, Transmission Line Model, Permittivity Measurement, Quality Factor*

Nomenclature

	Description	*Unit of measure*
ABCD	Transmission Line Parameter	
α_c	Conductor Loss	[Np/Unit length]
α_d	Dielectric Loss	[Np/Unit length]
λ	Wavelength	[m]
ε_{eff}	Effective Permittivity	
ε_r	Relative Permittivity	
Q	Quality factor	
f	Resonating frequency	[Hz]
$\tan\delta$	Loss tangent	
S_{ij}	Scattering Parameters	
γ	Propagation Constant	
C_g	Gap Capacitance	[F]
Z_o	Characteristics Impedance	[Ω]
q	Filling factor	
W	Width of microstrip line	[m]
δ_s	Skin depth	[m]
Q_l	Loaded Quality factor	
Q_{ul}	Unloaded Quality factor	

I. Introduction

There is a definite demand for low cost, robust and quick measurement system for quality assurance in the pharmaceuticals, food and petroleum sector. Petroleum has a low permittivity and loss, long relaxation time and a broad frequency dispersion region. Thus a sensitive device and an appropriate model are necessary for the determination of the permittivity of petroleum. Since last two decades, research has been carried out on the dielectric constant measurement for liquids especially for organic solvents, polar liquids and water solutions of different substances[1] [2]. However, very little research is published that would directly relate to the measurement of dielectric properties of petroleum liquid using microstrip structures. Verma [3] and Joshi [4] presented their study on permittivity measurement for Indian gasoline and crude oil. In this regard, consistent scientific efforts have been largely devoted to the dielectric spectroscopy of liquids. This paper discusses an optimized boxed microstrip based resonant structure that has a specific intention for accurate permittivity measurements in the frequency domain. Starting from the earlier development of Boxed Straight Resonator [5], a robust optimization procedure is implemented using CST MWS 2016 (Computer Simulation Technology Microwave Studio) to design a resonating structure [6].

F. Benriad et al. [7] developed a novel ring resonator structure for better frequency response. Thus, the aim was to design a resonating structure with a quality factor Q more than 100, which will lead to better experimental results regarding sensitivity, as well as the volume of sample. The data generated is analyzed to conclude with the application of the optimized boxed annular ring resonator as a sensor for dielectric characterization of liquids and paste. K. I. Ehab et al. [8] executed a parametric analysis using the finite element method for split ring resonators [20]-[22]. In this proposed approach electromagnetic method like Transmission Line Model

https://doi.org/10.15866/irecap.v8i6.15170

2018 Third International Conference on Electrical, Electronics, Communication, Computer Technologies and Optimization Techniques (ICEECCOT) 14-15, December 2018

Adulteration Detection in Petroleum Liquids using Stacked Multi Ring Resonator

Anagha Kunte
Electronics & Telecommunication Department
Maratlwada Mitra Mandal's College of Engineering,
Research Scholar, Sinhgad College of Engineering
(Savitribai Phule Pune University)
Pune, India
anaghakunte7@gmail.com

Arun Gaikwad
Electronics & Telecommunication Department
Zeal College of Engineering and Research
(Savitribai Phule Pune University)
Pune, India
arungkwd47@gmail.com

***Abstract*—Adulteration detection and estimation are essential for quality control of fuel. The microstrip ring resonator sensor can be used for permittivity measurement of liquid petroleum. The novel Stacked Multi Ring Resonator (SMRR) is specially designed for permittivity measurement with ease of handling liquids. Lumped model development of ring resonator structure is done with the help of ADS (Advanced Digital System). CST MWS (Computer Simulation Technology Microwave Studio) software is used for simulation of 3 D model of SMRR. Resonating frequency, insertion loss, quality factor are main parameters in the determination of permittivity of adulterated liquids. SMRR is low cost and simple microwave sensor for adulteration detection in liquids.**

Keywords*—Adulteration; Permittivity; Stacked Multi Ring Resonator; Resonating frequency; Quality Factor.

I. INTRODUCTION

Quality monitoring in Indian gasoline like petrol and diesel is essential due to hike in prices. Petroleum properties such as viscosity, density, boiling point, and color of petroleum may vary widely, for a large number of petroleum samples over a narrow range. The carbon content is relatively constant, while the hydrogen and heteroatom contents are responsible for the significant differences between petroleum samples. Indian gasoline is adulterated by mixing ethanol, kerosene, naphtha. This is because if adulteration is limited to small volume, it is difficult to detect by the automobile user. To check adulteration and to monitor fuel quality, some sensor is needed at the distribution point.

Dielectric constant measurement of liquid petroleum like N-Hexane, Petrol, Diesel, Bio-diesel and kerosene is the important parameter for adulteration prediction. Adulteration detection and estimation can be done using many techniques like Evaporation test (ASTM D3810), Distillation Test (ASTM D86), Gas Chromatography, Optical Fiber, Ultrasound, etc. [1]. But these tests require costly infrastructure, substantial computational time and laborious efforts. Microwave sensor like microstrip resonator sensor is a nondestructive technique and chemical composition of the material is retained.

II. SMRR DESIGN

Two types of resonators such as ring and straight resonators (also called as an end coupled resonator or $\lambda/2$ resonator) are manufactured. The earlier straight resonator was used for the detection of ethanol content in gasoline [2]. Microstrip ring resonator does not suffer from open-ended effects and can be used to give more accurate measurement [3], higher quality factor and lower insertion loss than the straight or $\lambda/2$ resonator. The ring resonator has the smaller 3dB bandwidth and sharper resonance than the linear resonator. Therefore the ring resonator is used for further investigation [4]. For ease of handling of a liquid, steel enclosure is fabricated along with planar ring resonator. The novel SMRR structure is developed for achieving better quality factor Q and less insertion loss S_{21}.

A. Working Principle

The SMRR consists of the lower patch of the ring called as the fed patch which is excited by resonating frequency of 2.45GHz, and the upper inverted patch is known as the parasitic patch. Two resonances are associated with SMRR. First resonance is associated with fed patch and ground plane. Second resonance is associated with fed patch and parasitic patch [5]. When the size of the parasitic patch is nearly equal to the fed patch and the spacing between the fed patch and the parasitic patch is kept about 0.5λ, maximum energy coupling is obtained [6]. Due to dual resonance in SMRR, the maximum electromagnetic coupling is achieved which improves quality factor Q with minimum return loss [7].

B. Design and Fabrication of SMRR

Two different substrates are used i.e., FR4 glass epoxy with thickness 1.6mm and RT Duroid 5880 with the thickness of 1.575mm. RT Duroid substrate is used for the fed patch and the FR4 substrate is used for the parasitic patch of SMRR. 2, 3 & 4 rings patches are made on the parasitic patch. Figure 1 shows a planar ring resonator as the fed patch of SMRR. Figure 2 shows the 3D model of SMRR. The parasitic patch is shown with 4 rings and it is used as the inverted parasitic patch for the measurement. The optimized dimension of SMRR is as shown in the Table I.

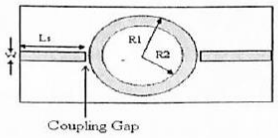


Fig.1. Planar Ring Resonator as fed patch of SMRR

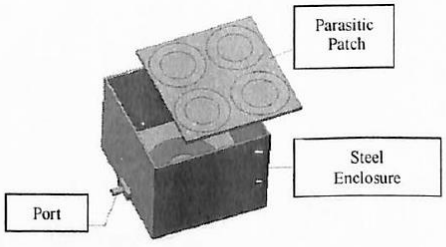


Fig. 2. 3D Model of SMRR

978-1-5386-5130-8/18/$31.00 ©2018 IEEE

Water Dispenser System (Water ATM)

Arati Godase[1], Sneha Barapatre[2], Samruddhi Bhujbal[3] ,Prof. Snehal Koparde
Authors of Department of Electronics and Telecommunication Engineering,
Marathwada Mitra Mandal's College of Engineering,
Savitribai Pune University, Pune, India

ABSTRACT: *Water scarcity is one of the major problem which the major cities are facing across the world. As we know that big area of surface of Earth is covered with water. But only less amount of water is used for the daily use. Scientists have been searching for many techniques to make sources of water to be used in daily routine. Due to shortage of water it is suppose to make water reach in many small places from creating dams and electricity. Most commercial products trending is water. Now a day's vending machines (dispenser machine) are available and are operated with the help of only single coin. But our will is to make water dispenser machine(Water ATM) which will be operated on different coins as well as it will operated by using Mobile app.*

Keywords: *Water resources practical water dispenser, circuit design, water release time, flow rate, pushing button, water filling action, water dispenser overflows, Saving water, Flow Sensor, Solenoid Valve, Coin Acceptor*

1. Introduction

In these day's Water dispenser machines (Vending machine) are accessible and are operated with the help of only single coin. But our will is to design water dispenser system which can be operated on various coins. In our country there is big issue of safe drinking water and also distribution of water therefore we are going to provide this system. Water is most commercial product in these century. The increasing burden on the different resources of water is a result of a large amount of factors. On the one hand, there is increased need of fresh water because of rising population and changing . If costs were considered, it would be easily to provide in rural area. The problem is somewhat similar to allocation of poor water, False water management and use of water insufficiently.

In this water Dispenser machine is going to be developed in such a way that water will get served to the customers. The mechanism of coin acceptor is to insert coin of Rs.1, Rs.2, Rs.5 and Rs.10 into the machine. Sensor are useful to develop the coin acceptor which can be works on different.In most of the countries at public places dispenser machine has been situated. Coin operated machine is been invented in London. Basically ,use of system was used to dispense post card. The costumer is able to get required quantity of product by inserting coins in vending machine through coin acceptor.

2. Literature Survey

I. **"Study of Automatic Water Dispenser " :** This system implemented is possible to detect level of water in water tank,when the switch is on then tanks get empty and when the switch is off then tanks get full. Microcontroller is being interface with LCD to show the level of water, the temperature of the water and automatic procedure of water helps human beings, that without any human interface to the water tap. They are getting enough, pure and temperature-controlled water. Shubham Dwivedi, Sourabh Bhardwaj [1].

II. **"Automatic water dispenser along with mobile charging" :** This system is very useful to people who are all using mobile phones without charging condition in public places so that they can reactive a low battery or a dead battery by simply plug in and charge it for Rs.1.They have designed coin based water dispenser machine which will going to vend water according to the desired amount. Chitra Nandanwar, Deeksha Raut [2].

III. **"Real Time Embedded based Drinking Water Vending Machine":** This system, coin discriminator is the mechanism of this coin dispenser used to insert different coins of Rs.1, Rs.2, and Rs.5 into the machine. The mechanism used in optical mouse sensor will generate different signals for different coins to be inserted in coin discriminator. The water will be saved after the desired quantity of water is provided into the water container with the help of surface sensor so the wastage of water will be reduced. Astha Shrivastva, Sasikala [3].

IV. **"Coin operated Water Dispenser":** This system uses pumping of water implemented by a device is known as DC Submersible water pump. It removes water is being removed by mechanical action.

Iot based Industrial Automation

[1]Kedar Gopale, [2]Sujata Bhise, [3]Viki Waghmare, [4]Prof. D. N. Parkhi
[1,2,3]Students of E & TC Department, Marathwada Mitra Mandal's College of Engineering, India
[4]Assistant Professor in E & TC Department, Marathwada Mitra Mandal's College of Engineering, India

ABSTRACT: *The classification as Internet of things has multiple technologies, the combination of real-time analytics, embedded systems and machine learning s, and In internet of things, things are refers to devices like Bluetooth connected headset, temperature measurement , sensor, actuator etc. which can sense some parameter, and Things are connected together to generate meaningful result, Here we developed efficient industry automation system that allows user to sophistically control industry appliances or machines over the internet.*

Keywords: *(Arduino mega-2560, Sensor, GSM module, WIFI module ESP8266).*

1. Introduction

Automation is the cleverness which a performed to reduce human efforts. Automation is the automatic control of various types of effective equipment such as instrumentation process, process of factories, boiling coil (Heater) and heat-treating ovens, steering of ships and other applications. Microcontroller (Arduino) is used by proposed system for processing all user commands. In this we can send command to Wi-Fi module through internet then Wi-Fi module receive it then receive information is decoded and pass towards the microcontroller. The microcontroller then takes actions as per user's commands. In this project there are two mode which are -1st Automatic and 2nd Manual. In automatic mode the system will performed as per schedule for example. (LDR sensor sense the surrounded environment and as per need it will turn on light-bulb in industry) In manual mode operation we can operate system manually not as schedule.

II. Literature Survey

Geetesh Chaudhari "Industrial Automation using sensing-based application"-The system makes use of microcontroller and various sensors to control the industrial devices using Bluetooth. –
Ashwini Deshpande "Industrial Automation using Internet of Things"-The industrial devices are controlled using cloud server which alerts the admin about uneven conditions using Bluetooth.

III. System Hardware Design

Following are component list used in the hardware design.
1. Arduino atmega 2560
2. Wi-Fi module (ESP 8266)
3. GSM Module SIM 300
4. Relays
5. Sensor's

Automation can cover small household application just like controlling a Room light, to the large industries application. It has thousands of input measurements and output control signals. In control it can range from simple on-off control to multi-variable high-level Control system

A. Block diagram

Stimulation and Bio Feedback Using EMG Signal Targeting Urinal and Gynaec Muscles

Mervyn Vaz , Hrishikesh Joshi, Pranav Auti & Prof. Manisha Dudhediya
UG students, Department of E&TC,
Marathwada Mitra Mandal's College of Engineering,
Pune, Maharashtra, India

ABSTRACT: *In EMG (Electromyography) , we take biofeedback with the use of stimulation of the targeted muscles of the body. Here, recording and study of myoelectric indication is specified in the field of urology and gynaecology. Result of this analysis is significant in the treatment of both gynaec and urinary muscles which is inclusive of all age groups.*

Keywords: *EMG, myoelectric signal, urinal and gynaec muscle.*

1. Introduction

Medical Electronics is field where electronics & biology complement each other in great way. By adding Biofeedback to the pelvic muscles strengthening , we are giving it different aspect to the analysis of targeted muscles.Urinary urgency and frequency associated with pelvic floor spasm can be a diagnostic and therapeutic challenge . Purpose of this research is to find solution to this problem. Our process includes signal extraction to signal displaying using signal conditioning. Major challenge in this process is pre amplification and filtering[5]. Most significant aspect of this project is research needed to implement a product.

II. Literature Survey

1. A Finely Machined Toothed Silver Electrode Surface for Improved Acquisition of EMG Signals.
This paper focuses on the analysis of different electrodes used for EMG extraction based on signal to noise ratio. This paper provides information of electrodes to be used for various purposes.

2. EMG signals detection technique in voluntary muscle movement.
This paper involves discussion regarding EMG methods and voluntary muscle movement. This paper provides efficient ways of understanding the nature of EMG signal we are dealing with which can be utilized to develop other flexible and efficient applications.

3. Classification performance of the frequency-related parameters derived from uterine EMG signal.
Comparison and classification of frequency parameters of EMG signal has been dealt with in this paper. Analysis of frequency parameters versus amplitude based parameters has been done in this paper. Results are quite useful to understand pregnancy as well as labor performances.

Proposed System

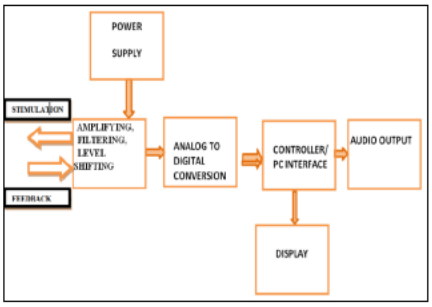


Figure.1-Flow diagram of EMG.

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

IOT Based System for Remotely Controlling Digital Signage

Adesh Kankhar, Chirag Borole, Sujit Ghule, Prof. A. J. Nimbalkar
Marathwada Mitra Mandal's college of Engineering,
Karvenagar, Pune, India

ABSTRACT: *IOT is a concept that enables each and every one of your things to send some kind of information about themselves or their environment to the owner of those things. The things can be as simple as your table, chair, home and as complicated as your car, weapons, industrial machines etc. The reason behind this is to be aware of the condition of your things or the conditions in which your things are without you being physically there. The aim of this research is to remotely control the digital signage board parameters such as brightness, contrast, back light, on/off controls, volume and measure the power consumed by digital signage board. The proposed system uses Beaglebone Green (BBG) as a main processing unit which will improve the performance and will consume less amount of power for operation.*

Keywords: *Internet of things, Beaglebone Green, lighttpd, Digital signage board, web server, Internet.*

1. Introduction

A digital sign usually consists of computer or playback device connected to large, bright screen such as POPAI compliant LCD display used to display digital images, weather data, video, restaurant menus, and web pages. Digital signage boards are possibly found in retail stores, hotels, museums, restaurants, transportation systems and corporate buildings, stadiums and many other public places. Digital screens such as LED, LCD and projection screens are used to deliver the content of digital screen media, either outdoors or indoors, in public as well as corporate spaces. Digital advertising is the network of digital displays which are centrally managed for targeted advertisement and information.

Digital signage is very popular in various business domains and its importance increases everyday. Most companies use digital signage for various purposes. It creates opportunities for customizing the various type of information that they want to deliver [1].Digital Signage can be used for announcements, advertising, promoting products, live traffic details, entertainment, news, headlines, weather, etc. Use of various technologies and sensor in a digital signage make it possible to adapt to context such as location, time and many other options that catches the audience's attention [2]. Many systems has been designed for digital signage boards that display the weather update, news, advertisements, live traffic etc. which can be controlled remotely using web applications and the internet. In this project we are going to control the digital signage board (LED/LCD) parameters such as brightness, contrast, back light, on/off controls, volume, video change and measure the power consumed by the digital signage board so that there is no need to visit the remote location where the board is placed just to adjust the above parameters.

2. Methodology

The main aim is to design and develop a system which can remotely control the digital signage board parameters such as brightness, contrast, back light, on/off controls and measure the power consumed by the digital signage board. The system consists of Beaglebone Green which acts as the heart of our system. A Apache 2 web server to host the front end as well as backend web interface. Beaglebone Green communicates with the board using RS232 protocol. For providing internet connectivity to Beaglebone Green, router is used.This makes Remote control of different parameters possible. In order to perform various actions on the digital signage board we need to send predefined frame of POPAI commands. To access the control panel, user needs to enter the IP address of the network connected to the Beaglebone Green Controller. After getting access to the control panel, user can control remotely the different parameters of digital signage board such as display power ON/OFF, change in brightness, contrast, volume, transfer from vedio1 to vedio2 and amount of power consumed etc. Actions performed on the panel will have a real time effect on the display board without refreshing.

The power meter is attached to the Beaglebone Green using RS485 module. RS485, also known as TIA485 (-A), EIA485, is a standard defining the electrical characteristics of drivers and receivers for use in serial communications systems. It is the standard that can be used for long distances communication. It is possible to connect multiple receivers to such types of network either in a linear or multidrop bus. These characteristics of RS48 gains it importance in industrial control systems and similar applications [4].The

IOT Based Smart Irrigation System using Raspberry Pi

Kajol Mane, Payal Lingampalle, Shubhangi Wakure, Prof. A. G. Dakre
Dept. of Electronics and telecommunication,
Marathwada Mitra Mandal college of Engineering,
Pune, India

ABSTRACT: *Water is the most essential factor of contribution for upgrading the productivity of agriculture. For improving the productivity in agriculture we need to expand the water system which is the key format of the improvement of farming. Water can be saved by irrigation system and minimizes the evaporation. There are several problems related to traditional methods of agriculture such as during irrigation they do excessive wastage of water in farm field. The purpose of this system is to increase the crop fertility and to minimize the evaporation and reduces the excess use of water. The project describes that using IOT how smartly irrigation system can be handle. This system can have used in parks and lawns. The neutral of this system is that, crops are monitor using camera continuously. The soil moisture sensor can be used to test the moisture of soil, depending on that water will be distributed to the plants. This entire information we can see on mobile or laptops.*

Keywords: *IOT, Soil moisture sensor, Raspberry pi*

1. Introduction

As in India the agriculture is the most vital source of food and other raw materials it is considered as the basis of life for us.it plays and important role in country's economic growth.

