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GSM Based Vehicle Theft Detection Using Face Recognition

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Abstract: In recent years, GPS and GSM modem detection, as well as car tracking systems, have become more popular. Face recognition based on a vehicle theft detection system would be ideal. It provides the most complete solution to problems. Face recognition technology is used in the Python Module to identify and recognize faces in real time. Face recognition technology has the ability to assist in the resolution of a wide variety of issues. A vehicle is a device or system that is used to lock and detect other cars. They may be able to determine the presence or absence of an automated owner by utilizing a Smartphone application that recognizes and compares faces within their data. If the vehicle is in good working order. Alternatively, someone tampered with the car in an attempt to disable or damage the mechanism that delivers the message and places the phone call. This device protects vehicles by allowing consumers to view theft details and download them to a USB drive. The data includes position, price, illumination, background quality, and gender.

Keywords: Face recognition, Open CV, Vehicle Locking & Detecting, GSM.

I. INTRODUCTION

With so many wireless and satellite c technologies available, pinpointing specific locations is straightforward.The Vehicle Tracking System reflects the international people's present way of life. The it was combined withthe use of self-driving cars and is known to produce unique automobiles.

It utilizes a big image of the vehicle'sprecise location as well as the vehicle's track and detection system, which is often utilized with GSM.

It is utilized to find the car. Vehicle tracking and detection systems are being developed for use in surveillance andactivities on the ground. Its goal is to provide important information, such as the motor's estimated arrival time,in a compact and easy-to-read format. When combined by two or more words, the technique can also be used for communication. Whereas are a vehicle tracking device. A vehicle tracking system with a dark blue control equipment is employed for management.

II. OBJECTIVE

To keep the vehicle safe from theft and lock the engine. The main goal of this device is to secure the car fromunauthorized entry and to notify the authorized person or owner of the vehicle's status via GSM communicationtechnology.

III. LITERATURE SURVEY

Syed Fasiuddin, AnwesaTamkeen, " Real Time Application of Vehicle Anti-Theft Detection and Protection withStock Using Facial Recognition and IoT Technology" [1] Vehicle technology system enhancement is gaining studypopularity as is a vehicle theft security system avoid vehicle theft in parking lots and sometimes while driving motorcycles areas.

When an illegal individual tries to start the ignition and is trained by the IOT application thesuggested solution provides security and enhanced theft

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LSB Modification Techniques of Audio Steganography for Secure Communication

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Abstract- This paper presents the application of steganography techniques for data hiding in host audio file. Audio steganography is more secured way of technique than Text and Image Steganography due to its vast size of audio files. It can store more information than other techniques. The main aim of this paper is to present a method of embedding text-based data into a host audio file using the method of least significant bit modification for data hiding without change in quality i.e. of audio file. A method of embedding text in a host audio file through steganography is presented. In it, the audio file is sampled first and then a specific bit of each alternate sample is changed to embed the textual information in an audio file. The audio file can be considering of any type of music styles (pop, rock, techno, jazz). We propose secure communication through Audio with Text based Information using Steganography. Steganography is a method which works by changing a few bits of secret message; we will use specific bit values to represent characters. The resulting audio file will look mostly like the original. We can then send the secret message at the receiver using emails and where the message can be retrieved by knowing which bits are to be decode. In this assignment we will be writing a MATLAB application that will enable us to encode and decode secret messages with another person. The major goal of this paper is to provide secure communication between authorized people (Sender and receiver).

Keywords- Audio steganography, secure communication, LSB modification.

I. INTRODUCTION

At this time of competition between countries or say between humans, there are many things which are needed to be kept secret or hide from the third party for this purpose there is a novel approach to audio Steganography in which embedding is done without making explicit modifications to the host audio file. Steganography is the specialty of concealing data in manners that conceal the recognition of shared away messages.

"Steganography, got from Greek, in a real sense signifies" (covered composition." So while embedding text into an audio file, LSB modifications creates an indistinguishable change in the host audio file.