As the automation reduces the excess wastage of water, makes efficient use of electricity. The real purpose to implement automatic irrigation system to reduce the manual effort and makes full automated farm. IOT is used in many fields now a day to reduce the problems and to provide ease in work.so the IOT is used in agriculture domain and it helps in overcoming the huge difficulties in farming.as the new ideas are developed to increase the quality of crops, quantity and cost effective in production of agriculture. As inthe rapid growth of population, it is very necessary to see the requirements of human race with the agriculture.

Interconnecting the objects are communicating which are mounted at dissimilar places that are distant from each other in concerned with a IOT(internet of things).In this system the different sensors used to sense the data and make join anything to internet to interchange information. With the help of IOT we can monitor the data on the devices like mobile.

This system is designed to irrigate the farm at regular interval of time. In this system soil moisture sensor are placed at the surface of plant. The crops are monitor by camera continuously; it's data can be seen on the mobile device or laptop. The DHT22 sensor is a basic, low-cost digital temperature and humidity sensor in it, so there is no requirement to use separate sensor for temperature and humidity.

Our implemented system is fully automating irrigation system using IOT. Which is developed to reduce the farmer's difficulty. These irrigation system minimizes the manual effort of spreading of water in farm at the proper time. Raspberry pi3 play important role in this system. which is minicomputer. Raspberry pi3 has additional inbuilt features are Wi-Fi and Bluetooth. It reads the status for inputs of buttons switched and other sensors.

II. Literature Survey

After various researches in agricultural, the researcher has found that problem in the agriculture increasing day by day.

To decrease this problem and to reduce manual effects. The technologies are developed. The intention of this project is to reduces the number of labor's in farm by them the irrigations performed manually and to reduce the wastage of water. The automatic drip irrigation system is developed for water optimization in agriculture. In the proposed system the soil moisture sensor can be used to sense the moisture of soil, which is continuously monitored, depending on that motor will on or off. The measurement of temperature and humidity will continuously monitor using DHT22 sensor.

Now a day we can see many technologies are innovated in agriculture field. In this automated agriculture system, the crops are monitor by camera which help to reduce manual labor are used to monitor the crops.

- **Cosmin (2012)**:This investigation demonstrates there is unquestionable growing tendency in the adoption of artificial intelligence in agriculture. Under development of the IT infrastructure in many

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

IOT Based Vehicle Accident and Tracking System

Aboli Maske, Priya Oak, Jayshri Uge, Prof. Anup Dakre
Marathwada Mitra Mandal college of Engineering,
Pune, India

ABSTRACT: *In this paper, we proposed a system to detect vehicle accident and alert to the family member as well as nearby police control rooms and venitary services. Vehicle accident detection and tracking system using WIFI and GPS is been implemented on large scale nowadays. The numbers of accidents happening in our country are increasing rapidly everyday and existing systems for a person who meets with an accident are weak as per the ratio. So in this system we have introduced that whenever the accident occurs the short message is send through the system to the registered number and the location can be determined. Also the existing systems are focusing mostly on prevention of accident rather than taking immediate actions after an accident; so that the person could be save. The aim of the project is to identify the accidents happening on roads or highways and provide them immediate services.*

Keywords: *RF transmitter and receiver, LCD,Atmega 328 Micro-controller, Vibration Sensor, Regulator, GSM module, Google map, online platform.*

1. Introduction

The IOT(internet of things) is a platform of unique embedded devices and applications within the internet enviornment.Transportation has been a necessity of every person and its growth many lives around the world easy. But it can cause disaster to us and even can kill us through accidents. The increase cause of death in the world during 2008 is mainly due to the road traffic accidents which has been ranked fourth in the world.Anually, 1.5 million of the people die only because of accidents on the road and 20 to 50 million people suffer from minor to major injuries, is the survey taken from GDP (Gross domestic product). The accidents due to Road traffic increased around 2 million. If no action is taken it will increase yearly as per the research.

When a person is riding his private vehicle and accident occurs then it may cause some major injuries and due to lack of communication no one is there to help that person. This system is a solution to the increasing growth of accidents. This system is used to detect the accidents which sends the information of the vehicle to the nearby police control rooms. Eventually IOT is platform that offers the advanced features of connectivity of several devices, systems, domains and applications.

II. Literature Review

The survey is carried out on different techniques used in the detection of accidents. Different technologies and the survey is available for the accident detection and the tracking model. Many populated countries like India many people face accidents on large scale as there is lack of facilities.If the required Facilities are provided to the accident occurring people many lives can be saved.This system provides solution to many of this limitations.

[1]"Smart helmet Intelligence Safety for motorcyclists" explained by sadhana B has given the data to increase the road safety among motorcyclists. This idea of smart helmet has been analyzed and discovered for reducing accidents. Therefore, this project is designed to introduce safety systems for motorcyclist to wear the helmet properly. Raspberry pi is used by motorcyclist in Helmet intelligence safety. This particular proposed system meets the requirement of a perfect rider and has been helped in reducing various accidents and injuries. This system also helped many people to save their lives because of increased facilities.

[2] "Vehicle Accident Detection And Tracking System Using Advance Embedded" was the subject proposed by Sarika Gujar . The main reason of this system was to locate the position of vehicle and trace call for the emergency services. Vehicle accident detection is possible with the help of sensors. A GPS and GSM module helps to trace the vehicle. It can be used in public transportation system by the people to know the location of buses or train. In case of any accident, the system sends alert message to the pre-programmed mobile numbers. System uses the Global Positioning System (GPS) to know the exact location or position of the automated vehicle.

[3] "The Wireless System for Vehicle Accident Tracking and alerting system using Accelerometer sensor and Global Positioning System (GPS)" explained by Shailesh B. In this paper, Accelerometer sensor is used to

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

Smart Water Monitoring and Distribution System Based on IOT

Jyoti Ghotale, Rutuja Bhuvad, Supriya Jadhav, Prof. Harashda Burande
Electronics and Telecommunication Dept.
MarathwadaMitraMandal College of Engineering,
Karvenagar, Pune, India

ABSTRACT: *This paper presents a design of real time monitoring system. The quantity of water in IOT. The system having of a several sensors is used to measuring physical of the water the parameters flow sensor of the water can be measured. That of measured value from the sensors can be processed by the controller. As population is increasing day by day, urban residential area have also increase because of this reasons water has become an intense problem which affects the problem of water distribution, water conservation, water consumption, and interrupted water supply. People are found complaining that, they don't have required amount of water for their daily needs, so that overcome water related problem also make system efficient. There is necessity of monitoring, controlling system. This approach will help usefulness operators improve inexpensive water management systems, especially by using rising technology an IOT is one of them. The internet of thinks for developing more utility system, for making the consumption of water resources more efficient.*

Keywords: *Arduino, Internet of Things, Real Time System, Cloud computing.*

1. Introduction

The current scenario is, the employee will go to that place and open the valve for a particular duration, then again the employee will go to the similar place and close the valve, and it is time consuming. This system is fully automated. In this way time and human work are saved. This system will implement the design of IOT based water monitoring, distribution system in which shows the flow-rate and level of water in real timeThe concept of the IoT to its extent and improve the functioning of the device. This system includes some sensors which measures the all this water parameters primary concepts are real- time IOT based water resources information system is to provide comprehensive and correct information.

In some water-related field such as irrigation system, electricity powerhouse, and research, water level information is a very important issue. Generally, water level measurement was done manually but this cannot be capable due to some difficulties. The smart water distribution makes specific supplier equipment interoperable and manageable in a water management domain in a similar way. The concept of the IoT to its extent and improve the functioning of the device.. Now a day's different types of smart sensors are developing for the safety and security in emergency management strategy. Smart water management is only possible with help of IOT which includes the applications in monitoring the flow of water, Management of valves, Data analysis through Observations from different meters etc. in conventional method for each and every individual processes we require the human power and observation skills. To overcome the water management and distribution problem. Water is important resources in use of the earth in that, some people are not supply sufficient amount of water because of not equally distribution of water. This scheme is used to avoid the wastage of water during the distribution period. The current scenario is very hectic and time consuming. Here time and human work are saved. New approach IoT based water management and monitoring has been submit.In this project, system will implement the design of this IoT based water monitoring system that monitors the level of water, flow that rate in real time.

This system consist of some sensor which measure all these water parameter - the real - time showing of water resources information will benefit the water resources management department and the public. The primary concept of real – time IoT based water resources information system is to proved comprehensive and accurate information.An automatic water information monitoring system based IoT is constructed using techniques of sensor network, wireless communication network, Internet, database and in this system, water resource information acquisition, transmission, and remote monitoring data receiving and application are integrated through software and hardware.

II. Literature Survey

An Automatic water information monitoring system based

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

Demonstration of Intelligent Cooperative Vehicles

Chaitanya Kulkarni, Viraj Mete, Pooja Dhumal & Prof Disha Parkhi
B.E. Students,
Marathwada Mitra Mandal's College of Engineering Karvenagar,
Pune, India

ABSTRACT: *The main aim of this project is to demonstrate the concept of Cooperative Adaptive Cruise Control in real traffic situations. This concept improves the flow of traffic and reduced the unintentional acts happening on roads by intelligent and reliable communication between vehicles. It reduces the complexity and increases performance of the device by the virtue of wireless communication. Systems will provide the facility of obstacle detection hence they will be communicating with cooperative vehicles and share their current status and will act accordingly. The proposed system is based on ARM controller by achieving features like vehicle to vehicle communication (V2V), Lane chasing, Automatic speed adjustment, Steering angle measurement and obstacle detection.*

Keywords: *V2V Communication, CACC, ITS, Steering Angle Measurement, ZigBee.*

1. Introduction

As the technology is advancing the demand for intelligent vehicle system has been increased. Consequential developments in transportation system have been achieved during the previous years. Intelligent systems which are based on real time application have been contributing in improving traffic flow and safety from collisions between vehicles. To improve transportation system the concept of vehicle to vehicle communication can be introduced to acquire more substantial and reliable details about vehicles on roads and highways or express ways.

The concept of cruise control came in early 1900s. Cruise control is a concept in which a speed is set by the driver and vehicle will maintain that speed without any safety. The main limitation of such system is that it increases risk of accidents. In late 90s the concept of Adaptive cruise control came into picture by adding features like automatic speed adjustment. In adaptive cruise control concept the braking system was not up to the mark and more efforts were to be taken by the drivers.

Cooperative Adaptive Cruise Control (CACC) basically provides Intelligent Transport System (ITS). Using wireless communication, possible risk cases can be identified as earlier to avoid crashes, and more substantial details about other vehicles movements can help to improve performance of vehicle. Research have been done throughout the world to explain the demand for a suitable vehicle to vehicle communication system and its possible applications.

V2V communication reduces the amount of unintentional acts and focuses on improving collision avoidance and safety. The supplementary of the available system which is adaptive cruise control can be replaced by cooperative adaptive cruise control (CACC). System has a high potential to improve traffic flow capacity and smoothness, reducing congestion on roads, highways or express ways. If the system detects any obstacles just ahead of it, then it will communicate with the preceding vehicle and will alert the preceding vehicle about the obstacles. After obstacle detection, vehicle will reduce its speed automatically. Vehicle works more intelligently by adding V2V Communication. In addition with V2V communication, System is provided with other features like lane chasing, automatic speed adjustment and steering angle measurement.

2. Methodology

The main motive of this research is to build a system which can be fitted in a vehicle and help to avoid collisions or accidents happening on road or highways. The system is provided with ARM controller, Motor drivers and sensors like ultrasonic sensor, IR sensor pair, steering angle measurement sensor (HMC or QMC) and Light dependent register (LDR).

2.1 Research

This system was implemented in two phases which were cruise control and adaptive cruise control. As disscused in introduction about these systems, they were having certain drawbacks like they can't be implemented in real traffic situation as well as braking system was quite inadequate. In these system all drawbacks will be overcame.

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

Sprinkler Automation for Accurate Pest Control on Crops

Mohini Kesare, Shital Domle, Sumit Rajegore, Prof. V. B. Deokamble
Department of E & Tc,
Marathwada Mitra Mandal's College of Engineering,
Pune, India

ABSTRACT: *Sprayers are used to control excessive use of pest and diseases and it is done by spraying of pesticides. By conventional method of spraying, it is difficult to spray the pesticide uniformly and effectively over the crops. Spraying is done in farm by traditional technique. There are different types of sprayers, but mainly used sprayer is backpack type sprayer, which is used by farmers. It has advantages like it is cost efficient, easily available and easy to use. With the help of this sprayer, farmers spray pesticides in their farm, but it has high operational cost and also requires lots of time. Farmer who is spraying pesticides is affected by it, as it is harmful to health. They are also affected by shoulder disorder and lumbar pain due to weight of machine and weight of tank on person`s shoulder. Because of this pesticide many diseases are faced by farmers and this is one of the serious problem. Though traditional method gives good pest control, it requires large volume of liquid per plant, large amount of time.*

To overcome these problems sprinkler automation technique which reduces human efforts and also distribute the pesticide uniformly through the crops is used. This system is used to spray the pesticide to different crops in an efficient manner to different crops. It gives good pest control and also consumes less volume of liquid per plant. This paper contains the efficient automation technique which overcomes all the problem faced by traditional technique.

Keywords: *ATMEGA328 Microcontroller, Battery, IR sensors, Up-down mechanism, Relay, Motor drivers, DC Motors, Pest control, Agricultural architecture.*

1. Introduction

Crop yield is decreased due to attack of pests, diseases and weed. For controlling most insects, weeds and diseases chemical control method is used. By using pump or dusting, chemicals are spread on the crops either by sprinkling or spraying. To apply small volume of spray liquid to protect crops, spraying is one of the efficient as well as effective method. Power operated hydraulic sprayer and high or low volume hydraulic sprayer which can be manually operated is used in traditional method. In this method, time and labours required are more. By conventional method of spraying, it is difficult to spray the pesticides uniformly and effectively over the crops. Therefore in proposed system the efforts are made to design and implement automatic technique for accurate pest control on crops. The main objective of this system is to protect environment from pollution by over use of pesticide. For precise output and accuracy of industrial process IR sensors with up down mechanism is used. Our proposed works aims towards protecting crops by excessive use of pesticide by an automated way instead of using manual way. It is aimed to reduce human effort and at the same time increase the productivity & accuracy levels that cannot be achieved with manual operations. This system consists of IR sensors, up down mechanism, DC pump for pesticide sprinkler. First IR sensor is used to detect plant and second IR sensor is used to detect plant height along with up down mechanism so that sprinkler will move accordingly. Up down mechanism is for sprinkler up down according to the plant height. Microcontroller is a control unit which controls the whole working.

2. Block Diagram

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

Image Text to Speech Conversion Using Raspberry PI

Mrunali Garud, Abhishek Dodke, Vaibhav Nirphal, Prof. M. R. Pangaonkar
B.E. Student,
Marathwada Mitra Mandal's College Of Engineering Karvenagar.
Pune, India

ABSTRACT: *This project is based on prototype which helps user to hear the content of text in image into speech. It involves the extraction of captured image and convert into speech. This image capturing processes is done using raspberry pi, camera module and speaker.*
Optical character recognition (OCR) technique is used to extract the image. The output of OCR is in the form of text file. This text file is used to differentiate the image using OpenCV library. The tesseract is used for processing the image & produce speech at the output using TTS. This conversion time is few milliseconds. This device is useful for peoples who are not able to read the English language.

Keywords: *text to speech (TTS), OCR, tesseract, raspberry pi, camera module, speaker*

1. Introduction

In today's world image processing is mostly used for improving image quality. It uses various techniques like image filtering, image segmentation, morphological operation & image compression etc. In this project these features are used for converting text image into speech.
The main purpose of this project is to convert input text in image into speech. This conversion time is few milliseconds.
"Image text to speech converter using raspberry pi" is to use input image &converting into the speech using various technique. To capture the real time image is done using camera module at input side. This captured input image is processed by using optical character recognition technique. The OCR converts this text into machine encoded text.
Then the text to speech engine converts text to speech. The output is given to the audio amplifier which is connected to the speaker. The graphical user interface (GUI) is used for user to interact with electronics device through the graphical icons.

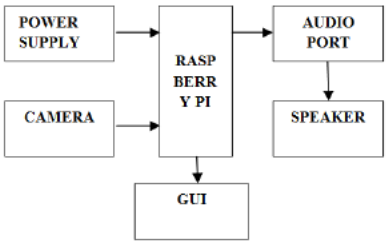


Fig. 1 Block diagram of TTS

2. Methodlogy

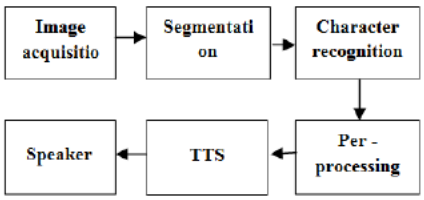


Fig. 2 Block diagram of OCR

Smart Ration Distribusion System using IOT

Kishor Kaushalye, Pankaj Gadade, Madhan Madhu, Prof. V. B. Deokamble
Department of E&TC,
Marathwada Mitra Mandal's College of Engineering,
Pune, India

ABSTRACT: *In year 1939,'Antyodaya Yojana' was Started By Government which is also known as public distribution system. Initially the project was help huge number of poor people o accomplished their primary need of Ration. But in few years the system is having gaping contentions issues which cause illegal smuggling of commodities an corruption from the agents or distributors. Hence the commodities were sold in open market for the benefit of the distributor. In This paper, we proposed a system where everything in the Rationing Systems is connected digitally and hens the entire process is controlled and monitored by the government body. This system gives direct communication between the beneficiary and the government with the help of distributor.*

Keywords: *ration System, Biometrics, BPL card, Digitalisation*

1. Introduction

As we know that our county is moving as digital country in the world. But still we are following the old paper work System. Due to the manual paper work system increasing the scam and corruption in ration system in our Country. By following the old paper work system it creating favourable path for corrupt officers and political leaders. Public distribution system is oldest system in India.

Public distribution system is developed for providing ration materials in minimum price for below poverty line (BPL) and moderate price for above poverty line (APL). APL and BPL ration cards provided by the government to user as per annual income record. In public distribution system government providing ration and it is distributed to different states then district then it has been provide ration to various ration shop in their areas then distributor been circulated ration to user. Due to This process it create easy path for scam and corruption. So we are proposing the system it provide solution to the existing system.

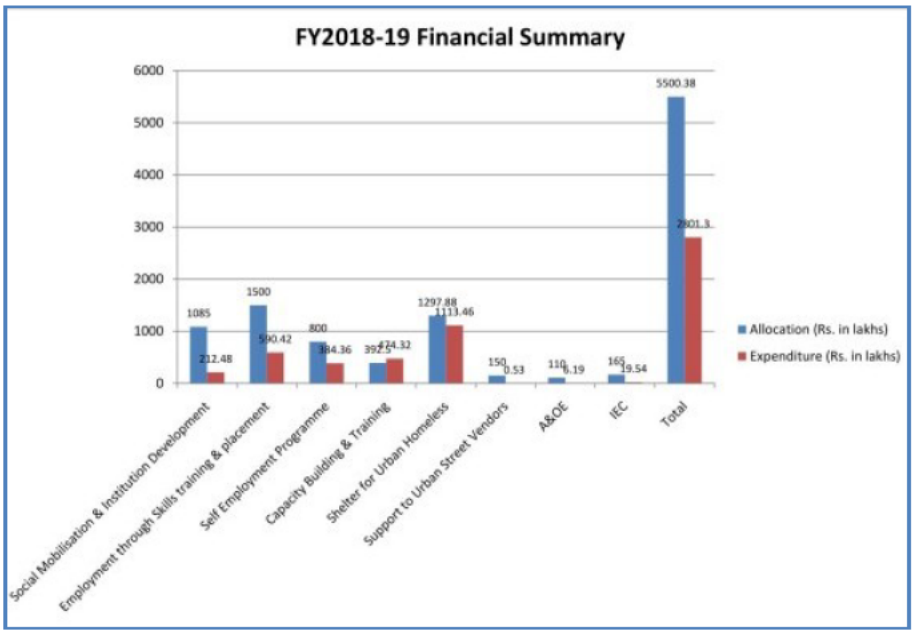


Fig. 1 Public Distribution system Supply and distribution

IOT Based Smart Home Automation and Security System Using Android App

Priti Pathak, Sheetal Patule, Shubhada Kulkarni, Prof. R. R. Malekar
Department of Electronics And Telecommunication Engineering,
Marathwada Mitra Mandal's College Of Engineering,
Pune, India.

ABSTRACT: *In this modern world of digitization the life of humans is simpler as everything is automatic replacing the manual systems. In today's world internet is an important part of human life. IOT provides efficient way for allowing devices to sense and control remotely across a world network. In this project we focus on home security and automation using android app and internet. Using IOT we can control and monitor electrical and electronics appliances used in home. The devices connected to the relay module are controlled by the mobile application.*
Security is important aspect in our daily life. The given security system has developed to deny unauthorized access to home from intruders. This system provides security and automation with lesser power consumption and more reliability. The Automatic door open security system is achieved by using face detection and face recognition techniques. This system allow only authorized person to enter in home. Face reorganization is implemented by image processing on captured image and the image present in the database.

Keywords: *IOT,ESP-8266 Wi-Fi Module,PIR Sensor,Internet.*

1. Introduction

Wireless Home security and automation are two main aspect of this project. The currently build give permission to users to access and control home appliances remotely and send alert to the owner over android app using the internet if any unauthorized motion is sensed by PIR sensor near the door of owner house. Then camera capture image and send to owner on android app then owner identifies that the person is not intruder he or she can allow a person to enter in home..

Security is an important feature or factor in the smart home application. Most of the countries are bit by bit adopting the smart home security system. PIR sensor is used to for motion detection of human body. when motion detected by passive infrared sensor then arduino will give command to the camera module to capture image. Then captured image compare with database image .If captured image matched with database

Image then door will open automatically and if not matched then it will send to the owner over the android app. Owner will then recognizes that whether he or she is intruder or unexpected guest.

The automatic door open system is developed by using the face detection and face recognition techniques. This system allows only authorized person to enter in home. Intruder detection is performed by using image processing algorithm.

Internet of things provides a best way for allowing appliances to sensed and controlled remotely across a world. Using IOT we can control and monitor electronic and electrical appliances used in the home through internet. One of the aspects of our project is to make it possible to provide home appliances accessing remotely for saving lot of time. The devices connected to the relay module are controlled by the mobile application. Owner can access and controls home appliances remotely through mobile application. In this scenario android application sends the commands to the arduino over internet. After receiving commands arduino will take action accordingly.

Literature Survey

Voice Controlled Smart Home Automation System using Natural Language Processing (NLP) and of Things Of Internet

The primary goal of the project is to build a fully functional voice controlled smart home automation system using Internet of Things and Natural Language Processing in order to provide a cost-effective, best way to interact with home appliances. There are many smart home automation systems in the market that aim to automate the basic operations of these home appliances using various technologies such as GSM (Global System for Mobile),

IOT based LPG Cylinder Monitoring and Booking System

Priyanka Shinde, Snehal Kamble, Viraj Tamhane & Prof. Anup Dakre
Marathwada Mitra Mandal's College of Engineering, (E & TC)
Pune. India

ABSTRACT: *Home Fires have caused significant damage in lives and property lately. LPG is astoundingly inflammable and can devour even at some division from the wellspring of spillage. Most flame setbacks are caused by virtue of a low quality versatile cylinder or when the controller isn't murdered. The supply of gas from the controller to the burner is on even after the controller is killed. Inadvertently, if the handle is turned on realizes the gas spills. This endeavor deals with the acknowledgment, checking and control game plan of LPG spillage. The gas sensor MQ-5 is very delicate to methane and propane which are major constituents of LPG. A pile cell is used to evaluate the largeness of chamber observably. The greatness of barrel is appeared and some 4-5 MQ-5 sensors will be placed in better spot of room, yield of sensor will end up being high when there is LPG spillage is accessible. Right when the sensor yield is high flag will be traded on. Using exchange DC motor the stove handle is thus controlled. Close by safety efforts the system has additional favored viewpoint of customized re-booking of barrel when the dimension of gas goes underneath the normal load of chamber.*

Keywords: *gas leakage, gas sensor, smoke detector, NODE MCU*

1. Introduction

The quantity of passing because of the blast of gas chambers has been expanding as of late. The explanation behind such blast is because of inadequate barrels, old valves, destroyed controllers and absence of mindfulness utilizing gas chambers add to the dangers. The significant restriction of leading polymers, which are utilized in past framework, is the absence of solidness particularly when exposed to high temperatures above 300C. These reason them to initially frame cross connections between the different polymer chains and later break down seriously restricting their capacity to work as a gas sensor. The quantity of passings because of the blast of gas chambers has been expanding as of late. The explanation behind such blast is because of unacceptable barrels, old valves, destroyed controllers and absence of mindfulness utilizing gas chambers add to the dangers. The significant confinement of directing polymers, which are utilized in past framework, is the absence of soundness particularly when exposed to high temperatures above 300C. These reason them to initially frame cross connections between the different polymer chains and later break down seriously restricting their capacity to work as a gas sensor. Home Fires have caused significant damage in lives and property lately. LPG is especially inflammable and can expend even at some partition from the wellspring of spillage. Most flame incidents are caused by virtue of a low quality versatile cylinder or when the controller isn't slaughtered. The supply of gas from the controller to the burner is on even after the controller is killed. Accidentally, if the handle is turned on achieves the gas spills. This endeavor deals with the acknowledgment, checking and control course of action of LPG spillage. The gas sensor MQ-5 is very sensitive to methane and propane which are principal constituents of LPG.

Literature Survey

This venture [1] is a viable positive method for checking the gas amount in the holder, and to private just as to put in a refill request in the individual branch office(gas organization), by means of a message by methods for web through IoT module. The nonstop measure is finished utilizing the heap cell which assistant takes a shot at the standard of piezoelectric sensor, i.e; when a gas holder is put on the heap cell it gauges the weight and sends an electric heartbeat to the processing board which will contrast the beat and a perfect an incentive in type of computerized (the electric heartbeat is changed over in to identical advanced esteem). In the event that the looked at yield is high, at that point it sends a pulse(high) to the IoT which will refresh it to the web yet doesn't submit a request, yet on the off chance that the thought about yield is low, at that point it send a pulse(low) to the IoT which will refresh it to the web an even put in a gas refill request.
Wellbeing and security is most essential for anything which we have in our every day life, particularly in the home to keep the blast of gases. Presently a-days the blast of residential LPG is expanding; LPG trick is additionally expanding parallel with it. To maintain a strategic distance from the every now and again checking the gas physically and trick, the amount of gas in barrel is consistently observed utilizing a weight

IOT based Surveillance Bot to Improve Security

Shubham Bartakke, Tejal Deshpande, Vikram Awate, Prof. S. J. Koparde
MMCOE College, Maharashtra, India

ABSTRACT: *There are several surveillance systems such as camera, CCTV etc. In such type of systems, the person who is nearby located in particular area can only see what is happening in that place . Our proposed systemis made for real-time live streaming and monitoring by using Raspberry Pi with inbuilt Wi-Fi connectivity. Whereas we can monitor the movements in 360 degrees which is accomplished by using L type DC motors. Also we are going to detect gas leakage. By using video cameras, information returned by ROBOT analyzed the real time images so that thecomputation effort, cost and a resource requirements needed are significantly decreased.*

Keywords: *Home Security, Raspberry Pi, Home Automation*

1. Introduction

Robots are becoming more advanced with technology.
The system mainobjective is to built a device that can becontrolled by the control instructions withmany integrated features.It is preferred for security cameras and isthe main part of home automation. Raspberry pi functions almost as a computer and has small size. Privacy and security are the main advantages of such type of systems. The other major advantage is that it is a simple circuit .The operating system used here is Raspbian OS. Frequently check and extremely harmful parameter is Gas Leakage.So, proposed system capable to monitoring this value indefinitely without any delay and without putting any harm's way. Our propose system is interface with gas sensor on Raspberry Pi and it has live video streaming. User can control the mobile video surveillance systems by using wire or wireless systems. The system is divided mainly as Raspberry Pi and Process Unit and is link together with wireless network. Raspberry Pi Unit will receive the readings from Sensor Unit and will upload to the server.
Raspberry Pi camera is interface with CSI port of Raspberry Pi.This system uses pi camera to detect obstacle in the surveillance area and by using live streamer can send captured data to authorized person.As we are using a bot to continuously move in thehome ,when it detects gas leakage it will send anotification alert to authorized person, so one can takea action.

Fig -1: Raspberry Pi 3 Model B

2. Literature Survey

In recent years, lots of research have been done in computer vision domain. Video surveillance in real-time scenario, especially for humans, live tracking and behavior analysis is one of the most active research topics in computer vision and artificial intelligence in present situation. For home application is to provide low cost efficient video surveillance system and can be use in application such as server room monitoring ,elevator. The existing systems requires huge storage capacity and consumes lots of bandwidth and this problems needs to be solved ..

Image Processing Based Automatic Painting Robot using Raspberry Pi

Vishal Nevase, Yash Pandya, Harshali Shaha, Prof. Anagha Kunte
Department of E & TC,
Marathwada Mitra Mandal's College of Engineering,
Pune, India

ABSTRACT: *In today's world, there is a requirement of quickness in jobs, machine-handling things that cannot be handled more accurately by humans. It is very much true and a much know fact that once a machine is efficient enough, it can perform any task assigned to it perform that with heightened accuracy. One such job includes applying paints over newly furnished walls, car parts and over a variety of plane surfaces. There are many painting machines based on sensing parameters and time, but problems arrive when the parameters of external environment change, where the paint is to be applied. For this matter to be solved, we aim at our project to solve the problem using digital image processing and color recognition. The idea is to capture the image of the wall where there is a leftover area to be painted and to paint the area. Similarly, as per the changes in car parts differ, each one can be scanned and the paint will be applied only on the area to be painted. The major advantage of this project is that the accuracy and flexibility of the painting machine, regarding different work environments, heightens gradually with the up gradation and integration of this project over different work environments.*

Keywords: *Digital Image Processing, Robotics, Automatic Control, Raspberry PI Processor, PI Camera, IR Sensor and Spray Painting Gun.*

1. Introduction

Automatic painting is feasible for various finishing task and applying designs over car parts. In the various industries, construction sites different painting machines or robots and techniques are used for painting external and internal walls. These concepts are further modified and used modified and used as which can be further integrated to form an image scanning and tattooing robot.

In this project, the robot that has electronic components and they are used in recognizing the white portion of walls which haven't been painted or have been left for design painting and will apply paint in only those areas. The software part involves application of the algorithm, briefly including the image recognition [7][8] to recognize and learn about the white portions on the walls to be painted, on car parts such as bonnets, doors of the cars along with different other metal body parts of cars and then a variety of other products and then applying the painting actuation. The mechanical design will consist of a robot arm [9][10], which will move vertically with a spray painting actuation, big enough to cover an area of approximately 4*2 feet for painting. The forward & backward movement of the robot covers the X-axis of the painting, whereas the up & down motion of the arm covers the Y-Axis of the painting.

II. Literature Survey

Airbrush Robotic Painting System focuses on building a painting robot for analyzing the colorful or graphical characteristics of the object before it [1]. The application of this robot is aimed towards artistic purposes as well as graphical goals. For the robot to acquire graphical aspects, it is provided with a mathematical formula for painting design, which is a radially symmetric Gaussian distribution function. This model validates the color spraying intensity of the single spraying brush through the parameters like airflow through the spray, the paint application duration over a specific part, the hue and saturation of the color over a period. Mechanical parts of the painting machine include a single airbrush nozzle along with a robotic arm.

Automatic Robotic Spray Painting of Low Volume High Variant Parts, Flex Paint approach use by this project [6], i.e. it uses detection of faults or anomalies on a surface area by analyzing the surface's irregularities, faults or cavities, and then applies the paint on the surfaces as well as the depths or faults of the surfaces. The detection of faults on the surfaces is done by LASER application and detection of the LASER light by a camera over the surface area. This gives the Microcomputer entire 3D model of the object area to be painted. The algorithm of this project also uses the function of Feature-Finding, to find and extract the geometrical features of the to-be-painted area.

Automated Arm for Harvesting Tomato in Greenhouse

Neha Kulkarni, Rishikesh Ramdasi, Vishakha Phirke, Prof Shubhangi Joshi
Marathwada Mitra Mandal's College of Engineering,
Pune. India

ABSTRACT: *A robotic ARM to detect ripe tomatoes and pick automatically is put forward in this paper. A 6 degree of freedom ARM with camera placed on the ARM will capture real time images by using image processing and a mobile plank which can freely move in the greenhouse environment. The operational flow is as follows. The camera will search for ripe tomatoes by scanning each plant in the greenhouse. After the detected object is matched with detection objectives like color, shape and value .The processor will act on the received information and will give signal one signal to ARM and other to the locomotion. The Robotic ARM moves to the corresponding position of the tomato. Finally, the gripper will pick the tomato and place it in the basket mounted on the chassis.*

Keywords: *6 Degree of Freedom, Mobile platform, Greenhouse environment, Raspi, Arduino, Greenhouse, Agri-Tech, Human-robot interface, Image detection, Object detection, Locomotion, Arm , Grippers, Containers, Coordinates, Camera, IOT, Mechatronics.*

1. Introduction

N any agriculture process, the most important and tiresome task is harvesting. Tomato trees are tall and thus requires skilled labors for precisely plucking the ripe tomato and harvesting has to be done in a certain time period where the farmer has to decide the best quality of the tomato and has to carry out harvesting task in a certain period of time. Now there is a shortage of human labor and this will keep growing in the nearing time period, this is a threat to the agricultural industry and many automated devices which can perform various tasks in agriculture are being designed every day.

In many Agri-Tech systems, the human eye is a key factor in sorting and inspection of all kinds of objects. The vision can be more prone to neglect small error and defect. Thus the processor which are trained in a manner to learn and improvise from the environment around could be more efficient and can have better control over product identification.

The FFRobotics presents a patented Robotic Fruit Harvester-The FFRobot [10]. It comprises of advance algorithms for fruit identification and classification as per the grower's preset criteria for harvesting solution. Can perform image processing which is well efficient in detecting disfigure, diseased or unripe fruits. Also, a High-Tech hand end which can precisely grasp different shape and size of the fruit.

Another Dual-Arm Agri-Tech robot for harvesting tomato in the greenhouse is developed by 'National High-tech Research and Development of China' [1].

It is a human-robot collaboration which consists of a 3 degree of freedom Arm with two end effectors. This two end effectors provide an extra grip over the tomato.

Automated harvesting devices comprise of various sensors and image processing techniques, along with a mobile platform which has a six degrees of freedom Arm mounted on top with a gripper to perform gripping and placing operation.

The platform has four wheels which operate on DC motor and thus made a mobile platform. The Arm has a camera mounted on top which can detect the object and capture real-time images and by processing that image input the Arms can platform's action is decided respectively.

II. Literature Survey

A basic requirement for object detection is image processing and a robust environment which can support the processing without any saturation. Many devices are introduced in Agricultural Technology which provides an interface between human and automation. This interface reduces the labor cost and minimizes the harvesting cost. For detection in the Greenhouse or outdoor environment, the detection mechanism must be extremely robust and precise.

Dual-arm robot delineation and testing were implemented for harvesting tomatoes in the greenhouse environment. This was reported as a prototype under the grant of the National High-Tech Research &Development Program of China [1]. They designed a harvesting Arm supported in an unstructured environment. A human-robot collaboration of 3 DOF manipulator and two end-effectors to improve

Automated Solar Grass Cutter With Robotic Arms

Maitreyee Shukla, Shiwanee Sonawane, Shruti Vaidya, Prof. SampadaTavse
Marathwada Mitra Mandal College Of Engineering,
Pune, India

ABSTRACT: *Our proposed system describes the different features and technologies present in Automated Solar Grass Cutter by overviewing multiple research done over time.*
In today's world, Automation is a very important part of invention. We have witnessed devices used to cut grass over the lawns are manually handled; and as it consumes more power it caused pollution and loss and energy. Because of this, automation for the given system, started to evolve which will reduce the human efforts. The design is made to clear the targeted area and providing guidance for the same. With the solar panel which is being used to provide power for the system, energy and power consumption for the system is minimised. In this paper different technologies and their use are discussed which can be implemented for grass cutting along with the mechanism of collecting the trimmed grassusing sensorsand robotic arm.

Keywords: *Arduino Uno, Cutter, Pick and place action, Renewable energy, Robotic car, Rotary encoder, Solar panel.*

1. Introduction

The different types of grass cutters are accessible for people, like electric grass cutter, gasoline grass cutter etc.
In a gasoline grass cutter, as there is a requirement of fuel to drive the engine, it increases the pollution and also has noisy operation. And electric grass cutter is working on electricity through electric motor. This cutter has supply through long wires and also the weight of the device is more and all of this increases the difficulty in operation.
So, to solve the above-mentioned problems, our designed system provides a robotic assembly that can be used for cutting the grass and also has mechanism to clear off the trimmed grass. The system works with the help ofsome partially automation work forassistance, along with a solar panel and a battery to maintain the power supply, placed over the system. The system consists of grass cutter, solar panel, motors (DC and Servo) and driver IC, rotary encoder, robotic body interfaced to an ATMEGA 328 P microcontroller.
Our proposed system shows how technology is being used to reduce human efforts as well as to efficiently utilize the renewable source of energy.
As part of our pre-study, we conducted an elaborate literature survey. The literature survey presents an overview on the articles which we have gone through for Solar Grass Cutter System.

Smart Solar Grass Cutter Robot for Grass Trimming

The idea ofa device with the need of human assistance is put forward to complete the motive of grass cutting. It is made up with the linear blades and works fine even with the climatic change. In this they have used DC motors along with the IR sensors for rotating the blade and for obstacle detection respectively [1].
As this system is manually handled, we have introduced controller-based operation which reduces the human efforts.

Modification of Solar Grass Cutting Machine

In this paper, they put their main aim as pollution control and added some technologies according to the requirements. They have made use of RFID technology which will make the system remotecontrolled. Also, with the use of solarpanel topower up the whole system. The system can be motor driven or can be used manually [3].
As this system is using remote controlled based application which still involves human efforts, we decided to take it one step further using controllers and sensors.

Fully Automated Solar Grass Cutter

The system is designed with the battery with 6V to power up the motors that are connected to wheels and to the cutter. Solar panel is also installed to provide continuous power without any need of charging it externally. With the use of controller 8051, control mechanism is given to the hardware. Interfacing of motors, cutter as well as ultrasonic sensor is executed. Once the obstacle is detected using ultrasonic sensor,

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

Economical Ankle Brachial Index Monitoring System

Kunal Satav, Mrunmayi Jawadekar, Pradnya Kondhekar, Prof. R. R. Malekar
Marathwada Mitra Mandal's College of Engineering
Pune, India

ABSTRACT: *Ankle Brachial Index Monitoring System was made to display the ratio of both the blood pressure of left and right side of the body that is both arms and legs respectively. Based on the ratio calculated, the blood clots were detected and help the doctor to predict the disease and accordingly guidance is given. The ratio was displayed on the android app using IOT technique which can be used by patients relatives and doctors for monitoring. Ideally the ratio for normal condition must be 1:1 but practically it was not possible due to the different conditions like body structure, age, position of the body, recent activities performed, illness if any, heart conditions, so on.*

Keywords: *ABI, Diastolic Pressure, Left ABI, PAD (Peripheral Arterial Disease), Right ABI, Systolic Pressure.*

1. Introduction

Now a days ordinary Blood pressure monitors (Sphygmomanometer) are used for measuring blood pressure of a person. This Sphygmomanometer provides us value of high (systolic) or low (diastolic) blood pressure. In this system, "Ankle Brachial Index monitoring system" will display the ratio of the two different blood pressures that is of left and right part of the body. Based on this ratio, doctors will predict what disease or problems that person is suffering from or can detect the problems in the early stages. The Ankle Brachial index was used to diagnose PAD. Blood clots can be recognized by doctors at earlier stages using this ratio. Similar ABI monitoring systems are available in market, we are aiming to downsize the system in a more affordable and simple way.