In the LSB modification technique, LSB of binary equivalent of each sample of selected audio file is replaced with a binary equivalent secret message. A program has been developed which can read the audio file bit by bit and stores them in a different output audio file.

For example, if the word "Secret" has to be embedded into an audio file one has to embed the audio binary values of the word into the audio file. For this I have developed algorithm where multiple bits of each sample of the file have been changed or modified to insert text data in it. Also it is observed that the degradation of the host audio file after modification of the bits. The bit modification is done by different ways such as 1,2,3,4 bits were changed in

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Voting System Design with Finger Print Authentication

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Abstract- Our study report focuses on developing a system that deals with fingerprint voting system which can help in process of election in robust and secure manner. The system uses hardware components like microcontroller, finger print sensor, button switches, LCD display, etc. For the implementation of the system R350 fingerprint sensor is used to take user finger print image and store in internal memory, and these images are further processed and analyzed using IC. The HMI is implemented using 16x2LCD screen, which is mainly used to print the instruction of the complete project.

Keywords- Finger print sensor, voting machine, and authentication with biometrics, LCD, GSM.

I. INTRODUCTION

Biometrics refers the measure and analyses human body characteristics, fingerprints, eye retinas voice patterns, facial patterns and hand measurements that are unique, for authentication purposes.

The biometric way of authentication was formed and has since expanded onto many types of physical identification as a way for authentication in many fields.

The main goals of the devices is to examine the unique fingerprint data of an individual and compare it to a stored database of other fingerprints.

II. DESIGN METHODOLOGY

In our project we have used fingerprint sensor for the purpose of voter identification & authentication. As the thumb impression pattern of every individual is unique, it helps in minimizing the error & proxy voting. A database is created storing the fingerprint images of all the voters as required.

Proxy votes and repetition of votes is checked for in this system with accurate coding. Hence with the application of this fingerprint based voting system elections could be made fair and free from rigging.

In this project, we have used R350 finger print sensor, ATmega328P microcontroller, button switches & 16*2 LCD display. The finger print sensor has at max had 25 finger print entries. The voter will have to register his finger print placing the finger on the sensor. Initially for casting vote, maximum 25 voters can cast the vote. If same finger is tried to be registered again system will throw an error for duplication. To initiate cast, the match button needs to be pressed. There are 3 candidates for election.

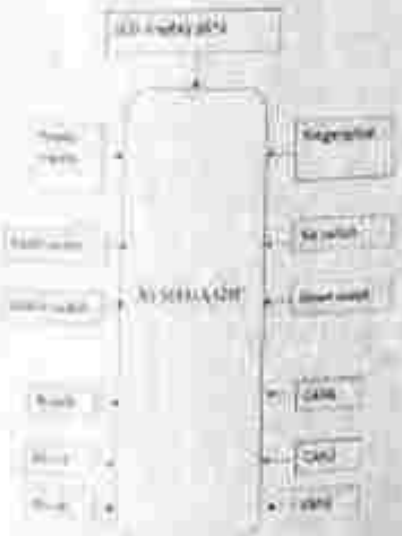

Fig 1. Block Diagram of System

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Smart Car Parking System

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Abstract—The use of cars have used drastically in last few years. There are various reasons for increase in car demand. Car is also a symbol of status. Change in the people's life style and growth in technology also made car affordable. Now-a-days, peoples don't like to travel in public transport and feel continence in driving own car. Especially after the COVID-19 pandemic situation, peoples find safe traveling in personal car instead of sharing the seat in public transport. A car also provides the comfort considering the global warming and environment changes. This results the drastic increase in number of cars user, resulting increase in traffic and pollution. These are known issues, but here we have studied a most neglected issue and that is the parking problem. As car is expensive item its spare parts are also expensive. Hence it is always a threat of theft, damage etc. So, parking on roadside is not safe. In cities, to resolve parking issues there are Paid/Free parking zones are available. These parking zones are maintained manually and there are many gaps in the system due to which the facility is not utilized efficiently. Most of the user time is wasted for searching and parking vehicle. This system provides a solution to the owner as well as the user. The embedded system installed in parking zone will keep the records of IN-OUT cars and bill them based on the parking duration. Similarly, the android application helps the user by telling him the available parking slots and facilitates him to book a parking slot in advance. The owner can specify the definite parking slot to park his car. This saves time to find the available slot and avoid inconvenience. Digital payment mode eliminated the issue of keeping change. In this way, this system is a complete package to facilitate the user and the owner both to work effectively and effortlessly.

Keywords- Parking system, RFID based parking system, FASTag parking system, etc.

I. INTRODUCTION

Today we are living in the age of internet and smart gadgets. Internet of Things (IoT) has brought a huge revolution in technical innovation, application and connectivity. Internet of Things (IoT) based system is a network of electronic devices like sensors, controllers etc. that communicate with each another to perform a specific task. Smart phones, gadgets and software applications add more value to the technology and control various operations from remote location and keeping track of all events.

In our study, we have come up with a parking management system using RFID technology. RFID is the most fundamental technology enabling wireless data transfer between two network. This technology uses radio frequency fields for communication and collection of data from the objects with RFID tags attached to them. Government of India has used this RFID technology for toll collection called FASTag.

Using the same principle, we have developed a smart car parking system with auto payment facility. As one of issue due to the change in

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FPGA BASED PLATFORM FOR VALIDATION OF PLC CONTROL SPECIFICATIONS

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Abstract

Programmable logic controllers (PLCs), as a specialized type of embedded systems, have been introduced to increase system flexibility and reliability, but at the same time to give faster response time and lower cost of implementation. The reliability of such systems depends heavily on the involved testing or verification techniques. In these areas, functional and real-time properties are highly concerned. PLC programs are difficult to be analyzed manually, using formal methods. Testing safety-related software is still an indispensable step to improve software reliability. Failures arising from the execution of such software could lead the equipment under control (EUC) to risky states that include environmental disasters, damage to human health, and financial losses. There are many researches carried out & going on PLC validation using the IEC 61131 standard as well as some model checkers such as SMV, NuSMV and UPPAAL. But many of them have not practically performed it. This project proposes method for validating the PLC using FPGA for confirming its response to assure safety critical conditions.

General Terms : V & V (Verification & validation), test & verification.

Keywords : FPGA, Programmable logic controller (PLC), validation, IEC 61131, equipment under control (EUC).

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DEVELOPMENT AND VALIDATION OF NEW RP-HPLC METHOD FOR THE ESTIMATION OF ATAZANAVIR SULPHATE IN BULK AND DOSAGES FORM

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ABSTRACT

New, reliable, stability indicating reverse phase high performance liquid chromatographic (RP-HPLC) method was developed and validated for the estimation of atazanavir sulphate(ATV) in bulk and dosages forms by using C18(Kromasil, 250 mm x 4.6 mm,5µm), with a mobile phase consisting of a acetonitrile and water (80:20 v/v) at a flow rate of 0.5 ml/min.The detection was carried out at 248 nm and retention time(Rt) of atazanavir sulphate was found to be 3.580 min. The response of detector was linear in the concentration range of 10-50µg/ml (n=5) with the regression coefficient of determination r2 was found to be 0.999. Atazanavir sulphate was subjected to different stress conditions as per ICH guidelines like acidic alkaline oxidative,thermal and photolytic.The results showed that it was more sensitive towards basic degradation.