[1] The measurement of the force exerted on the blood vessels walls is called as Blood pressure. When the heart pumps blood many different events takes place in the body they are called as Cardiac cycle and during this cycle different measurements are taken at various points of the body. The unit for blood pressure is mmHg. During the measurement patient body should be parallel to ground and his arm should also be parallel to heart. We get the systolic Blood pressure by using the handcuff around the arm and inflating it till there is negligible flow of blood, afterwards it is deflated till pulse of the patient can be detected and also recorded. When the pulse are not able to detect next reading is taken called as diastolic pressure or low pressure, this occurs between the two heart beat period. In the Blood pressure reading eg-120/60 where 120 indicates systolic and 60 indicates diastolic reading. Pulsating of the arteries due to heart beat in medical term is called as a persons pulse. A healthy person has a pulse rate of 60 to 100 BPM (Beats Per Min). When at rest it can drop to 40 BPM, after physical workout it can go high upto 200-220 BPM. Youth have higher pulse rate. Change in blood pressure during heart contraction is called as pulse pressure.

Pulse Pressure = Systolic Pressure - Diastolic Pressure

- Precautions to be taken for accurate readings :-
  a. Patient should not consume tobacco caffeine 30 Min prior to checkup.
  b. Patient should be made to relax for 5 Min without any movement and talking.
  c. cuff should be wrapped properly on the arm.
  d. Patient must be completely at ease.
  e. Patient should be made to sleep parallel to ground that is cuff must be at heart level.

[2] The ratio of systolic pressure of Ankle to systolic pressure of arm is called as Ankle Brachial Index. It is used for diagnosis of PAD and also cardiovascular disease. The patient are allowed to rest for 10 min in supine position for measuring the systolic pressure from both Brachial arteries and legs. This way ABI can be measured. A hand held Doppler instrument ranging from 5 to 10-mHz is used to record the systolic pressure. Blood pressure cuffs are used at the ankle. Initially it is mandatory to begin with right arm, right leg, then left leg and lastly the left arm. Out of two arteries at the ankle, highest pressure was chosen and divided by systolic pressure of the Brachial arteries, to determine the ABI value. Ideally there should be minimum inter-arm systolic pressure (<= 10 mmHg) gradient for routine checkup. Risk for PAD is more if there is continuous difference in pressure between the arms greater than 10 mmHg .

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

Automatic Shiftable Road Divider

Akash Korke, Disha Patil, Dipali Wakure, Prof. Vishal Salve
Dept. of E&TC, Marathawada Mitra Mandal's College of Engineering,
Pune, India

ABSTRACT: *This paper presents a project on automatic shiftable road divider. From research we have seen that in our day to day life, we came across traffic while travelling. Traffic on highway is increasing day by day. It is very difficult to travel in such a heavy traffic. This results in delay to reach our destination. There is no other way to get out of this traffic early because of the static dividers on road. This is also time consuming as there are no movable dividers available on road which will help us in reducing traffic. This current system of the static dividers are not as much efficient to help in reducing the traffic. This paper contains an information about the system which will help us to solve this problem. This system "Automatic Shiftable Road Divider" will help in reducing and managing traffic and will help to reach our destination in less time.*

Keywords: *Raspberry Pi, Dc Motor, TOM-TOM API, IR sensor.*

1. Introduction

In coming years, with an ever increasing rate of development in metro cities around the world, there will be proportional increase in numbers of automobiles on roads. Although the number of vehicles using the roads has been increased, the static road infrastructure is almost the same.[4][5]Which will result in the congestion, unpredictable travel time delays, road accidents, etc. These problems are taking a serious shape. Traffic congestion has been a major problem for metropolitan public in spite of measures being taken to mitigate and reduce it. It has become the major challenge for developers in urban areas for planning of sustainable cities. The concept of movable dividers were from 90's, only reason is traffic congestion. At that period there was one machine developed which is called as "Zipper Machine". This machine is used to shift the dividers from one lane of the road to the other. The first working model of Zipper machine was bought by Hawaii department of transport in late 90's.This machine contains s-shape inverted conveyor channel which lifts the barrier segment weight of about 450kgs. The length of the machine is about 1000 feet. Whenever there is traffic congestion the machine will move along with the barrier segment that contains the dividers will also moves. This result in the width of lanes. In the proposed model we are not using any machine and operating it manually rather we are operating it automatically by using the two dividers namely normal and extended dividers. In this paper we tracking firstly the traffic using map API called TOM TOM API. The data from the TOM TOM API will be given to the raspberry pi simultaneously it will also store on the database for the future use. According to the data raspberry pi will take an action of shifting of dividers.

2. Block Diagram

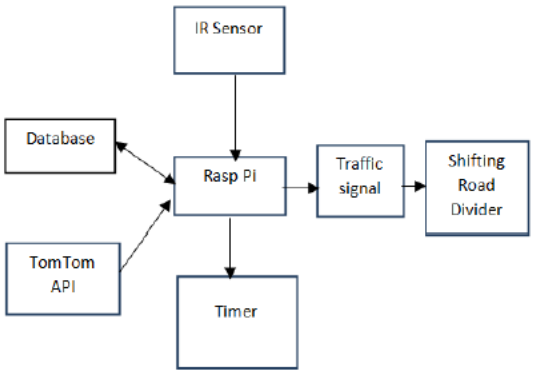


Fig. 2.1 Block Diagram

Object Detection for Unmanned Aerial Vehicles using SSD Mobilenet

Nikhil Nagarkar, Pranil Angre, Mahesh Arangale, Prof. Disha Parkhi
Electronics and Telecommunication Department, Marathwada Mitra Mandal College of Engineering, Pune, India

ABSTRACT: *Unmanned aerial vehicle is a new exciting technology which is rapidly growing in the field of reconnaissance, search-and-rescue, infrastructure inspection and acquiring land data. They play a crucial role in acquiring imagery data where manned missions cannot take place. Various technologies have been explored to make them autonomous and to reduce human intervention. By adding Object detection to UAV, it will make them smart and more robust and no human intervention will be needed. The hardware requirement for object detection is lot in terms of space and this cannot accommodate on a small drone.At present some technologies are in work to implement object detection for UAV's using cloud computing, but cloud computing has a problem of latency for real time systems. Our paper aims at resolving this by providing a localized solution using lightweight machine learning models which can run on laptops or smartphones.It will be easy to implement and low cost than the other techniques.*

Keywords: *Drone, Object detection, SSD Mobilenet, Unmanned aerial vehicles (UAV).*

1. Introduction

AN Unmanned Aerial Vehicle (UAV) also known as drone is an aircraft which is driven by the pilot /user from ground using a remote control. There has been drastically change in the applications of UAVs in recent years such as surveillance, reconnaissance, rescue operation, agriculture and asset inspection. UAVs play vital role for human less applications. They can reach in areas where it's impossible for humans to make way for them to carry out the task. UAVs can be operated under remote control by a human operator as well as autonomously using computer. UAVs fly because of the air lift provided by the propellers. The number of propellers will vary according to the configuration of the drone. They can carry a lethal or non-lethal load, earlier they were used mostly for military applications. In upcoming digital life, its applications by civilians is significantly rising.

Visual Detection for all the above applications is an important element. Object detection consist of Convolutional Neural Networks (CNNs) which require immense computation power and this id difficult to make available on a drone. Various approaches have been introduced to tackle these challenges.

However, to develop a fully autonomous object detection in real-time is a challenging task. Many application specific drones have been developed for the same [3][4][5]but they suffer from the issue of latency, and costly systems[2].

In this paper we have proposed a different approach in which the video feed will be transmitted to device which is remote from the drone and it will perform the video processing required for object detection. This project would be capturing images continuously by the camera and the corresponding video would be screened on the computer. Parallelly, multiple objects would be detected and show in a box with the label. The accuracy of the detected object would be also detected.

II. Overview

A. Unmanned Aerial Vehicles

Unmanned aerial vehicles as the name suggests are unmanned flying vehicles which doesn't need a pilot in craft present but can be flown from a distant location using a remote control. The use of unmanned aerial vehicles in the private and commercial sector has been increasing in an unprecedented speed[1]. Many applications such as surveillance, search and rescue, photography is done with the use of drones. Drones are a feasible solution where manned mission is difficult or costly where the drone can be controlled from a distant location. At present the trend is tomake drones autonomous by adding technologies such as collision avoidance, automatic route finding,object tracking and object detection[1]. The main challenge is the visual navigation of the surrounding environment[8].This can be tackled using object detection but providing it with real time constraints is another obstacle[9]. In our work we try to explore a solution which is feasible and cost effective.

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

Electric vehicle using renewable sources

1st GauravSonawane, 2nd Hitesh Bachhav, 3rd KundanPatil, 4th Prof. M. R. Pangaonkar
E & TC Department,
Marathwada Mitra Mandal's College of Engineering,
Pune, India

ABSTRACT: *On the basis of renewable sources, we are designing vehicle-based on solar and wind energy sources. The solar energy is stored in a rechargeable battery for providing energy to the battery of a vehicle. While discharging the vehicle battery, the battery level indicator indicates to charge the battery and it can be charged from the nearby charging station. The wind energy can be stored by the mechanism of the prototype design of the turbine. It is designed by rotation of DC motor which can store energy. Solar and wind energy are the main renewable sources for our vehicle designing system. This design can minimize problems due to fuel and electricity consumption. There is no need to charge battery with electricity it charged through solar panel and turbine mechanism. We are using the GPS connection for detecting the location of the vehicle.*

Keywords: *Energy storage, Node MCU, Electrical Vehicle (EV), Rechargeable battery, Wind energy, Solar energy, Smart city, Mobility*

1. Introduction

Now a days the fuel rate is above 90rs/li. Due to the fuel engines, pollution is increases day by day. In daily routine, public transport is very important but as we see the fuel rate, some people avoid the use of bikes or cars. A few years ago Elon Musk launched a new concept in the industry. The concept is to used electricity instead of the fuel in cars or bikes many problems can be solved. This concept was implemented in the Tesla Group of Industries [8]. The Battery of Tesla car charge on Electricity but as we know the Electricity must be reserved for the Future. The electric power system of EV's imitated to compare with cost and emission of electricity of conventional power system [5].If we have a natural source of energy as like Solar, Wind. Then we need to avoid electricity as much as possible. Hence on the basis of today's fuel consumption problem we have a solution is storing energy into the Battery using solar and wind energy. We used this energy in our regular domestic appliances instead of Electricity. We overcome this electricity problem. We have considered that energy supplies from renewable sources are time variant and it may be unpredictable[7]. We aresaving the energy using renewable sources through a battery charger and store it in the battery. If the vehicle battery is high/ low battery level indicator indicate it on the vehicle. Solar and wind energy are the main sources for our designing application. Many applications can be designed using solar energy and wind energy, the vehicle will be charged through these sources charging station[1][5]. For wind energy, we are designing the mechanism of a turbine using rotation of the motor. The rotation of the motor is used for the energy storing system. This stored energy is utilized for the smart city[2].

II. Literature Survey

The literature survey presents an overview of the EV's system using renewable sources [4]. The journals were analyzed and content is presented. After analyzing what systems have been in the published in the journals, we presented our ideas which were focused on improving the existing system.

Table no. 1: Literature Survey

Sr. No.	Author	Year	Topic
1	Dr. Ebert Etal [1]	2009	Mobility based on Mobility
2	Peng Yen Liew [2]	Jun-14	Optimal renewable energy system for smart cities.
3	Cheng K.W.E [3]	09 Feb. 2017	Energy management System for mobility and smart city
4	Michela Longo [4]	05 Nov. 2018	Electric vehicles integrated with renewable energy resources for sustainable mobility

ASTRO: An Old Age Assistant Bot With Fitness Band

Astha Mattoo, Sakshi Kulkarn, Siddesh Mandhare, Prof. Harshada Burande
Professor,
Department of Development Studies,
University of Dhaka Bangladesh, Bangladesh.

ABSTRACT: *With the changing lifestyles the youth is adapting with it, however the senior citizens have to face many issues as a consequence of this socio-technological transformation. In modern times both the elders in house are working, the children have an even busier schedule which results in most of the elders living alone. And to top it all, technology is taking over most of our lives, not being able to accustom to it makes their day to day tasks complex. Unfortunately, sometimes children are unable to come on time when their parents fall sick. World have became so complex and busy therefore don't bother for their health. The project aims at autonomously monitoring the health of the person, to reduce any casualities due to unattended help during emergency and to form a companion who overcomes the boredom of elder people living alone. The project consists of an interactive bot and a fitness band. Fitness Band can sense heart rate , oxygen level and body temperature. The data is then fetched and sent to main interactive bot which sends the alert to emergency contact whenever in need.*

Keywords: *Arduino Nano, Fitness Band, Bluetooth Module, Heart rate, Temperature, Internet of Things(IoT), Raspberyy pi , interactive bot, GSM.*

1. Introduction

In this century, the importance of Interactive bots is increasing more than mechanical bots. Assistant bots can be fun friend as well as helpful assistant with serious technology inside. In this world where everyone is running towards their goal, they don't have time for themselves & health has taken a backseat. In times like this, automatic health monitoring should become a priority in terms of technological advancement. This will help every individual in monitoring the health without spending extra time on it.

In Every family nowadays. both the adults are working, which means the elderly people are left unattended or in some cases at an old age home. This isolation causes loneliness & it can result in life-threatening diseases. Alzheimer's is also one of the most common & serious illness in old age, which makes a person forget basic day to day things, people they know, & even about themselves. They also forget taking their daily medicines, which can escalate the illness. Reminding them about all this can help them go through Alzimer's with less difficulty.

The project aims at creating easy life for elders. It is aimed to reduce casualties due to unattended medical help during emergency. Therefore, health will be regularly monitored by fitness band. If emergency conditions arise, it will send alert to Raspberry-Pi using Bluetooth Module or wifi. The main bot will be interactive bot. It will also remind them of important stuff, about their daily routine their lunch, dinner, medicines, which can be personalized.

Literature Survey

The need for a Robot assistant is scarce now, but with time it will increase. Humans are prone to error, but a probability of well designed 'bot' malfunctioning is relatively low. A bot should not only attain to basic need but also be intelligent enough to detect emergencies and save lives. This is what the project aimed at. The bot was well equipped with Interaction, Voice Control, Obstacle Detection and Avoidance, Personalized Routine and Medicine reminder working in sync with Fitness band. Arduino Nano interfaced with Temperature Sensor(LM35) and Heart rate Sensor (MAX 30100) was the fitness band.

Siddharth Kokalki, Akshay Mali, Pawan Mundada and Ritesh H. Sontakke , Department of Computer Science and Engineering, DKTE Society's Textile and Engineering Institute, Ichalkaranji .have published a paper on 'Smart Health Band using IoT' [5]. This paper monitors health of the user with Arduino uno, temperature and heart rate sensor and sends the data to cloud (thingspeak). On thingspeak,a graph displays sensed temperature and heart rate which is then taken on mobile application. So as the user can know temperature and pulse rate at all times. When the pulse rate changes drastically and is in critical range, a message will be send to doctor.

Smart Intelligent Two Axis Robotic Simulator

Aishwarya Lande, Akshay Havaldar, Shiwani Fuse
Department of Electronics & Tele Communication Engineering,
MMCOE, Karvenagar, Pune, India

ABSTRACT: *The prototype is about simulation of artillery system which can help to lay the system Remotely with high accuracy and consistency. Various electronics modules are used to operate the artillery gun remotely without any manual intervention. It will help to hit the target very accurately as it simulates Various angles of elevation and azimuth. The project is about inspection of Artillery system using Arduino uno, Bluetooth module, various sensors and motors. System Simulates elevation and traversing of gun barrel with the help of Bluetooth module using android application. By simulating various sensors and motors we get gun fire at a particular set point.*

Keywords: *Arduino Uno, Bluetooth Module, Temperature, Fuel level, Steering Adjust, Acceleration Pedal.*

1. Introduction

Artillery system are designed to provide fire support for armor (the metal coverings formerly worn to protect the body in battle) and infantry forces by firing equipment (military weapon) at greater distances than small arms and light weapons. In this prototype, the term artillery weapon system is used to refer specifically to be able to move without external support, towed (motor vehicle or boat), and placing guns (i.e. not man-portable) of a caliber greater which are designed for indirect fire and having the ability of hitting targets at a considerable range. Artillery weapons typically operate as a unit, or 'battery', and are intended to deliver a simultaneous discharge of artillery (or other guns at battle) fire against an area target. Artillery weapons can either be towed or able to move without external support, and can be armored or unarmored. Modern artillery are intended to deliver a simultaneous discharge of artillery (or other guns at battle) fire against an area target. Artillery weapons can either be dragged or able to move. It is **the** prot**ot**ype of artillery system which can help to lay the system remotely with high accuracy and consistency. Various electronics modules have been used to simulates various angles of elevation and azimuth. The project is about inspection of Artillery system using Arduino uno, Bluetooth module, various sensors and motors. System Simulates elevation and traversing of gun barrel with the help of Bluetooth module using android application. By simulating various sensors and motors we get gun fire at a particular set point.
main results

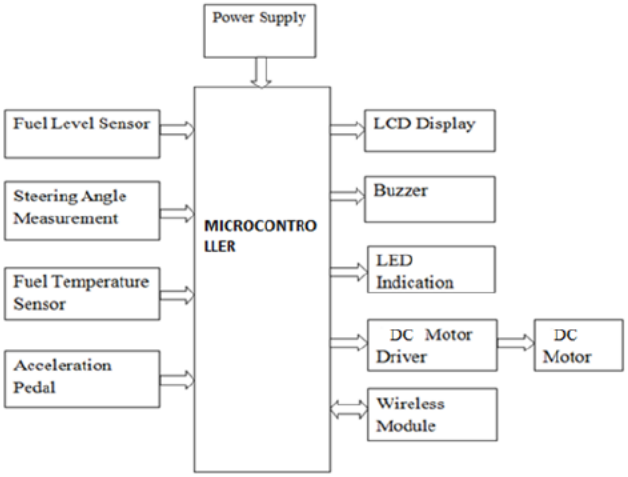


Fig no.1: Block Diagram

IOT based Wizard Chessboard

Yashraj Hawle, Aishwarya Zade, Bharat Dixit, Prof. Shubhangi Joshi
Marathwada Mitra Mandal's College of Engineering,
Pune, India

ABSTRACT: *In this trending era of IOT where any device or node could be connected to internet, the scope of the following technology is stupendous. What if instead a device, it could be implemented in a vintage game like Chess? An IOT based Chessboard which can communicate with each other over cloud streaming is the aim of this project where the chess players could actually study their game as their moves would be uploaded online. Here two chessboards would be online and play against each other. The pieces were color coded, which is how you know where an opponent pieces were placed on the board. Professional chess players would never recommend a 5MB android application or a traditional computer chess game and would always go with the actual board game. This would enable them to play chess with the other player who could be in any part of the world connected to internet.*

Keywords: *IOT, Node MCU(ESP8266), Reed Switches (WS2812), Shift Register(74HC165), RGB LED, LCD.*

1. Introduction

Chess is a board game where we deal with 16 pieces, most powerful being the queen and least powerful being the pawns. IOT is a trending idea nowadays, so it is our job to make most of it. This project gives a practical explanation of IOT in a productive manner by using well known vintage game that is chess itself. This project is called 'Wizard Chessboard' or 'IOT based Chessboard' which comprises of cloud based communication between two chess boards and implementing a old game like chess as a modern outcome. This indeed is the best demonstration of IOT and embedded systems.

Each block has a Reed switch and RGB LED under it. Every block light up independently with the help of reed switch where it senses the magnetic pieces. 8 Reed switches of each row were connected to 8 shift registers. The 9th shift register being used for inputs from front panel switches. 9 PISO (Parallel In Serial Out) shift registers are used per board in which 8 shift registers are connected in array. The pieces are color coded, which is how you know where your opponent pieces are on the board. To make it easier to remember the color codes, there is a panel notifying the respective colors of pieces provided at the bottom of the board, for example (White for pawns, Yellow for Queen, Violet for King).

There are two such boards connected to each other over a cloud, streaming the moves on both sides. Thing Speak is the platform used here for streaming the data. The chess players on both the sides can study this streamed data (ex. Time taken for a move) to improve their game strategies.

Components Description

- **Reed Switch**

Reed switch as shown in Fig 1 is an electrical switch which operates on applied magnetic field which in this case are the chess pieces, it acts an input to the shift register or 8x8 matrix. These are placed under 64 blocks per board.