Key words: RP-HPLC, Validation, Acidic, Alkaline, Oxidative, Thermal Degradation

INTRODUCTION

Atazanavir sulphate is azapeptide inhibitor of human immunodeficiency virus type-1 (HIV-1) protease inhibitors which allows once-daily oral administration [1]. It is a white to pale yellow powder, slightly soluble in water. It is used in the treatment in combination with other antiretroviral agents.Atazanavir sulphate,chemically designated as 2,12-bis(1,1-dimethylethyl)-8-hydroxy-4,11-dioxo-5,10-bis(phenylmethyl)-6-[[4-[[(2-pyridinylphenyl)methyl]-dimethyl ester (2) (Figure 1). Atazanavir formulated as 1:1 sulphate salt is the most recently introduced azapeptide inhibitor of human immunodeficiency virus type-1, which is approved by the United State Food and Drug Administration (USFDA) in June2003.Combined form of such several drugs shows highly

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Low Cost Ultraviolet Disinfecting Corona Oven

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ABSTRACT

A combination of UV and IR sources was used to kill the virus 99% surface of the items placed inside the oven from 360 degrees. At this UVC of the wavelength 100-180nm is in use. Treatment duration of 5-7 minutes shall be sufficient enough to sanitize. That is why UV sterilization is usually done using UVC lamps with protective shields and using some safety equipment. In this project our first priority is humans safety that's why we have used various types of safety equipment's and then our next goal is reduce the costing value of this product. And one more interesting thing about this project we have attached an automatic Hand Sanitizer Dispenser with UV oven. Automatic Sanitizer Dispenser working process is very simple it have an Infrared sensors detect infrared energy that is emitted by one's body heat.

Keywords– UV-C Lamp, Indicator Lamp, Timer, Limit Switch, Proximity Sensor, Automatic Hand Sanitizer Dispenser

INTRODUCTION

Sterilization main aim is to deactivated various microorganism which help to avoid the spread of disease. The effective disinfection process provides safe environment. The purpose of disinfection UV light is to provide the best possible solutions [1-2].

We all know that we are living in covid-19 pandemic. Corona virus is a large family of a virus which causes illness in animal or human. In humans several corona virus are known to cause respiratory infection ranging from the common cold to more severe disease such as Middle East respiratory syndrome and sever acute respiratory syndrome. It is discovered that the corona-virus is transmitted through direct contact with a respiratory droplet of an infected person generated through coughing and sneezing. Sneezing individual can also be infected from the touching surface of object. The covid-19 virus may survive on surface of any object for several hours but simple disinfectant can kill it [3].

UV light has a diverse range of applications in the fields of disinfection and sanitization. One of the salient applications of UV light is sterilization of surgical instruments and medical equipment. Low pressure mercury lamps which are a cheaper way to generate disinfecting UV light can also be used for this purpose [4].

DESIGN AND ANALYSIS OF PROPOSED SYSTEM

The timer based Disinfecting Corona Oven device block diagram is seen in Fig. 1, as it relates to the overall job design.

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Ignition of Electric Bike Using Fingerprint Sensor

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ABSTRACT

One of the major problems facing developing countries is the safety of vehicles from theft. Hence, we created a prototype model of a fingerprint-based protection system for Electric Bike by combining the Fingerprint sensor module R307 with the Arduino Uno as a solution to the aforementioned problem. This vehicle's biometric system captures an image of the owner's finger, converts it to binary, and stores it in a database. When the motorist places his or her finger on the fingerprint module R307, the device compares its image to the image stored in the database, and if the two are identical, the vehicle's ignition system will turn on. Our primary aim in creating the project is to give users direct access to the system, enabling them to get started quickly and with a clear process that allows us to fully comprehend the system.

Keywords:- Arduino UNO, Electric Bike, Fingerprint Module R307, Sensor, User's Biometrics

INTRODUCTION

Biometric technologies in diverse domains have acted as robust protection measures for overtime. The oldest and most commonly used method of biometrically authenticate are fingerprints. In exploring its benefits, a crucial move is to implement it for use as a form of protection in existing systems, such as automobiles [1]. Over the years, the automobile safety system has become a source of significant concern due to the rising cases of vehicle theft recorded all over the world. Many of the integrated protection solutions for automobiles suit the four-wheelers better. As far as the two-wheeler mechanism is concerned, the devices present on the market do not suit well-equipped criminals. These devices can only be immobilized when under threat, and sound a loud warning. The Proposed Two-Wheeler Protection system is a stable and durable concept with features that improve the safety of the vehicle and ensure the safety of the operator [2]. The technology for fingerprint identification gives entry only to those whose fingerprints are pre-stored in a memory. And in the case of a full power outage or battery drain, preserved fingerprints are kept. This removes the need to keep track of keys or to recall a password or PIN for a mix. It can be unlocked only if there is an authorized person, as there are no keys or variations that can be copied or slotes, or locks that can be selected. Therefore, the fingerprint-based lock offers a wonderful alternative to inconveniences conventionally experienced [3].

DESIGN AND ANALYSIS OF PROPOSED SYSTEM

The fingerprint-based vehicle starting device block diagram is seen in Figure 1, as it relates to the overall job design.

Chemical Methodologies

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SPC

Original Research Article

Validation of a Rapid and Sensitive Reversed-Phase Liquid Chromatography Method and Force Degradation Study of Synthesized (E)-3-(2,4,6-tri-Methoxyphenyl)-1-phenylpro-2 ene-1-one

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Characterization

ABSTRACT

A stability-indicating RP-HPLC method was developed and validated for the determination of the estimation of newly synthesized (E)-3-(2,4,6-tri-methoxyphenyl)-1-phenylpro-2 ene-1-one in API form by using C18 column Phenomenex (250 mm x 4.6 mm, 5µm) with a mobile phase consisting of a acetonitrile and methanol (60:40 v/v) with flow rate at 1.0 mL/min. The detection was carried out at 370 nm and retention time (Rt) of (E)-3-(2, 4, 6-tri-methoxyphenyl)-1-phenylpro-2 -ene-1-one was found to be 2.55 min. Linearity was observed from the concentration range of 10-50µg/mL (n=5), [coefficient of determination (R² was 0.999) with the equation of y= 34479x + 8.111. The method was repeatable with a relative standard deviation (RSD) of 0.16 to 1.99 %. The newly developed method was validated according to the ICH guidelines with respect to specificity, linearity, accuracy, precision and robustness. (E)-3-(2,4,6-tri-methoxyphenyl)-1-phenylpro-2 -ene-1-one was subjected to different stress conditions as per ICH guidelines like acidic, alkaline, oxidation, thermal and the results showed that it was more sensitive towards oxidation.

GRAPHICAL ABSTRACT

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Enlightening binding behaviour of sulfonatocalix[4]arene receptor with 2-acetoxybenzoic acid through the lens of experiments and theory

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ABSTRACT

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1. Introduction

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Arduino Based Wireless Remote Control for EOT Crane

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Abstract

This project presents the implementation of electric hoist using a control operation based on Arduino board and RF module. It controls the functions of movement and direction such as up and down, and left or right with its relay-supporting dc voltage. Relay control on-off operation is effective to variation of rotation of the motor. The remote control is based on a smart phone application based on android platform with a RF module connectivity used as a transmission as well as reception ports with Arduino module. With the introduction of RF module, another dimension is aggregated the possibility to connect to the devices wireless. The technology makes it possible to easily access the built-in user interfaces through portable devices but also to access the device data without the need for a physical connection.