Fig 1. Reed Switch

- **Node MCU**

As this project demands a Wi-Fi connection along with embedded working, Raspberry Pi being a better option turned out to be costlier as it needed to be on both the boards at same time. Same went with a Arduino controller with Wi-Fi module attached externally. Node MCU as shown in Fig 2, being compact and cost-friendly was any time a better option for this project. Having a dedicated Wi-Fi module, it could stream

Smart and Energy Efficient Power Saving System

Pooja Kad, Pratiksha Gadam, Saurabh Khotare, Prof. Sampada Tavse
Dept. of E&TC,
Marathwada Mitra Mandal College of Engineering,
Pune, India

ABSTRACT: *This paper proposesthe design and implementation of power saving system which focuses on energy monitoring and controlling. Energy monitoring and conservation has great importance due to imbalance between power generation and demand. Many times, consumers are not satisfied with electricity bills as it does not show the power consumed at device level. This system is designed by using IOT which can minimize both power consumption and human efforts. Proposed system is use for monitoring and controlling of light as well as fan which can save electricity. The advantage of this device is that we can understand the power consumed by electrical appliances and take further steps to control them anywhere in the world and thus help in energy conservation. The monitoring of energy consumption and controlling of electrical appliances is done by using Thunkable Platform.*

Keywords: *Node MCU, PIR Sensor, AD Smodule, Current Sensor, Voltage Sensor, IOT, Thunk able, Firebase.*

1. Introduction

The economy of any nation mostly depends on energy utilization in different fields of science and technologies. In developing country like India, the gap between electric supply and its requirement in terms of both capacity an energy. In India almost all the places have manual switching system for the electrical appliances like light and fan which often left ON in public places, seminar hall etc. This results in energy wastage. Energy is mostly wasted in the university classroom, street lights etc. Because 65% of the total energy is consumed by offices, street light and remaining energy is consumed by hostel, staff quarters. And this energy consumption can be reduced through various method such as use of time scheduling device for power supply, use of energy management devices based on image processing [3]. To control street light lamps remotely and its intensity according to the data received from the doppler sensor they have designed the by WSN (wireless sensor network) [4]. Home automation system is helpful for researchers and home appliances companies. Because of automation system not only human labour decreases but also it saves time and energy [5-7]. This paper aims for the monitoring the power consumed and controlling of the devices. This system is designed by using NodeMCU. Human presence is detected by PIR Sensor LDR will adjust the intensity of light
According to day light.By using mobile application, we can understand the electric power consumed at device level.

Motivation

As there is imbalance between electricity generation and its demand,energy monitoring and conservation has great importance in today's world.in the traditional lighting system lot of electricity wasted because there is human tendency to forget to switch off the lights. This energy wastage can be reduced by using automatic system designed in IOT which can reduce both power consumption and required human efforts. Anywhere in the world IOT plays an importance role because of which remotely monitoring and controlling can be easily done. Hence to minimize wastage of electricity this system uses IOT as a domain and NodeMCU to perform remotely operation anywhere in the world.

Block Diagram

Android Application Based Smart Pet Feeder Using IOT

Gauri Narendra Bhale, Tejal Shirish Deshpande, Akash Sanjay Arve, Prof. Shubhangi A Joshi
Department of Electronics and Telecommunication,
Marathwada Mitramandal's College of Engineering,
Pune, Maharashtra, India

ABSTRACT: *Internet has nowadays is prime need of human beings for performing their day to day tasks such as making online railway reservations, bank payments, electricity bills, mobile bill payments etc. Human dependence has provoked us to link every entity around us to with internet and ease our life. Keeping in mind this domain concept we thought of an idea which can simplify manual work of pet feeding and also can provide ease to animals. In our project we are aiming to develop a food feeding system for pets which can feed them with required amount food on proper time in our absence as well. Our system inculcates a prototype in which we will understand intake of pet and as per its need feed him accordingly.*

Keywords: *Pet Feeder, IoT, Android Application.*

1. Introduction

IoT conception is emerging & popularizing with a large pace and has become vital factor of our lives. Using IoT in collaborations with different electronic devices and developing a friendly gadget is in trend. IoT has a greatest advantage in which we can operate our system from any place throughout world. Pet Feeding was a tedious job using traditional methods of pet feeding also it was completely manual so whenever the owner was not available he had to make the necessary arrangement for the pet. This was not that easy for owner as well as pets so we came up with an idea to develop a pet feeder using IoT. Automatic pet feeder a currently used in variety of regions in world but not all of them are connected to internet. Most of them are timer based or can be operated using basic modules like GSM hence have low output efficiency. Thus while developing pet feeder we thought of linking it with IoT through Android Application. A brief introduction of the system can be given as by stating important components and features regarding the system. It comprises of DC motor, load cell, relay in hardware part and we are using MIT app inventor for development of Android Application and Firebase for satisfying requirement of cloud & data analysis. The brain of the system is its controller and we used here Raspberry Pi 0 which is suitable for this purpose and also comes with latest features ensuring a good compatibility with other devices.

II. Literature Survey

1] The system developed by author of this system can be used to serve domestic purposes. It is made up of devices like Atmega8 controller, buzzer, power supply, DC motor & valves. Major drawback of system is lack of connectivity with internet.
2] Here the key component used by the author that makes the system different from other is turntable controlled with stepper motor so as to serve variety of food at a time to the pet. This system has PIC controller which is not in use now a days.
3] The idea of this system is that whenever it senses presence of pet near it, system disperses food. Here they have made use of Arduino & Wi-Fi module and other hardware components too.
4] System presented in this paper is a complete pet care system which is further divide in three segments that are a pet feeder, pet collar and a pet door. Each sub section comprises of different components as per requirements. Output of system is acquired on thing speak portal.
5] Here pet feeder and pet door system is developed by the authors on using the domain of WSN and IoT.
6] This system is combination of three systems that is pet feeder, camera and pooping pad. It works on IoT domain and is supported by Android application.
7] The basic idea behind this system is using GSM module to notify alerts to the user using SMS system. And it uses IR remote for operation.
8] This system makes use of Arduino and Node MCU for its functioning and acquires notification on application. It uses MQTT protocol as well.

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

Speaking System For Mute People Using Hand Gesture

Ashwini Shinde, Prajakta Karale, Riya Patel, Prof. Priya Sawant
Marathwada Mitra Mandal's College of Engineering,
Pune, India

ABSTRACT: *There are many ways of communication and one of them is vocal communication in which we can convey our thoughts, messages and information. Mute people however are not able to share their thoughts in a vocal way due to some physical disabilities. These people use sign language for communication but all people are not able to understand sign language. There are many devices which convert sign language into speech, e.g. gloves using flex sensor. The flex sensors which are situated between the fingers of the gloves will capture different hand gestures and then convert it into speech/text. This will be easy to understand for common people. Our proposed system has a camera as input for capturing the image and OpenCv python modules/software are used for processing sign language.*

Keywords: *OpenCv, Python-Idle, Text-to-Speech.*

1. Introduction

According to research, 10-15 million people are mute in India. The main problem which is to be solved is the communication problem between mute people and common people. These people cannot express their views using words, hence they face many difficulties in their daily life. To tackle this problem they have found many solutions, some of them are using hand written notes, interpreter for conveying their message, etc.

As compared to sign language written mode of communication is more convenient for the common people. Therefore speech to text converter module is developed. The main aim is to overcome the communication barrier by developing an application oriented project that can convert sign language into speech. The system uses English letters from A to Z which are associated with sign language and converts it into speech. Thus this module helps to solve the problem of mute people by interpreting different gestures in front of camera and producing voice output.

Sign recognition is an application of understanding the image. It has two phases sign recognition and sign detection.Sign detection find out position of different gestures. Sign recognition is used to differentiate between the various types of gestures. This module leads to development of the program and computerized application that will help in improving communication using sign language.

It will generate text and speech to make mute people independent. Our motto is to develop a system that will recognize hand gestures of mute people. This also includes finger spellings.This module makes use of a camera that captures the live images. They are then given to OpenCv. Camera captures the gestures and those are matched to the database image and matched images gives output as text, text is then converted to speech using text to speech converter.

Related Work

As per the research there are some systems available which convert sign language into corresponding speech. This conversion is carried using smart gloves, which recognize different hand gestures and convert it into speech. Analysis of gloves is implemented optically and mechanicallyusing sensors. The sensor produces electrical signal from the finger movements. Limitation of the system is that if the resistance or voltage of flex sensors varies then corresponding output will change[10].

Some similar real time ideas such as – Voice for Mute System was developed to translate different hand gestures into voice message. The work is built using Microsoft visual 2010 which is an IDE(Integrated Development Environment) from Microsoft. This provides a platform to image processing library such as OpenCV along with C++ programming language. Due to use of MSV (C++)compilation is explicit[1].

Design of Communication Aid for physically challenged was developed to recognize gestures and produce corresponding voice output using MATLAB[2].

The full duplex intelligent communication system for deaf and dumb people is basically conversion of recognized gestures into text and speech and vice versa[7].

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

Automatic Robo Vehicle System for Military Border Area

Shubham Amrutkar, Rahul Harishchandre, Pranay Khadgi, Prof. Mrinalini Pangaonkar
Dept. of E & TC,
Marathwada Mitra Mandal's College of Engineering,
Pune, India

ABSTRACT: *The border areas or human restricted areas need to continuously monitor intruders like terrorist, and civilian of other nation. Human loss is the big problem in this area, so we developed an Army Robot to operate in this area which is used to perform dangerous activities. There is various application of the army robot such as military, border surveillance, bomb detection and various other military operations. The main issue in every country is the soldiers are shot down by the terrorist, and there is huge loss of soldiers in that area, so to avoid the loss of the soldiers we developed a robot which uses Raspberry Pi camera for the detection of the terrorist. The exact position and distance of the terrorist is detected with the help of TF mini Lidar laser range finder sensor. Hence the objective is to replace the soldiers with an army robot which is used to avoid the human loss and perform various abstract activities. This robotic technology must be implemented by every country to protect the lives of many soldiers. As per our purpose, the robot moves in a fixed area with a pre-defined path, and the robot moves on perimeter wire for a path, wires are buried under the ground.*

Keywords: *Raspberry Pi- 3b, Arduino UNO, Image processing, TF mini lidar, electromagnetic actuator..*

1. Introduction

The aim of this project is to develop an Army Robot or vehicle which is used to detect and target the presence of intruders like terrorist in the human restricted area. Due to increasing human loss across the border of every country, we need to replace the soldier with a robot which is used to perform various military operations and used to save the life of a soldier. We are concentrating mainly on the application of border surveillance where an Army Robot is used to monitor the border area which helps to reduce human loss. The robot also used to detect the underground mines, border patrol, bomb detection and various other military operations. We are concentrating on the application of border surveillance, detection of intruder and targeting, where the intruder detection is to be done with the help of camera placed at the front side of the robot. For detection, Image processing is required which is to be processed by raspberry pi. The robot is moving in a predefined path in a fixed "Human restricted area". Initially, the robot is moved on perimeter wires for path, it is to be controlled by Arduino UNO ATmega-328 microcontroller. During motion of robot it may occur obstacles, ultrasonic sensor is used for obstacle avoidance. Along with, TF mini Lidar sensor is mounted on a robot to measure the precise distance between the robot and intruder. If the intruder detected by camera, further the robot stops in its current position and TF mini lidar sensor evaluate the distance and targeting or firing mechanism occurs. The communication occurs between Raspberry Pi RF receiver module and base station. It will send message to base station that intruder detected at the human restricted area, so take some actions. The Arduino Due is used for time critical and heavy I/O applications. The Raspberry Pi is used for graphics processing and networking applications.

II. Motivation

Nowadays the ambush by terrorists increasing day by day exponentially at the border areas. There are several terrorist organisations who are deployed across the border areas, especially India-Pakistan border. Having their heavy ammunition storages, launch pads etc. through which the terrorists are send it to make ambush on the soldiers across border areas. It causes heavy amount of soldier death. Due to the harsh and bushy areas at the border, it does not able to see the intruder exactly. Most of the times intruder also comes and wore with Ghillie suits so soldiers cannot able to identify the intruders by having their binoculars. Foremost the emphasis is given to the unmanned robot. The movements of some malicious activities are detected by precise sensors at the border areas. Mostly it happens that all the intruders are not terrorists, so we make sure that not having casualties to them, so in the proposed system we classify the object using image processing and according to that the firing mechanism operated. Use of such Intelligent Unmanned robot may reduce the killings of soldiers and efforts put by them. It may be the reason to reduce the terrorism across borders in the future. The Main motivation behind the whole project is that to save the precious lives of our soldiers who fight for us. In the existing world, many countries like Israel, USA, Russia

Automatic Rising Bollards for BRT Lanes

Suyog Korpe, Pratik Shirode, Mahesh Bothe, Prof. S. N. Deshmukh
Department of E & TC,
Marathwada Mitra Mandal's College of Engineering,
Pune, India

ABSTRACT: *India is one of the fastest growing country in the world, with increase in population, technologies, industries, IT parks etc. To get more opportunities people are moving towards growing Cities/Areas and this leads to increase in Vehicles that are owned by the people. Due to increase in the number of Vehicles traffic has become the major issue for us. For controlling the traffic various solution has been put forward such as, increase in number of highways, expressways and in cities having separate lane for public transport(BRT lanes).In cities now-a- days people having private vehicles are using separate lane that is allotted for public transport, ambulance and fire extinguisher in accordance to save the time. But due to this the speed of public transport has been slow down and people who are using public transport are facing issues like are getting late for the office and travelling time of the people is getting increased. For safety for people the private vehicles should not be allowed to enter the BRT lanes .For this we have proposed the solution that is Automatic rising bollards for BRT lanes. This solution can help us to resolve the problem of traffic and insure the safety of people using public transport.*

Keywords: *Raspberry-pi, Servo motor, RFID tag, RFID reader, IR sensor.*

1. Introduction

In Various countries like USA, Japan, China, Russia the bollards are commonly used for serving various purposes like car park security, Traffic management, Driveway access control. Automatic bollards successfully restrict access to car parks, controlling vehicle access in and out of an area. Traffic management involves the exclusion of vehicles altogether to create pedestrian zones or creating priority lanes for public transport. Bollards can be utilized to protect your driveway from vehicle theft. Bollards can be carried out manually, electrically, pneumatically or hydraulically and respond to various security specifications and design requirements. Nowadays Hydraulic rising bollards are designed especially for high security vehicle entrances and for locations that has to be closed for motorized traffic on specific times. But in India the use of bollard is less. In our project we are implementing bollard system in BRT lane. In India automatic bollard will play an important role and help us to control traffic. The bollards are also known as barrier system which are used to protect military, governmental buildings and other buildings for highest security purpose. Generally bollards are implemented using hydraulic system. But hydraulic bollards are costly, complex to install and their maintenance is high. So instead of Hydraulic bollard system we are using servo motor for automatic raising and lowering of bollards. Servo motor used in the system is SG90 servo motor. In our system we use of RFID mechanism. RFID mechanism consist of RFID tag and RFID reader. RFID tag will be tagged on the vehicles which are allowed to pass though the BRT lane. Our system also contains Raspberry-pi. Through our project we are providing bollards for the BRT lanes in India.

II. Literature Survey

1. [2]"Designing of Hydraulic Bollard System Using Accumulator Bladder for Better Security Solutions": This paper is about the design and working of hydraulic bollard system. This system gives information about the hydraulic bollard which plays an important role in controlling traffic. In this paper author explains the importance of bollard in shopping malls, Government buildings, DRDO's etc.
2. [1]"An Intelligent Parking Management System for Urban Areas ": This paper is about efficient management of parking spaces on both public roads and controlled zones. Wireless sensor network are used in this paper. Traffic sensor are also used in order to inform the driver about the parking slot which is been free/empty.
3. [3]"Vehicle Barriers- development of a model and standard": This paper is about vehicle barriers that are been tested in US and UK. Vehicle barriers and bollards are widely used to control vehicle access to areas for ~ security, safety or social reasons in various parts of world. The main threats to vehicle barriers in the UK have come from criminal 'ram-raiders' attacking shops and offices.
4. [4] "Visibility Evaluation Experiments of Optical Wireless Pedestrian-Support System Using Self-illuminating Bollard": This paper is about pedestrian movement support system and visible light

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

Implementation of PCB plotter based on CNC machines using Arduino

Akshata Mulik[1], Dattatraya Patil[2], Mrunmayee Mirashi[3], Prof. Harshada Burande

ABSTRACT: *In today's modern world need for electronic gadgets/machines is increasing rapidly. Hence the use of automatic machines is becoming a necessity. This paper is about using CNC machines; we can draw a layout on PCB boards. Manufacturing of low cost CNC machines are used to diminish the complex structure and cost of the machines.*
At first the user need to convert any image file or text file into G code using All to G code converter software and then feed it to the machine using GRBL controller software. Arduino Uno with an Atmega328 controller is used (in this project). All to G code converter converts the image file into set of the instructions and through these instructions the system will work.

Keywords: *Computer Numeric Code(CNC),Printed Circuit Boards(PCB), G-code,GRBL, Arduino.*

1. Introduction

PCB's are produced from a very long time. As the technology developed the need for the PCB's also increased. In the previous time PCB's were produced using the ironing method and measure and draw.In the measure and draw method there were possibilities of manual errors and in the ironing method it was not 100% accurate and precise. To overcome these errors the need for automatic machines increased. It is a 3D controlled 2D plotting machine. In this method the machine can draw on any flat surface such as paper,boards,etc. Such machines can process logical instructions interfaced with the computer. These instruction are provided in the form of code,text or image which then gets transformed to machine language to be executed by the machine. In this method we use simple objects to draw the tracks i.e. pen. This method is introduced as it is less complex ,cheap, and the parts used are available in low price. Also this method is more precise and accurate.

Objectives

The main motive of the project is to design and construct the low cost PCB plotter using CNC tools and Arduino. This system reduces the cost of system and increases the flexibility.

Methodology

CNC plotter is basically drawing a given image as it is on a plane surface. Image file need to be converted into a G-code using All To G Converter which is the input to the microcontroller. This code is given to the arduino by which three motor mechanism is instructed. The machine has three axes X,Y and Z for handling the mechanism of stepper motor and servo motor. X and Y axes are provided with stepper motor and Z axis with servo motor. The stepper motor associated with 'Y' moves in forward and backward direction. 'X' axis moves in right and left direction. 'Z' axis is allotted to a Pen which is operated with servo motor to up and down movement which is in terms of angles. For purpose of drawing only two angles are used. 30 degrees leads to down movement by which PCB can be drawn. And 80 degrees to take a pen in upward direction.

Block Diagram-

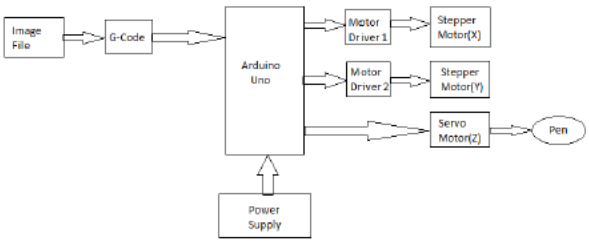


Fig No.1

Sign Language Translator

Shrijit Pendse, Harshal Chaudhari, Devesh Vaidya, Pranjal Gunja, Prof. Manisha Dudhedia
Marathwada Mitramandal College Of Engineering,Karvenagar,
Pune, India

ABSTRACT: *An integral part of human interaction is speech. Human beings talk to each other to share their emotions thoughts and experiences. This however is not the case for mute people. These people have been deprived of the basic human action of speaking. This makes the lives of these people considerably harder. Sign language has mitigated some of the problems that these people face. However this type of communication is still substantially inferior to speaking. The aim of this project, therefore, is to bridge the gap between sign language and actual speaking. The project recognizes sign language and converts it into audio. Sign language involves a lot of gestures consisting of: arms, body movement, facial expression, movement of head and so on. However the majority of sign language consists if hand gestures. Thus mapping of these gestures is the goal of our project.*

Keywords: *Arduino Mega 2560, Flex sensor, Wearable device , MIT app inventor2.*

1. Introduction

Mute people, like others, interact with a lot of people during their day to day lives. Unlike normal people however, they cannot talk. Instead they use sign language as a method of communication. Currently there are almost 143 different sign languages used in the world, with some countries, such as India, having more than one. Recently, the Mumbai –Delhi sign language was declared as the official sign language of India. However communicating in sign language is not easy as it seems. Effective communication can only take place with people who know sign language. Our project aims to change this, by creating a sign to speech conversion system. This system will convert the gestures into audio, thereby allowing mute people to communicate effectively with normal people. According to the 2011 Census[1] about 12.5 million people in India are speech impaired. Thus, this project can potentially help millions of people by improving their quality of life.