Keywords: *RF Module, Arduino, Transmitter, Receiver, Encoder, Receiver.*

INTRODUCTION

The application of wireless controlled systems to industrial systems has grown in a spectacular way. One of the current challenges in this field is the application of the wireless technology, because it is looked for that the industrial-systems are flexible, so that they can be adapted easily to any process modifications. This would at low, in turn, the definition of generic modules that could be adapted to concrete problems. Then, it seems very important, the application of wireless control systems, so that without cables we have a much

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Demand Side Management (DSM) Through (V2H) Vehicle to Home and (H2V) Home to Vehicle System

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Abstract – *Electric vehicle batteries have good potential for energy storage capacity and it can potentially utilize also as backup power supply for home loads during peak load, load shedding or blackout. Additionally, solar energy can be utilized to charge plug-in electric vehicles (PEVs) to further enhance the backup power for home loads. In this work, a microcontroller is utilized for efficient power management and utilization of V2H and H2V. It indicates the decision-making process of charging/discharging of the PEV battery through priority decision making of power management and emergency backup power supply of a typical home in developing countries like India.*

Index Terms – *Electric Vehicle; Load Shedding; V2H; H2V; Emergency Backup Power; Demand Side Management*

I. INTRODUCTION

[illegible] is a global interest in decreasing CO2 emissions and in understanding the strategy of providing cleaner energy with low [illegible] According to India Environmental Protection Agency, in 2014, the transportation sector represents 26% of greenhouse gases (GHG) emissions all over the India. These challenges have directed the automotive industry towards bringing forward the plug-in electric vehicle (PEV) into the market. The use of electric vehicles is an initial step towards the reduction of CO2 emission. The U.S. Department of Energy report shows that there were more than 1.2 million electric vehicles at the end of 2015 and they had estimated that there would be [illegible] electric cars by 2020 and 100 million by 2030. Moreover, PEVs have enormous energy storage capacity. Thus they can also act as residential battery storage system when a grid outage or load shedding happens. The vehicle to home (V2H) capability describes a scenario that PEVs not only take power from the grid to charge the vehicle but also give backup power to the home and other [illegible] load during an emergency, load shedding, similar to a stand-alone power emergency generator. Utilizing a PEV means that the vehicle energy is supplied from the grid to charge the battery. Thus it increases the extra load on the grid, therefore increasing the number of conventional power plants to feed this new demand. This creates another problem which adds to, not minimizes the problem of pollution or fossil fuel depletion. Therefore charging the PEVs to grid due to the uncertain period of charging causes a sudden pressure on the power grid. This type of energy consumption on a large scale can lead to network instability. Therefore, reducing the power [illegible] and optimizing the smart power grid load factor are the main interests of researchers. Thus, optimizing the utilization of PEVs and smart charging become the most common goal of researchers. In India, [illegible] Jharkhand, Madhya Pradesh, Uttar Pradesh, West Bengal, and Odisha constituted over 80% of the households in five of the six states Bihar, [illegible] no electrical energy at all for all for the whole day. In general, in the load electric power for less than 8 h [illegible] for less than 50 W [illegible] the power supply in developing and under developing countries, a lead-acid battery based UPS inverter system is used at home as a standby the power supply in developing and under developing countries. It has low power/energy capacity (2 kWh to 5 kWh). Typically, one or two lead-acid batteries are used for this purpose (12 V, 150 Ah-200 Ah). In comparison to this system, the batteries of PEV has enormous energy storage capacity (about 16 – 40 kWh). This capacity can be used [illegible] during load shedding and blackout. Typical drive patterns, according to the vehicle usage are also used to ensure its availability. [illegible] of V2H also introduces the solar PV based charging of vehicle, slow DC charging and fast DC charging together are applied for the [illegible] voltage and constant current charging modes during the daytime to reduce the dependency of EV to the electric power grid. This low power demand from the electric power grid reduces the CO2 emission of the conventional power plant. To reduce the CO2 emission and to achieve maximum cost benefit.