Naturally sign language, like any other language consists of a number of components. This of course includes hand gestures but also consists of facial expressions and other body movements. However this project only focuses on the use of hand gestures.

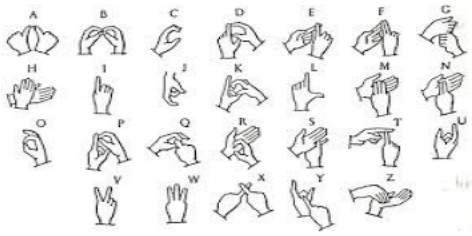


Fig no 1. [2] Indian Sign Language Alphabets.

II. Background

Enable Talk [3] is a startup who will soon launch their speech converter glove in the market. However, there is no similar product in the Indian market, as of yet.

P.Vijayalaxmi[4],in her paper proposed a sensor based glove which can map gestures and produce speech at an accuracy of 87.5%.However the project relies on machine learning and a Hidden Markov Model(HMM) for converting gestures to speech. This places a soft limit on the no of gestures which can be captured.

Another popular approach is the camera based approach. Use of camera can increase accuracy up to 95%.Y.Madhuri [5] in her paper uses Matlab and Labview in order to extract features from the image. However use of camera severely hampers the portability of the device. Furthermore extraction of features requires particular background with particular colors which further restricts the device.

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

Attendance System Using Face Recognition

Ashish Kulkarni, Nihar Chandorkar, Prasad Natu, Prof. S. N. Deshmukh
B.E. Dept. Of Electronics and telecommunication,
MMCOE
Pune, India

ABSTRACT: *In this paper we present an automatic attendance system. This system is based on face detection and face recognition algorithms. This system automatically observes the student when he enters in the classroom and marks the attendance by identifying him. The architecture of the system and the algorithms required for the system are explained in this paper. This system saves the time as compared to traditional manual attendance system and also helps to record the students in the classroom.*

Keywords: *Facerecognition, Image processing, Face detection, Raspberry pi.*

1. Introduction

[5]Face Recognition technique is one of the most efficient biometric technique for identification of people. We can utilize it in the field of education for managing the attendance of students. There are lots of colleges and schools in which thousands of students are taking the education. In every classroom there are about sixty to seventy students are studying. To maintain the attendance and records of these so many numbers of students is a very difficult task. In a classroom with large number of students,it is a very boring and it takes more time to mark the attendance manually. Therefore we can implement an effective system which will mark the attendance of students automatically by recognizing their faces. The process of face recognition is divided into various steps, but the important steps are face detection and face recognition. Firstly, to mark the attendance of students, we require database of students. A database will be useful for comparison purpose. By enrolling the students to the database, we can maintain the information of the students like roll number, student's name and his or her photo for identification. The camera device is placed in the classroom which will capture the images of students and these images will act as input to the system. For the successful face detection,the image needs to be amplified by using some image processing techniques like greyscale conversion of image and histogram equalization.

Once the image quality is enhanced the face detection procedure can be performed on the images.[1]In the face detection step, we need to use various algorithms like Ada-boost algorithm. To recognize the faces is the next task to be done. For face recognition, the comparison of captured images and database is main task to perform. After the process of face recognition the attendance report will be generated in the form of excel sheet.

2. System Description

The faces of students who are present in the classroom will be captured by the camera situated in the classroom. [1]The faces from captured images will be detected by Ada-Boost algorithm. The face detection algorithm observes the certain haarfeatures like eyes, nose, lips etc. of a human face. The algorithm allows the candidate to pass to the next stage, whenever one of the feature is found. The detected faces will be cropped so that the images can be compared with the images stored in the database. After the comparison with the database the faces that are matched are marked present in attendance. Now, as we know database development is very essential step in this project. The different images of individuals will be taken in different angle, light intensity with their personal details like Name, Roll no., Division and Class. The camera which is used for image capturing will be placed inside the classroom which will cover whole area. For getting good accuracy in detecting the faces, background subtraction is done. The image after background subtraction is used for face detection. In face detection the face of images are marked with the help of rectangle or circle. The face detected after background subtraction is accurate as compared to the face detected from an image which is not background subtracts. The detected face is then cropped. Finally all the faces of individuals are detected and cropped from the images. Each cropped image is taken for the comparison of images in database.[2] Face recognition is used to identify the detected face.Eigen valuemethod is for face detection. After face recognition, the report will be generated which will show the present students in the classroom .The report will be generated in excel sheet.

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

Vending Machine Using Arduino

Pooja Jadhav, RushikeshJadhav, Dilshad Sheikh, Prof. Anagha Kunte
Marathwada Mitra Mandal's College of Engineering,
Pune, India

ABSTRACT: *Now a days soft drink vending machine available in various places, but in India, there are less vending machines for the solid product. Proposed work to design vending machine for dispenses the product like snacks, medicines, food items, beverages etc. with the help of multi-coin acceptor. The important use of this multi-coin acceptor is it can avoid the fake currency and allow only original currency. In the current system, vending machine it allows to pass duplicate coin or currency. But our system overcomes all the drawback of the system. We design a low cost-effective vending machine. Also, we use GSM System to check the presence of product in the slot, also it up to date the count of the product in a machine to its owner. GSM is also used for theft detection in a machine.*

Keywords: *Arduino Uno R3Microcontroller, Multiple Coin Acceptor, GSM, DC Gear Motor*

1. Introduction

The aim of vending machine is to give the instantaneous refreshment to the customer [3]. A vending machine that gives the products like drink, chips, lotto tickets, trade good, and also gold and jewel to customers automatically, after user insert coin or currency into the machine [2]. For quickly the automatic cold drink vending machine, ice-cream, chocolate vending machine, water, tea, Joe vending machines [5], etc. can be mostly found to the shops [2]. This diminishes the time and also the people effort required to identify, look, count and distribute the product. Vending machines are available based on the different principle, like Microcontroller, CMOS, SED, FPGA based vending machine.

We design the simple; cost effective Arduino Uno based vending machine which can give the product or an item in simple steps to the customer. In this we are using the multiple coin acceptors to customer. The principle is very simple user or customer pay to the machine then machine will give the selected product or items to the user. The internal circuit consists of DC gear motor LCD display, Arduino Uno R3 microcontroller, and push button and Multiple Coin acceptor. Proposed work plan the vending machine for dispense a product such various types of chips, chocolates, etc.

II. Literature Survey

In this section briefly some technique for availability of snacks and vending monitoring system, advantages and disadvantage of each of the technology set are described. Also relative survey of project papers with our current project and how it can be implemented in addition with the present system.

A. Present Scenario

In preceding vending system is based on processor [1] and also it uses RFID vending machine is used in various shops but this system has complex coding [6]. This system consist of sensing of the normal coin, then of it decides direction of product deliver to user, connecting the dc motor to deliver perfect number of product, and using RFID tags [6]. But the disadvantages of this system are if the putting of fake coins it accepts. This multiple coin acceptor overcomes the previous machine's drawback i.e. it cannot accept the fake coins made by the other metal, material. If peoples or user uses the same size, density, weight to make the duplicate coin then these coins are prevented by the multiple coin acceptor. The principle is very simple user or customer pay to the machine then machine will give the selected product or items to the user. In coin collector can not detect, through item not provide to user. The coin sensor detects the thickness and the size of the coins. It accesses the items by using fake coins with the same substance and size of material.

To overcome drawback of this system we are using the multiple coin acceptor.

Also the previous vending machine based on the Finite State Machine, this type of machine can give the auto billing features. But this system is not more feasible [4].

B. Design Objective

To design a good vending machine, it has following features:

1. Sell four various types of solid product and accept six types of coin.

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

Smart Classroom System Based on IOT

Daghale Prasad, Khune Prasad, Yalamgonde Yogeshwar, Prof. Vishal Salve
Electronics and Telecommunication,
Marathwada Mitra Mandal College Of Engineering,
Karvenagar, Pune, India

ABSTRACT: *If we are entering in a classroom in a queue, there will be a lot of waste of time in picking up there own materials,they have to sit up and down for the questions which they have to answer.It is very difficult for a teacher to handle a maximum number of students without any other technology.If we consider an average,a student is spending about 1025 hours a day just to follow the instructions which are given by the teachers to the students.There are certain technologies like connected devices which will help the teachers to focus on what knowledge is a student getting.Teachers will understand that they dont have to waste time on managing large group procedures,since they are getting their focus on developing some extra qualities in students.these technologies are very helpfull for the teachers to get the transformed classroom experience.This paper contains the practical scenarios of about how IOT is getting implemented for a better classroom experience and the ability of techers to focus on students skills.*

Keywords: *Internet of Things (IoT), future Smart Classroom, Implementation, ATTENDANCE monitoring..*

1. Introduction

In todays world, some of the information as well as communication technologies are present and their application in successively considerable in terms of education. ICTs helps with a great power to get improvement in the outcomes of learning and teaching. The most important role is played by the classes for the transformation of traditional education into modern education. It also helps to maintain the quality of education as well as curriculum ` achievement.

If we are discussing about intelligent classes, and it gathers information of connected objects in all domains, like field of education. The application of IOT helps to build and ecosystem where students and teachers can understand their environment and can get a knowledge regarding the change of learning using IOT.

III. Literature Survey

The structure of smart learning process via IOT plays a vital role for the education system which is going to get designed in future somehow.

These structure will provide a smart education including the communication between the objects and the students who are getting used to this education system.

Somehow when objects will start to communicate with persons in class , there will be a less requirement of teachers just because students can easily get interacted with these smart class room systems.

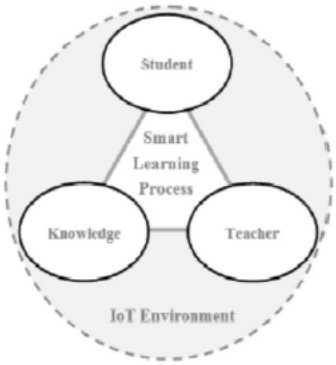


Figure1. IOT in smart learning

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

IOT Based Bridge Condition Monitoring System

Abhishek Girigosavi, Ashwini Jalgi, Rohit Kotgire, Prof. Sampada Tavse
Dept. of E & TC,
Marathwada Mitramandal's College of Engineering,
Pune, India

ABSTRACT: *Advancement in technology have led us to the automated real-time structural health monitoring systems. In Japan and Korea many structures have implemented this systems of real-time health monitoring. However, current technologies use complicated and high capital network of sensors and high cost OFC between bridge and control centres, which increases the cost for installation and maintenance of monitoring system. The complicated wiring also makes difficult the process of finding faults, repair or replace. Here we are testing a new idea of bridge health monitoring using GSM (long distance communication of data between bridge and control centre) data communication is tested.*

Keywords: *OFC (Optical Fibre Cable), GSM (Global System for Mobile Communication), sensors.*

1. Introduction

The Akashi Kaikyo Bridge in Japan known by longest suspension bridge as well as by its monitoring and maintenance system called MBM (Monitoring Based Maintenance) which helps bridge engineers to monitor real time condition of the bridge. Various sensors are installed at main cables, hangers, Decks and towers etc. The values from these sensors will represent the bridge condition against vibrations and seismic load. Sensor technologies have made the monitoring system more Accurate and fast. To send data to the remote location where maintenance office is located, GSM technology can be used. However, regardless the advancements in technology, one thing has not been changed which is data communication through wires and cables. The data will be transferred wirelessly helping the authors to form a wireless network of sensors for monitoring system. In this research, sensors such as temperature sensor, strain gauge, accelerometer, vibration sensor and GSM are combined forming the u-node where "u" represents ubiquitous. This system will be IOT enabled which will help us to control and monitor from anywhere remotely

2. Motivation

As there are deteriorations and degradations in the structures of bridge over time, it can cost into property and human loss. Traditional methods of inspecting health of structures cannot detect upcoming disasters every time. This loss of human and property can be avoided by designing an automated monitoring system. In this system we can monitor the structural health continuously and develop an early warning system. Here by using IOT we can enable system to be monitored and controlled remotely from anywhere.

3. Litrature Survey

Konkan Railway Corporation Ltd. has developed an equipment for health monitoring named as BRIMOS recorder. This device records vibrations in the structure and gives a frequency plot output (vibration signatures). Bridge engineer's efforts resulted into a device or a tool which alerts earlier regarding a pending inspection to them with respective of an indicative parameter.
Konkan Railway developed this system in association with an Austrian company namely BRIMOS recorder. It is a lightweight portable device weighing about 16.5 kgs which can be moved easily from bridge to bridge to carry out the recordings.
Its all elastic members will vibrate with specific natural frequencies. Their stiffness's is represented by these natural frequencies. The lower shift in spectrum of vibration signatures represents reduction in stiffness of material. The engineers can detect easily the reduction in stiffness of any member's material over a period of time.
The device easy to use. We can make use of its levelling screw and setup the device anywhere easily for example on footpath of the bridge. This device can store up to 40 entries of recordings, time taken for each recording is 5 minutes.
The data is transferred in the form of values as well as plots, graphs, for future analysis and reference.

IOT Based Tire Pressure Monitoring, Vehicle Parameter Monitoring and Vehicle Security

Rushabh Surana, Udayan Bhide, Pradip Yadav, Prof. Snehal Koparde
Marathwada Mitra Mandal's College of Engineering,
Karvenagar, Pune, India

ABSTRACT: *IOT is a system consist of different devices which can be mechanical, electrical, electronic which constantly communicate data with main processor and processor does different work on data such as computing, monitoring, providing data to perform some task. The things can be table, chair, trees, cars, mobile phones, cars, bikes, weather, etc. The main aim of this research is to monitor the tyre pressure and provide the data related to that to user and also to provide vehicle security using fingerprint, checking seat belt status, fuel leakage and also alcohol taken by driver to avoid accidents.*

Keywords: *Internet of things, NODEMCU, fingerprint sensor, MQ3 alcohol gas sensor, limit switch, pressure sensor.*

1. Introduction

As technology is advancing the demand for intelligent vehicle system is increasing. Tyre pressure monitoring is used to monitor the air pressure inside pneumatic tyres of different vehicles. Tyre pressure monitoring system gives real time pressure information with the help of android application. Tyre pressure monitoring system can be of two types i.e. direct TPSM and indirect TPSM. In indirect TPSM physical pressure sensor is not used to measure the tyre pressure but pressure is determined by monitoring individual tyre rotational speed. In direct TPSM pressure sensor is mounted on individual tyre, this sensor gives tyre pressure information to driver using android application on mobile phone. By using TPSM driver and passenger's safety improves as TPSM monitors the pressure of tyre and reports it to driver so that driver can take measure to prevent bursting of tyre and accidents due to it. Nearly 15% of accidents occur due to wrong tyre pressure. We are also providing vehicle security with the help of biometric fingerprint, checking seat belt status, is any fuel leakage and also is driver drunk. To avoid vehicle theft we are using biometric fingerprint so that any one cannot start vehicle. If any of parameter goes wrong vehicle will not start and alert related to that will be given.

2. Methodology

The main aim of this system isto avoid the accidents due to tyre bursting, fuel leakage, driving after drinking. Also to avoid vehicle thieving by using biometric fingerprint. In this project we are interfacing different sensors and monitoring data and using data for providing security.The system consist of two NODEMCU's which will act as heart of the system. In this system we are using client server communication. First NODEMCU will act as server and other will act as client. Fingerprint sensor is interfaced with NODEMCU which will act as authentication point to turn on vehicle. Firstly when system gets turn on it will ask for valid fingerprint if valid fingerprint is given then only it will proceed for checking other parameters. It will check for seat belt status, fuel leakage, alcohol test. Other NODEMCU then gets connected to first one wirelessly to send data related to tyre pressure. If all parameters are correct then and only then vehicle will start. If key is in ON position then also vehicle will not start without valid fingerprint.

NODEMCU
Pressure Sensor
Power supply

Fig 1: Block diagram for proposed system

3. Component Description

3.1 NODEMCU

NODEMCU is open source platform for IOT. NODEMCU has a firmware running on ESP8266 WI-FI SoC from Espressif system itself. It is a programmable Wi-Fi module. It can be programmed with Arduino UNO. It has 10 GPIO pins

"Air Pollution Monitoring System Using Lab View"

Pravin Dukare, Pratiksha Baglane, Mohini Baglane, Prof. Vasant Deokamble
B.E. Student,
Marathwada Mitra Mandal's College Of Engineering,
Karvenagar, Pune, India

ABSTRACT: *This project is based on LabVIEW Software which helps to monitor the air impurity in the environment. Air pollution is one of the most key factor affecting life and health of humans, animals and plants. In this project, sensors are used for monitoring the level of Carbon Monoxide (CO) and Carbon Dioxide (CO_2) etc. Air pollution monitoring system allows measurement of levels of CO and CO_2, by using LabVIEW Software. The experimental results demonstrates the efficiency of our project in terms of fast detection and real time response.*

Keywords: *Lab View, Air Pollution.*

1. Introduction

This Project is about monitoring the Air Pollution using LabVIEW Software. In today's life Air impurity is a big concern. We detect toxic air, (with the help of Gas Sensors, In this project we use gas sensors like MQ-7 Sensor to measure level of CO and MQ-4 Sensor to measure level of CO_2 .The main part of our system is USB 6008 from National Instrument, which is used for DAQ purpose. It supports multiple functions. The level of gases is indicated on LabVIEW Software. Objective of the project, to observe the level of particulate matter in the air for further action like alarming or controlling.

- **BLOCK DIAGRAM**

Physical system

Sensor 1

Sensor 2

DAQ

PC

Lab View

Fig no.1 Block Diagram

[2] The fig no.1 shows pollution monitor unit consist of sensors, data acquisition unit & system with Lab View.
The block diagram consist of two sensors for sensing polluting gases like carbon dioxide and carbon monoxide. The output of sensor unit is given to the data acquisition unit (DAQ)
CO is a uncolored and inodorous compound produced by imperfect combustion of carbon-containing materials. In other words carbon monoxide is also called as silently killer because without using detection technique the detection of carbon monoxide is not possible. The study taken by Underwriters Lab the 60% of people was not identify the any signs of a Carbon monoxide which was leaking in the home. Raised levels of CO is dangerous to people & it depend on the amount percentage and period of exposure. Smaller collection of CO can be dangerous to humans and it causes symptoms like weakness, dizziness, vomiting, shortness of breath etc. But if there is higher concentration of CO is present it causes vertigo, intoxication, atasia, conscious and even death.

UGC Approved: 43602
http://ijrar.com/
e ISSN 2348 –1269, Print ISSN 2349-5138
Marathwada Mitra Mandal, Pune

Bomb Disruptor Using an Electromagnetic Pulse

Soham Athavale, Viraj charwad, Prof. Anagha Kunte
Marathwada Mitra Mandal's College of Engineering,
Karvenagar, Pune, India

ABSTRACT: *On the basis of Electromagnetic Pulse, we have designed an electromagnetic pulse generator to disrupt or diffuse a bomb circuit. A pulse will be generated using a copper wire with insulation. It will have an AC supply and can produce enough strong pulse to destroy or malfunction an electronic circuit. The generated pulse can be used to disrupt a bomb circuit. [2]The pulse generated attacks the electronic part that is the controller and destroys it. As it becomes unable to function the bomb becomes useless, due to induction of high voltage currents inside it. Thus the system is designed to be user friendly. It is also cheap to construct compared to traditional bomb diffusing tools and equipments.*

Keywords: *Electromagnetic pulse (EMP), Insulated copper coil, Spark gap, Controller, Detonator, Explosives*

1. Introduction

Now-a-days the terrorist activities are increasing. Their main targets are the civilian areas. It is because the civilians are not capable to confront them. They get panic easily. They aren't trained to handle such situations at all. It gives them a lots of advantages to plan something nasty like bomb blasts. It creates a havoc. Like some days back there was Pulwama attack in which an IED (Improvised Explosive Device) was used. Even these bombs are detected before blasts it takes a high amount of risk and time in diffusing them. In such conditions the bomb squads are called and the situation is taken over by highly skilled personnel. But its takes time. So there should be something which is not only easily available but also user friendly. Because a civilian or a common man cannot diffuse a bomb without specialized training. An EMP generator is not only cheap but also user friendly. Anyone can use it easily. It just needs to be pointed towards the victim circuit and the switch is to be closed. The rest happens on its own. [2]The victim circuit (towards which the generator is pointed) gets destroyed due to induction of high voltage currents in it. Now in a bomb circuit there are three main components controller, detonator and explosive. We will be focusing on the controller as it is the electronic part common in all types of bombs present. Thus the EMP circuit is designed to be user friendly and easy to use. Its construction is also cheap compared to traditional methods.

II. Literature Survey

The literature survey presents an overview of the generation. It also explains the general structure a bomb circuit and its working. They also explain general working of a spark gap. The research papers were analyzed and content was studied. After analyzing what things have been published in the research papers, we present our ideas which were focused on improving the existing bomb diffusing system.
P Sarkar , ETOA depicted in his paper, 'A compact battery powered system for EMP generation [1]. Bindu.S , ETOA modelled a Spark gap switch in her paper [2].

Graphs

© November 2018 | IJIRT | Volume 5 Issue 6 | ISSN: 2349-6002

Fingerprint and Face Spoof Detection Using Deep Learning

Chiranshu Adik[1], Amey Waze[2], Samruddhi Tendulkar[3], Akansha Agarwal[4], Prof. Nikhil Dhavase[5]
[1,2,3,4] *Student, MMCOE, Savitribai Phule Pune University, Pune, Mahrashtra, India*
[2] *Assistant Professor, MMCOE, Savitribai Phule Pune University, Pune, Mahrashtra, India*

Abstract- **Fingerprint and Face recognition systems are widely used in various applications like Smartphone unlock, School attendance, Defense applications, Banks, etc. However these systems can be spoofed easily using various methods like fake fingerprints can be created using various materials like Fevicol, Silicon gel, Hot glue, rubber, paper-printed fingerprints, etc and fake face can be created using paper-printed faces or a smartphone device can be used as a fake image. While a number of face and fingerprint spoof detection techniques have been proposed, current solutions often rely on domain knowledge, specific biometric reading systems, and attack types. This paper proposes using convolutional neural networks for detecting a spoofed fingerprint or face.**
Since, CNNs currently outperform almost all other models for image recognition and classification. This paper proposes to use Google's Inception v3 model which was trained on a huge dataset (ImageNet dataset) and has better acuracy than most other models.

Index Terms- Deep Learning, Face recognition, Spoofing detection, Convolutional Neural Networks.

INTRODUCTION

Biometrics are currently widely used in various applications like authentication in smartphones, attendance management systems, access control system, banks, surveillance, and also in national and global security systems. Biometrics provide a very easy and fast authentication process speeding up the process of verification. It is also consider safe as it is rare for two people to have the same fingerprint or face.

1.1. Biometric Spoofing Techniques

In the last few years, various techniques have been found out to spoof or defeat these biometric systems. Attacks on biometric systems can be direct or indirect. Direct methods involve creating synthetic biometric samples acting at sensor level. While, Indirect methods involve methods like using matching algorithm, feature extraction procedures, accessing database and finding vulnerabilities in the network, etc refer
[1]. Generally, Direct methods are mostly use by hackers to spoof the biometric systems. This can be easily done as fingerprints of a person can be easily extracted with or without his permission.
The fingerprint traces can be found from the objects a person has touched and similar fake fingerprint can be generated and be used. These fake fingerprints can be created using the mould of the fingerprint and these moulds are then used to create fake fingerprints using materials like gelatin, silicon gel, fevicol, hot glue, rubber, play-doh, etc.
In the context of faces, a person's fake face can be easily generated using photographs or smartphones/tablets. There are methods that can be used to create face masks of a person using his photographs.

1.2. Other Anti-Spoofing Techniques

Traditional anti-spoof techniques have been developed which require expert-knowledge and are mostly dependant on modality for which they were developed. If a slight change is made in spoofing technique the system needs to be redesigned completely. Various techniques involve using sensors like sweat detection, temperature detection, etc. that will sense if the applied fingerprint is live.
For detecting a fake face, recently apple introduced a new method in their iphone X's face recognition system. It uses techniques like number of data points, uses of infrared scanning and attention awareness, refer [2].

1.3. Deep Learning for Spoof Detection

Smart Exam System using NodeMCU

Bhushan Patel, Dhiraj Gore, Pratiksha Bhadekar, Pooja Tallapallywar, Dr. Vijaykumar Bidave

Department of Information Technology,
Marathwada Mitra Mandal's College Of Engineering, Pune, India

Abstract : ***To determine the time spent on each question by each student in the examination is difficult to obtain, also which question was hard for everyone is difficult to obtain as it requires human interaction. For this work we are proposing a system which is capable of calculating, processing and sending the data to intended user by using internet of things technology. In our system (smart exam system using NodeMCU) student has to touch the sensor and the time to solve particular question will get automatically recorded and will be sent to teacher via e-mail.***

IndexTerms – internet-of-things, sensor

I. INTRODUCTION

Students performance in exams, beside their learning abilities, indicates instructors teaching skills. The dramatically changing world of computing and the rise of the Internet of Things (IoT) is showing a transformative effect on our society , and if that would be well used, it could help massively both, students performance same as instructors.

Studies on test anxiety shows that anxiety is the factor most consistently found to be associated with declines in performance and working under time pressure has been suggested to also have negative consequence, i.e. awareness of time constraints may distract learner from task at hand and so reduce students working memory resources. Therefore, we can infer that, beside all, time factor has an essential effect on student performance, which simultaneously leads to the need of avoiding the negative consequences that may occur.

To make a fair evaluation, considering the average of students, teachers should give a fair needed exam-duration length. That would help teachers assessing in which exact courses students face more difficulties, so that they can help them improve. Even more than just figuring out how much time should be given for an exam. Our smart exam system measures the exact time every single student spends on solving each question, and calculates the average time spent from all the students on the same examination.

In a world of computer systems and mobile devices, it is very important to adopt teaching methods that make the best use of technology and teachers motivation to use new emerging systems is very important. Hence, the system that we have investigated to use in exams is not something that limits teacher-student interaction as it is often implied, it is actually intended to simply help teachers to get statistics that could take them a big amount of time if not using any kind of technology.

In our project we have used NodeMCU, Mpr121 capacitive touch sensor as a hardware and programmed using Arduino IDE. NodeMCU is cheaper than Arduino Uno and has an in-built WiFi module. Student need to touch the capacitive sensor via inserting conducting device that is pen. The sensor which we are using is MPR121 which is a capacitive touch sensor. This sensor works when a conducting body like pen human finger touches the input pins.

When a student touches the input pin which is going to be a question, timer will start that is program will execute and Node MCU will process it. We are using the Arduino IDE for uploading and writing the code in NodeMCU. As the input from sensor goes to Node MCU it executes code which starts the time of a particular question. How much time is spent on a question is calculated by NodeMCU and it is further sent to spreadsheet through pushingbox API. Data can be recorded from the sensor and jot down in spreadsheet using E-mail. For that we require pushingbox account and google account.

The spreadsheet can be assessed by teacher for analysis by email notifications.

II. RELATED WORK

In this paper, a smart exam system is proposed that obtains statistics and sends data to a web application for further processing by using an internet-of-things based technology. The information obtained by the proposed system can even be used to diagnose students with learning difficulties or disabilities, e.g., dyslexia[1]

The hardware used in this paper is Arduino, mpr121 sensor, RFID, ESP8266 WiFi module, conductors. In their system, they have considered a desk that has holes on it at appropriate places and the conductors connected to capacitor sensor(s) are placed in these holes. The exam paper is also customized such that there is a field on the paper aligned with these holes. The paper has small circles on this field with each one corresponds a conductor. The job of the student is only to touch the sensor when he/she starts to solve the question and when done solving the question once again touch the sensor. When the student touches the button with the pen, the capacitor sensor will sense it and send the information to a micro-controller placed underthe desk. The micro-controller has a Wi-Fi module, which can send the capacitor ID and time of touching to a database used by a web-based application.[1]

In this paper, it is proposed that student performance in intermediate examination is associated with students' profile consisted of hi attitude towards attendance in classes, time allocation for studies, parents' level of income, mother's age and mother's education. The research is based on student profile developed on the bases of information and data collected through survey from students of a group of private colleges. Student performance depends on different socio-economic, psychological, environmental factors. The findings of research studies focused that student performance is affected by different factors.[2]

III. PROPOSED SYSTEM

The first step in our project is to touch the sensor via inserting conducting device that is, pen. The sensor which we are using is MPR121 which is a capacitive touch sensor. This sensor has 12 output pins which are touch sensitive and 5 input pins which are viz SDA, SCL, GND, VCC. This sensor works when a conducting body like pen, human finger touches the input pins. The communication is done with the help of I2C protocol. In I2C protocol Each I2C bus consists of two signals: SCL and SDA. SCL is the clock signal, and SDA is the data signal. The clock signal is always generated by the current bus master; some slave devices may force the clock low at times to delay the master

IJIRSET

ISSN(Online): 2319-8753
ISSN (Print): 2347-6710

International Journal of Innovative Research in Science, Engineering and Technology

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Visit: www.ijirset.com

Vol. 7, Issue 7, July 2018

ERP System Using L-MVC Architecture

Aishwarya Bhat , Samruddhi Khadke, Mugdha Prabhumirashi , Aarti Rokade, Pranjali Kuche

Department of Information Technology, Pune University, Pune, India

ABSTRACT: L-MVC framework is a lightweight MVC framework which has been adopted for the small-scale applications. These applications do not generate large amount of data. Though many commercial and non-commercial web frameworks are very popular and applied widely, they are not particularly suitable for small applications. In this paper, an ERP system is generated using L-MVC architecture using AngularJS. In this a single server has been used to make the system lightweight. Also in this we are using Spring MVC framework for server side and AngularJS for frontend. AngularJS is used as it separates the view part from the MVC model. This was applied to create a hospital management system as an example to prove the system is maintainable and efficient.

KEYWORDS: L-MVC framework; small-scale application; ERP; AngularJS; hospital management system; efficient

I. INTRODUCTION

With rapid development in the internet, web development has created boom in the market. With the development of new technologies, web development has also been advanced. Specially in the medical industry it has become one of the needs for the doctors as well as the patient. With the introduction of ERP (Enterprise Resource Planning) the managing and accessing of data has become easy as the data is stored centrally, which can be accessed by all the departments through which we can get accurate data.

Enterprise Resource Planning (ERP) [5] system for more than 20 years has been an ultimate and highly valued solution for many industries, from manufacturing to distribution ones. And healthcare industry is no exception. This software can help improve operations with enhancements to profitability, productivity, expansion and all possible processes within certain industry. Hospitals and healthcare organizations could be interested in improving operational efficiencies, reducing inventory and labour costs and bettering communication and information flow among various departments thus providing correct and timely care. Unlike many conventional industries, missing or inaccurate information can cost people's lives in the healthcare sector. All these problems can be avoided by implementing ERP system.

L-MVC [1] is lightweight Model-View-Controller framework which is based on MVC design pattern and which can be used for small-scale applications which do not have large data. In this paper we are creating this framework using AngularJS and by using this framework we can manage the hospital activities. In order to make the application lightweight we are using a single server which can handle multiple tasks unlike MVC which uses multiple servers for a single application which increases the time as well as cost.

II. RELATED WORK

In the paper [4], Dongping Tang explained how the ERP has created boom in the market. ERP is used to manage all aspects of business operations. Paper [5] explains how we can use ERP in small and medium applications as the traditional ERP is for large scale applications.

AngularJS is popular java script framework for creating front end single page web application and supports model-driven development which is briefly explained in paper [2]. Paper [1] briefly explains about L-MVC framework.

DOI:10.15680/IJIRSET.2018.70707051

Implementing a Hybrid of Efficient Algorithms For Mining Top-K High Utility Itemsets

Ingle Mayur Rajendra
Department of Information Technology
Marathwada Mitra Mandal's College of Engineering
Pune Maharashtra, India
ingle.mayur07@gmail.com

Shri Chaitanya Vyas
Department of Information Technology
Marathwada Mitra Mandal's College of Engineering
Pune Maharashtra, India
chaitanyavyas.it@mmcoe.edu.in

Sanika Sameer Moghe
Department of Information Technology
Marathwada Mitra Mandal's College of Engineering
Pune Maharashtra, India
sanikamoghe5@gmail.com

Deepali Deshmukh
Department of Information Technology
Marathwada Mitra Mandal's College of Engineering
Pune Maharashtra, India
deepalideskmukh.it@mmcoe.edu.in

Sachin Sakhare
Department of Information Technology
Marathwada Mitra Mandal's College of Engineering
Pune Maharashtra, India
sachinsakhare.it@mmcoe.edu.in

Prof Sudhanshu Gonge
Department of Information Technology
Marathwada Mitra Mandal's College of Engineering
Pune Maharashtra, India
sudhanshugonge@mmcoe.edu.in

Abstract—

Data mining is a methodical process of discovering data patterns and models in large data sets that involve methods at the intersection of the database system. This paper issues the popular problem of the extraction of high utility element sets (HUI) in the context of data mining. The problem of these HUIs (set of elements of high usage and value) is mainly the annoying mixture of frequent elements. Another addressable issue is the one of pattern mining which is a widespread problem in data mining, which involves searching for frequent patterns in transaction databases. Solve the problem of the set of high utility elements (HUI) requires some particular data and the state of the art of the algorithms. To store the HUI (set of high utility elements) many popular algorithms have been proposed for this problem, such as "Apriori", FP growth, etc., but now the most popular TKO algorithms (extraction of utility element sets) K in one phase) and TKU (extraction of elements sets Top-K Utility) here TKO is Top K in one phase and TKU is Top K in utility. In this paper, all the aforementioned issues have been addressed by proposing a new framework to mine k upper HUI where k is the desired number of HUI to extract. Extraction of high utility element sets is not a very common practice. Although, it is indefinitely being used in our daily lives, e.g. Online Shopping, etc. It is part of the business analysis. The main area of interest of this paper is implementing a hybrid efficient Algorithm for Top K high utility itemsets. This paper implements the hybrid of TKU and TKO with improved performance parameters overcoming the drawbacks of each algorithm

Keywords—: utility mining, high utility itemset, top k- pattern mining, top- k high utility itemset mining.

978-1-5386-5257-2/18/$31.00 ©2018 IEEE

© 2018 IJSRSET | Volume 4 | Issue 10 | Print ISSN: 2395-1990 | Online ISSN : 2394-4099
Themed Section : Engineering and Technology

IoT Based Home Automation and Security System

Aishwarya Vechalekar, Nikhil Sen, Ms. Shital Kakad, Shubham Maheshwari, Pooja Pardhe
Department of Information Technology Marathwada Mitra Mandal College of Engineering Pune, Maharashtra, India

ABSTRACT

Home automation can include the scheduling and au-tomatic operation of water sprinkling, user can eas-ily use the Graphic User Interface (GUI) application that has been created in the Android Smart phone by Door lock control system to lock or unlock door and light, fan ON/OFF system through ESP based system. The remote appliances control system based on the An-droid smart phone GUI is designed on Android Smart phone. A user logs into the smart Android phone interface, and clicks the buttons gently to send mes-sage commands from the GUI which will be transmit-ted to home information center through the ESP net-work. Then the AVR ATmega processor recognizes the speci ed command, and controls the home appliance switches in the wireless radio frequency manner to achieve remote control of appliances ultimately. This seminar focuses on the design of Android terminal, the communication between PIC and ESP module, the realization of the wireless module device's driver, the di culty in supplying the appropriate low-voltage DC for MCU and wireless module just by a single live wire. The users can manipulate appliances anytime, anywhere, letting our houses become more and more automated and intelligent. There are some problems in the PC monitor terminal, such as its great bulk, inconvenience to carry, high cost, limited monitoring range and so on. Therefore, it's a good choice to design a terminal based on phone. Home security also includes the GAS and FIRE detection sensors which will notify the user whenever gas leakage or house catches re.

Keywords : Android Phone, ESP, Wireless Switch, Arduino, SDK, Fire Gas Detection Sensors, Buzzer

I. INTRODUCTION

Home automation or smart home (also known as de-motic) is building automation for the home. It in-volves the control and automation of lighting, heat-ing (such as smart ther- mostats), ventilation, air conditioning (HVAC), and security, as well as home appliances such as washer/dryers, ovens or refrigera-tors/freezers. Wi-Fi is often used for remote monitor-ing and control. Home devices, when remotely mon-itored and controlled via the Internet, are an impor-tant constituent of the Internet of Things. Modern systems generally consist of switches and sensors con-nected to a central hub sometimes called a "gateway" from which the system is controlled with a user in-terface that is interacted either with a wall-mounted terminal, mobile phone software, tablet computer or a web interface, often but not always via Internet cloud services.

While there are many competing vendors, there are very few world-wide accepted industry standards and the smart home space is heavily fragmented. Popu-lar communications protocol for products include X10, Ethernet, RS-485, 6LoWPAN, Bluetooth LE (BLE), ZigBee and Z-Wave, or other proprietary protocols all of which are incompatible with each other. Manufac-turers often prevent independent implementations by withholding documentation and by litigation.

IJSRSET1841016 | Received : 05 Sep 2018 | Accepted : 18 Sep 2018 | September-October-2018 [4 (10) : 51-54]

Wireless Multifunctional Robot based on Internet of Things

Sayali Sinnarkar[1], Dhanashri Pardeshi[2], Ajaysinh Patil[3], Mayur Hande[4], Akshay Nimkar[5], Mrs.Rashmi Bhattad[6]

[1] *Information Technology, Marathwada Mitra Mandal's college of Engineering, Maharashtra, India*

[2] *Information Technology, Marathwada Mitra Mandal's college of Engineering, Maharashtra, India*

[3] *Information Technology, Marathwada Mitra Mandal's college of Engineering, Maharashtra, India*

[4] *Information Technology, Marathwada Mitra Mandal's college of Engineering, Maharashtra, India*

[5] *Information Technology, Marathwada Mitra Mandal's college of Engineering, Maharashtra, India*

[6] *Information Technology, Marathwada Mitra Mandal's college of Engineering, Maharashtra, India*

ABSTRACT

In this paper, we are presenting a proposed system for IoT Based Wireless multifunctional robot for military application with Raspberry pi 3 using MQTT protocol and it is done by integrating the help of various sensors, Cameras, Grippers and actuators into web application using MQTT and HTTP protocol. To develop and design we are using Raspberry pi3 embedded board with python programming & MQTT protocol. Using this system one can monitor and control the military robot from anywhere in the world. And it has various sensors like motion sensor to sense the existence of human, Inductive proximity sensor to detect landmines (metal), temperature sensor to sense the temperature and various gas sensors to detect hazardous gaseous in the environment. Whenever sensors detect, the raspberry pi will start publishing the data using the MQTT protocol and display on Web application and start streaming video using motion service.

Keyword : - *Raspberry Pi 3; IoT; MQTT;Motion Sensor*

1. INTRODUCTION

In today's world, robotics is fastest growing and very interesting field. ROBOT has various input and output to sense the environment and take appropriate action. It has an infrared sensor which is used to sense the obstacles coming in between the path of ROBOT, Camera to capture the pictures of the environment and actuator like motors, grippers and arms to perform actions. With the development and research of technology, scientist has come up with invention of military robots. This makes soldier's life more secure on war field. Military robots are used to perform various risky task like monitor war field, diffuse live unexploded bombs, detect landmines and shoot enemies. Nowadays, many countries take the helps of these robots to take dangerous jobs. These military robots appointed with the integrated systems like sensors, gripper, weapons, cameras and actuators. based purpose of robot it comes in different shapes and features.