The National Electric Mobility Mission Plan 2020

The National Electric Mobility Mission Plan 2020 is one of the most important and ambitious initiatives undertaken by the Government of India that has the potential to bring about a transformational paradigm shift in the automotive and transportation industry in the country. This is a culmination of a comprehensive collaborative planning for promotion of hybrid and electric mobility in India through a combination of policies aimed at gradually ensuring a vehicle population of about 6-7 million electric/hybrid vehicles in India by the year 2020 along with a certain level of indigenization of technology ensuring India's global leadership in some vehicle segments. It is a composite scheme using different policy-levers such as:

1. Demand side incentives to facilitate acquisition of hybrid/electric vehicles
2. Promoting R&D in technology including battery technology, power electronics, motors, [illegible] integration, battery management system, testing infrastructure, and ensuring industry participation in the same
3. Promoting charging infrastructure
4. Supply side incentives
5. Encouraging retro-fitment of on-road vehicles with hybrid kit

II. ELECTRIC VEHICLES

An electric vehicle, also called an electric drive vehicle, uses one or more electric motors or traction motors for propulsion. An electric vehicle may be powered through a collector system by electricity from off-vehicle sources, or may be self-contained with a battery, solar panels or an electric generator to convert fuel to electricity. EVs include road and rail vehicles, surface and underwater vessels.

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An Improvement in Performance in E- Rickshaw

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ABSTRACT: Auto rickshaws are three-wheeled vehicles commonly used as taxis of people and goods in many Asian countries. In the design of a new solar battery electric auto rickshaw, the most critical components (i.e. the motor and motor controller) of the drive train must be vigorously studied. The results of such a comprehensive study are needed to balance the design trade-offs in order to achieve an optimally sized and controlled system. This paper focuses specifically on the electric propulsion motor. The size and speed capabilities of the motor are varied in the advanced vehicle simulator, ADVISOR, and the results in terms of efficiency, vehicle gradability and acceleration abilities of the vehicle are presented and analyzed.

KEYWORDS: Motor (BLDC), Battery, Controller

I.INTRODUCTION

Auto Rickshaw is a three wheel public transport vehicle. It is popular in Asian cities i.e. New Delhi, Mumbai, Dhaka etc. Electric Rickshaw is a modified form of auto rickshaw with BLDC (Brushless DC) motor and a battery for energy supply. It is a partially green public transport medium. The standard specification of electric rickshaw is not available, the average model of e-rickshaw is considered for the analysis.

The National Electric Mobility Mission Plan 2020

The National Electric Mobility Mission Plan 2020 is one of the most important and ambitious initiatives undertaken by the Government of India that has the potential to bring about a transformational paradigm shift in the automotive and transportation industry in the country. This is a culmination of a comprehensive collaborative planning for promotion of hybrid and electric mobility in India through a combination of policies aimed at gradually ensuring a vehicle population of about 6-7 million electric/hybrid vehicles in India by the year 2020 along with a certain level of indigenization of technology ensuring India's global leadership in some vehicle segments. It is a composite scheme using different policy levers such as:

1. Demand side incentives to facilitate acquisition of hybrid/electric vehicles
2. Promoting R&D in technology including battery technology, power electronics, motors, systems integration, battery management system, testing infrastructure, and ensuring industry participation in the same
3. Promoting charging infrastructure
4. Encouraging retro-fitment of in-use vehicles with hybrid kit
5. Supply side incentives

Environmental Impact

The data collected regarding the e-rickshaw travelling and charging patterns revealed that the sole battery charging option for the vehicle owners remained the household sockets. Thus the e-rickshaws could not be considered as a zero emission vehicle as the charging relies on the CO2 emissions at the thermal power stations. Coal-fired thermal

Area-Efficient Dual-Mode Fused Floating-Point Three-Term Adder

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Smart Garbage System In Society Using IOT

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Abstract :- Now a days, many times it is witnessed that Dustbins are placed at public places in the cities are overflowing owing to the increase in the waste generation from various sectors like medical, domestic, industrial etc. the waste is in the form of wet as well as dry form. It leads to the unhygienic environmental condition for the people living in surrounding and creates bad odor in the surroundings. This gives rise to the spreading of harmful deadly diseases to the human which leads to their illness. To overcome such a harmful condition a system called "Smart Waste Management System using IoT" is developed. In this proposed system, dustbins are equipped with low cost embedded device which helps in tracking the level of the garbage bins. These garbage bins are identified by an unique identification code in order to know/aware in their identification. The unique ID helps to detect which garbage bin is full. When the level reaches the threshold value, the device transmits the level information along with the unique ID. These details are accessed by the concerned authorities from their respective location via internet so that an immediate action is performed to empty dustbin. By adding wet and dry button in garbage chute control system one can identify the appropriate dustbin.