2. FUNCTIONAL DESCRIPTION

The functions of the various working components are given below:

2.1 Raspberry Pi3

Raspberry pi 3 is small credit card sized computer uses Advanced Reduced Instruction Set Computing Machine technology which reduces power consumption, heat and cost. Raspberry pi uses only 5v and 700mA power rating. Raspberry pi available in many variants named Raspberry pi A, Raspberry pi B, Raspberry pi B+, and Raspberry pi

ATIONAL JOURNAL FOR RESEARCH & DEVELOPMENT IN TECHNOLOGY

Volume-10,Issue-3(Sep-18)
ISSN (O) :- 2349-3585

TAG BASED IMAGE SEARCH BY SOCIAL RE-RANKING MECHANISM

Anuja Devangare[1], Aishwarya Gadhave[2], Swati Jadhav[3], Kiran Kokane[4], Dr.Vijaykumar Bidve[5]
[1,2,3,4,5]Department Of Information Technology,MarathwadaMitraMandal's College OfEngineering,SavitribaiPhule Pune University,Pune,Maharashtra,India

Abstract-On social media sites the, growing amount of users to annotate images with free tags. The website like Flicker allow users to search image with tags, contributing significantly to the development of the retrieval and organization. The user may tag images to be ambiguous, uncontrolled and overly personalize. This paper, proposes a [redacted]ial re-ranking system for tag-based image retrieval based on keyword considering the image's relevance and diversity. In this work our goal was to re-rank the images according to their semantic information, visual information and views. Here we worked on online as well as offline system. In offline system there is stored image database, on which re-ranking mechanism will be applied. The first results are images displayed by different social users and each user contributed several images. Then at the first we sort these images using an inter-user ranking mechanism, in which users who have major contribution to the given query have higher rank. Then we sequentially check title of images and timestamp ranking in which the desired output will get displayed. In intra-user re-ranking the user classified image [redacted]et, and the related image set of each user is selected for further processing. These groups include selected images with final results. In online system, the diversity performance of image ranking mechanism is to count number of views and utilize them to improve the relevance, duplication and performance of images retrieval result. These selected images composed the final retrieval results. Experimental result on flicker dataset show that our social images re-ranking method is effective and efficient.

Keywords- Social media, Tag based image retrieval, Image search by tag, Title information Re-ranking, Time stamp Re-ranking.

I. INTRODUCTION

The online social media like flicker allows users to upload and annotate the image related content with tags. There is no control over tag applied by many number of users on social sites, and the diversity is based on information available to that users. Tag based image search is an important way to search images which user want to prefer.

1) Tag Mismatch: Every user tag images according to the background behind the image. Thus many same images may have irrelevant tags introduced. The same image can be interpreted in number of ways.

2) Query Ambiguity: The polysemy and synonyms are the higher causes of the query ambiguity. The user cannot describe their request with a single tag or word. And also the recommendation system always recommends words or tag which are highly correlated to the existing tag. Thus the images uploaded and tagged by users are user-described. User-described images which share the same user and tagged with same query are always in fixed time at specific spot. To diverse the top ranked results, it is good way to re-rank the results by removing duplicate images from the same users. On social media, tag-based image search is commonly used than content based and context based image retrieval. From analysis, it work on a social re-ranking algorithm which firstly introduced user information into the method of traditional ranking according to visual features as well as semantic information and views. Contribution of the papers as:

1) This approach with social re-ranking. Firstly fuse the user's information, visual information and view times of image to boost the diversity performance of search result.

2) Second is the inter user ranking which is applied to rank users images considering the query. System achieve the good tradeoff using ranking between the relevance performance and diversity which effectively eliminate same images from same user in ranked result.

3) Time stamp ranking is the ranking in which desired output

IJIRSET

ISSN(Online): 2319-8753
ISSN (Print): 2347-6710

International Journal of Innovative Research in Science, Engineering and Technology

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Visit: www.ijirset.com

Vol. 7, Issue 7, July 2018

A Secure Mechanism for Data Distribution, Storage and Privacy in Cloud Application

R. Deshmukh, B.kulkarni, S.Kalekar, A.Deshmukh, S.Shinde

Department of IT, MMCOE, Pune, India

ABSTRACT: Cloud computing technology is mostly preferred now-a-days. People store their data in cloud instead of storing on their device, but the security of data and issues of trusted third party are still present in the cloud. We can solve the issues by avoiding the trusted third party in communication between data owner and data consumer and security of data can be maintained by giving two-level encryption to data stored in cloud. Compared to single level encryption of data we can add one more level of security, by adding second encryption to data present in cloud which provides more data security. Verifying the data owner and data consumer is important in case of data security in order to avoid the unauthorized access to data. This is done by providing the One Time Password authentication. Security is also enhanced by asking random questions to data consumers while downloading the file which can be asked to the consumer while registering to the system. Category-wise data is getting stored on cloud and consumer can access the data according to categories. The data distribution process is done by categorizing data with different sections like distinction, first class, second class in MNC based application which can be stored with secure mechanism. The mechanism used provide privacy to the data with two level encryption.

General Terms

Security, data distribution, privacy, data owner, data consumer, cloud service provider.

KEYWORDS: Cloud Computing, secure data distribution, data integrity, storage, privacy.

I. INTRODUCTION

In cloud computing high scalable computing resources are supplied as services through internet on pay as usability basis. Cloud is a platform where we can use several resources over the internet. There are different advantages of using cloud like easily accessible, easily available, low cost and efficient. We can store big amount of data without bothering of hardware, but storing data on cloud requires more security and trust. The security issues like data integrity, privacy loophole can damage data in system. Perhaps two of the more hot button issues surrounding cloud computing relate to storing and securing data, and monitoring the use of the cloud by the service providers. These issues are generally slow down the deployment tent of the cloud service provider. The security mechanisms between organization and the cloud need to be robust. In this work, we are presenting an efficient data distribution system by using web application so that the users can efficiently store their data on cloud and can share their data to the authorized person. Where we are storing our data in the form of category. For example, suppose we have college based web application which is storing details of its student, teacher staff, non-teaching staff and workers. If any MNC want to access the data from student category, then he can access data through the category only if data owner gives him access permission. We are authorizing both consumer and owner for giving permission to access the data for providing more security. For authentication of owner we are providing one time password (OTP) so that any fake or unauthorized owner will not be able to do any operation into the system .The consumer will be identified by using image processing on security basis; We are providing data security by using algorithms blowfish,IDEA,MD-5 . We firstly design blowfish algorithm which allows consumer with a single secret key to keep the data privacy and flexibly share his data to authorized person under permission. We are also using IDEA algorithm for double encryption to protect integrity and privacy of data. To protect our data from data theft which acquires data services from different service providers because those services are cost

International Journal of Mechanical and Production Engineering Research and Development (IJMPERD)
ISSN (P): 2249-6890; ISSN (E): 2249-8001
Vol. 8, Issue 4, Aug 2018, 1169-1176

Original Article

FINITE ELEMENT ANALYSIS AND EXPERIMENTAL VALIDATION OF RESIDUAL STRESS ANALYSIS IN T-WELDED ZONE OF ALUMINUM ALLOY 6061-T6

ROHAN RAJARAM PRABHU[1] & VIKAS RADHAKRISHNA DEULGAONKAR[2]

[1]Research Scholar, Department of Mechanical Engineering, Genba Sopanrao Moze College of Engineering, Balewadi, Pune, India

[2]Dean (Student Affairs) & Associate Professor, Department of Mechanical Engineering, Marathwada Mitra Mandal's, College of Engineering, Karvenagar, Pune, India

ABSTRACT

Residual stresses induced during welding process are neglected in most of the engineering applications; however, the significance of residual stresses cannot be neglected in applications of significant concern such as defense vehicles, pressure vessels etc., as these leads to stress concentration, corrosion, cracking, distortion, fatigue cracking, premature failures in components and instances of over-safe design. This paper illustrates importance of residual stresses characterization in Aluminum alloy plate welding. This work focuses on the behavior of residual stress for Aluminum Alloy structure in 6061-T6 with a filler weld material ER5356 and further to improve the weld life of such joints. Experimentation for each weld parameter has been carried out and this gives a better understanding of the weld behavior for stress concentration. For this work, major focus is on feeding travel rate and the results are evaluated numerically by means of finite element method. The FE analysis allows highlighting and evaluating the stress factors and its gradients by means of heat affected zones (HAZ). The experimental validation of residual stress measurement through X-ray diffraction technique (XRD) carried out at Automotive Research Association of India. Comparison of the experimental and analytical results reflects a comprehensive solution for the optimized value of residual stresses, strains and distortion in welded structure.

KEYWORDS: Aluminium Alloy, T-Welded Joints, Heat Affected Zones, X-Ray Diffraction & Finite Element Analysis

Received: Jul 04, 2018; **Accepted**: Jul 25, 2018; **Published**: Aug 23, 2018; **Paper Id**: IJMPERDAUG2018120

INTRODUCTION

Now-a-days, most of the automobile, agricultural, off-shore equipment manufacturing industries invests in design changeover from Steel structures to Aluminum structures due the multiple gain factors such as weight reduction, cost reduction and manufacturing feasibility. As there are always some cons associated with the pros that the design engineer need to consider and evaluate the root causes behind them. Fatigue failure is still a dominating cause for breakdown of welded structures, hence leading and contributing to substantial cost.

In present work, major focus is on automobile and agricultural equipment manufacturing aspects. The demand of a sustainable automobile product needs attributes such as structures with lower weight, better performance in terms of durability and reduced fuel consumption. This leads the use of efficient and accurate fatigue design methods adhering to quality requirements of the product during design phase itself. Survey reflects

International Journal of Vehicle Structures & Systems

Open Access Subscription or Fee Access

Analysis of Vibration Characteristics of Transport Utility Vehicle by Finite Element Method

Vikas Radhakrishna Deulgaonkar

Abstract

Present work deals with the design and analysis vibration characteristics for transport utility vehicle. The transport utility vehicle is designed using automotive industry standards. The dynamic behaviour of vehicle depends on the selection of overall dimensions, wheel base, track width, overall height and width that are decided using central motor vehicle rules. The selected dimensions for vertical and horizontal pillar members of the transport bus are modified to enhance the strength, stiffness and stability of the superstructure during travel. This increased stability enhances the ride comfort and passenger safety. Analysing the effect of utilizing manual meshing in complex areas of a transport utility vehicle for vibration analysis and passenger ride comfort has also been carried out. Modal analysis to evaluate the dynamic behaviour of transport utility vehicle model is also carried. Further with the use of finite element analysis deflection vehicle structure is evaluated. The outcomes from the analysis are compared with the behaviour of chassis mounted platform in dynamic conditions and are found in close correlation. The vehicle structure behaves as a single entity in dynamic situations, so surface model is prepared. Element selection for the finite element analysis is carried by considering plane stress condition. Two-dimensional quadrilateral shell elements are extensively used for meshing of the computer model of the vehicle structure. Complex areas in the optimised vehicle structure are meshed using relevant combination of quads and trias. The values of vector sum displacement and frequencies are found to be in good agreement with the experimental ones.

Keywords

Vehicle dynamics; Natural frequency; Displacement; Modal analysis; Transport utility vehicle

Full Text:

PDF

DOI: http://dx.doi.org/10.4273/ijvss.11.1.12

Refbacks

- There are currently no refbacks.

18-19 Seo4p8

International Journal of Vehicle Structures & Systems

Finite Element Analysis of Chassis Integrated Structure for Tractor Trolley in Agricultural Applications

Vikas Radhakrishna Deulgaonkar

Abstract

This paper deals with the design evaluation of chassis integrated structure intended to carry tractor trolleys. This structure is either bolted along with tractor trailer chassis or attached to the trolley using special attachments. Such structure is located in between the trolley chassis and tractor trolley. The role of this structure is to provide a support to the trolley during transportation in agricultural terrains. This structure transmits and upholds the load variations during tractor travel in agricultural terrains. Present work deals with design evaluation of one such structure. In this work, the structure under consideration is designed to house and support one axle semi-trailer trolley. Locations of attachment of the structure to the chassis or trolley depend upon the weight and size restrictions mentioned in Indian Standards. Major design considerations for the structure include height of the semi-trailer trolley, nature of load or cargo placed inside the trolley, restrictions on axle load and tractor geometry parameters as departure angle and ground clearance. In order to evaluate structure characteristics of stress and deflection computer simulation is carried for the road-load conditions. Road profiles for structure simulation and analysis include typical Indian agricultural terrains comprising of black cotton soil and soil lumps

Keywords

Semi-trailer; Agriculture; Levelled base; Tractor; Finite element analysis

Full Text:

PDF

DOI: http://dx.doi.org/10.4273/ijvss.11.1.13

Refbacks

- There are currently no refbacks.

18-19
Soc 425

NOVATEUR PUBLICATIONS
INTERNATIONAL JOURNAL OF INNOVATIONS IN ENGINEERING RESEARCH AND TECHNOLOGY [IJIERT]
ISSN: 2394-3696
VOLUME 6, ISSUE 02, Feb.-2019

EXPERIMENTAL AND NUMERICAL STUDY OF WELDED CURVED PLATES

MR. JAIDEEP BUDGUDE

MR. GANESH WAGH

MR. RAHUL YADAV
Assistant Professor, Department of Mechanical Engineering, MMCOE, Karvenagar, Pune, M.S.

ABSTRACT
Welding is widely used in all the fabrication process for the development of structural component. An accurate and physically suitable curved fillet model is to be given as input for analysis of welding process. Flux core arc welding (FCAW) is an arc welding process that that uses continuous flux cored filler wire . The flux is used as a welding protection from the atmosphere environment. Materials like CS and MS with varying thickness of 5,6,7 mm and overlapping angles starting with 30° and success ding with minimum difference of 5° in consecutive angle up to 100° and tested using UTM machine . Metallurgical welded joints that are in service may be subjected to high stresses and different types of loads such as fatigue loads, tension loads compression loads and thus temperature and residual stress modeling is one of the complex processes which utilize the weld parameters and properties at higher temperature. Finite element analysis (FEA) has become a practical method of predicting stresses and deflection for loaded structures. In this study, finite element analysis software, ANSYS, is used for a parametric study for effect of curved fillet welded joint on compression strength and tensile strength as it is an important tool for designing and analysis of engineering structures which do not facilitate model evaluation and result interpretation easily. The article deals with the physical test of steel supporting elements, whose main purpose is obtaining the material, geometry and strength characteristics of fillet welds. The main aim was comparison of samples testing using UTM (universal testing machine) and for analysis, done on commercial software like ANSYS.

KEYWORDS- Fillet weld, Lap joint, MS AND CS material, Strength and Deformation Testing, Tensile stress, FEA analysis

1. INTRODUCTION

Welding is the process of permanent joining of two materials (usually metals) through localized coalescence resulting from a suitable combination of temperature, pressure and metallurgical conditions. Depending upon combination of temperature and pressure from high temperature with no pressure to high pressure with low temperature, a wide range of welding processes has been developed. Welding enables direct transfer of stress between members eliminating gussets and plates necessary for bolted structures. Welding is used as a fabrication process in every industry, large or small. It is a principal means of fabrication and repairing metal products. The process is efficient, economical and depending as means of joining metals. The process finds its application in air, underwater and space. Like steel bridges, shipbuilding, offshore structures, pressure vessels and pipelines.

Fillet welds are widely used because of their economy, ease of fabrication and adoptability. The weld of concave shape has free surface which provides a smoother transition between the connected parts and causes less stress concentration than convex surface. But it is more vulnerable to shrinkage and cracking than the convex surface and has a much reduced throat area to transfer stresses. [1]. Fillet welds are broadly classified into side fillet and end fillets. When a connection with end fillet is loaded in tension, the weld develops high strength and the stress developed is equal to the value of weld metal, but the ductility is minimal. On the other hand, when a specimen with side weld is loaded, the load axis is parallel to weld axis. The weld is subjected to shear and the weld shear strength is limited to just about half the weld metal tensile strength. But ductility is considerably improved. Most common FEA packages are suitable for this analysis.

International Journal of Applied Engineering Research ISSN 0973-4562 Volume 13, Number 11 (2018) pp. 9493-9499

Effect of Oxygenated DEE Additive to Ethanol and Diesel Blend in the Context of Performance and Emissions Characteristics of CI Engine

Dr. K. R. Patil

Associate Professor, Department of Mechanical Engineering,
Marathwada Mitra Mandal's College of Engineering, Karvenagar, Pune, India.

Abstract

An experimental investigation has been carried out to evaluate the effects of oxygenated cetane improver Diethyl ether (DEE) as additive to optimum ethanol-diesel blend on the performance and emission characteristics of a direct injection diesel engine. The DEE with 5%, 8%, 10% and 15% (by volume) are blended into optimum 10% ethanol-diesel blend. The engine tests are carried out at 25%, 50%, 75% and 100% of full load for all test fuels. The laboratory fuel tests show that the DEE is completely miscible with diesel and ethanol in any proportion. The concentration of DEE in the DEE-ethanol-diesel blends increases the oxygen content, cetane number and reduces the density, kinematic viscosity and calorific value. The experimental results of DEE-ethanol-diesel blends at full load condition show that the BTE of DE8E10D is improved by 15%; the smoke and NOx emissions of DE15E10D are reduced by 6.25% and 36% respectively; while the CO and HC emissions are increased by 43% and 42% respectively as compared to neat diesel. It has reduced the trade-off between smoke and NOx. The optimum performance blend ratio found is DE15E10D without any modifications in the engine.

Keywords: DEE, Ethanol, Diesel, Performance, Emissions

INTRODUCTION

The overwhelming demand for diesel engines in transportation, industrial and agricultural sectors are putting an additional pressure on existing conventional hydrocarbon reserves. These are already producing more hazardous emissions than its prescribed limits particularly high concentration of NOx and particulate emissions. Simultaneous reduction in NOx emission and particulate matter is quite difficult due to trade off between PM and NOx which is often accompanied by fuel consumption penalty [1, 2]. Although, it is more difficult for diesel engines to meet stringent emission norms by the use of conventional fuel such as petroleum diesel and biodiesel as a neat fuel through engine design or control parameters alone. However, the depletion of hydrocarbon reserves, the escalation of conventional fuel prices and the stringent emission norms incites the researchers to look for an alternative fuel which can replace or supplement the fossil fuels. So we need some kind of alternative source which must be renewable, easily available, cost effective and most importantly environmental friendly [3,4].

Many researchers worked on this issue and found an oxygenated alternate fuel. The oxygenated bio-fuels made from agricultural products offer benefits in terms of exhaust emissions and reduce the world's dependence on oil imports. Among all oxygenates, a worldwide trend towards the application of mostly biodiesel and alcohols have been observed for the last two decades [5-6]. In spark-ignition engines the alcohol fuels can be substitute for gasoline, while in compression ignition engines the biodiesel, green diesel, DEE, DME and hydrogen are more suitable [7].

Among various alternative fuels, ethanol is promising oxygenated alternative fuel. It is a renewable, bio-based and highly oxygenated fuel, thus providing the potential to reduce exhaust emissions in CI engines and demonstrates promising future fuel for SI engines due to its high octane quality. Though, there are many obstacles in the use of ethanol in CI engines such as very low cetane number, poor ignition characteristics and limited solubility in diesel fuel. The phase separation and water tolerance in ethanol-diesel blend fuels are crucial problems. The dynamic viscosity of ethanol is much lower than diesel fuel. Therefore, the lubricity is a potential concern of ethanol-diesel blend fuels [8]. Stability of the blend is dependent on the water content of the blend, ambient temperature, hydrocarbon composition and wax content of the diesel fuel. Ethanol has limited solubility in diesel fuel. Addition of less than 10% ethanol to diesel fuel makes the blend almost stable. Moreover, a blend of 10% ethanol to diesel for less than 10 °C is unstable. These problems of ethanol-diesel blend can be solved by introducing a co-solver or an emulsifier to the blend [9]. Diethyl ether (DEE) seems to be one of the promising candidates to meet these requirements. The DEE is completely soluble in diesel and in ethanol. The addition of DEE to ethanol-diesel blend work as a co-solvent and makes ethanol compatible with diesel [10-11].

In this research work the optimum 10% ethanol-diesel blend is selected and DEE is added in various proportions to investigate the performance and emissions of DEE-ethanol-diesel blends. Diethyl Ether is a promising alternative oxygenated renewable bio-base resource fuel. DEE has several favorable properties such as high cetane number, low auto ignition temperature, high oxygen content, high miscibility with diesel fuel, broad flammability limits and reasonable energy density for on-board storage [12]. At ambient conditions, it is in liquid form, which makes it attractive fuel for handling and infrastructure requirements. DEE is an organic compound in the ether class also known as ethyl ether, sulfuric ether, simply ether, or ethoxyethane, It