Keywords — IOT (Internet Of Things), PIC Microcontroller, NODE MCU, Smart System.

I. Introduction

The Automatic Waste Segregation is used to separate the trash into metallic, wet and dry type so as to recycle them separately. The proximity sensor gets activated while dumping the waste inside the unit[illegible] the same to the Arduino. Waste slips over the slope and falls on the sensors. The sensors which are placed in the trash can detect whether the waste is metallic, wet or dry type. For the end segregation, DC geared motors are used. The motor changes a circular[illegible] with separate direction for each waste and rotates according to the suitable wastes. For the garbage monitoring system, Ultrasonic Sensor is installed at all trash can and they measure the availability of space in the trash. If the space is less than the particular value, a message will be sent to the connected phone as 'Basket is Full' with trash identity number so that it can be emptied by proper arrangements. NODE MCU ESP8266 is the wi-fi module which is used to connect the arduino and shows the output in a BLYNK application which can be viewed at our smart phones. This type of a project, if implemented on a large scale will help to maintain the cleanliness of the city.

II. Objectives

Worldwide significant increase in municipal Solid waste generation is observed. This Degradable waste is observed because of Population Growth Rate, Industrialization, Urbanization and economical Growth which have ultimately resulted in increased solid waste generation. Most urban Solid Waste in Indian cities and Towns is land filled and dumped. The project deals with the Most [illegible] topic namely waste Segregation. An Efficient Management ought to be materialized for better place to live in. Hence, with our cost effective project proposal, we try to bring in the change. It deals with the minimization of time-[illegible] method utilization for [illegible] of waste into an automated manner. An Installation of this type not only saves the manual segregation of the numerous Health issues but also proves to be economical to the nation. Besides, this system Utilizes low cost components for the successful completion for the successful segregation of three types of waste. When installed in apartments or small colonies, it proves to be beneficial in sorting the waste at the site of disposal itself.

III. Literature Survey

In Literature survey some different papers given the idea or related information about existing work. In this paper system based on microcontroller Bins were interfaced. Information related to garbage in the Bins was given by the IR wireless sensor with the central system. The alarm signal was sent the mobile related the web browsers. Using the weight based sensor this system reduced the cost. This

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Study of biodiesel to develop maximum yield

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ABSTRACT

In current globalization era, there is exponential demand for fossil fuels, that's ever getting worse with increasing population and urbanization. If the energy source is clean and renewable, it will reduce the environmental trouble as well. Scientists suggest for future as a current fuel because they have utilized the properties of biodiesel prepared non-edible oils are very close to commercial diesel. A possible solution to this problem is to replace or find renewable and economically feasible fuel as an alternative source. Showing a bit of work for the source which fulfills the criteria of sustainability and economically carried out. But the waste it caused issues. So, characterization and formation of biodiesel with zero waste is a prime objective.

Keywords: Renewable, oil, Bio-diesel

1. INTRODUCTION

The global energy crisis in recent years is due to a significant worldwide increase in the supply of energy compared to an economy. The best option, fulfilling both criteria - the technical - that extracted from abundantly available biomass resources. Biodiesel is a renewable, biodegradable, nontoxic, oxygenated and environmentally alternate diesel source. Biodiesel fuel is made through a transesterification. This procedure includes expelling the glycerin from the vegetable oil or fat. Amid the procedure, hydroxide and methyl esters are produced. So, to reduce and turn into waste in the process is objective. In most recent few decades, engine engineers have been made by scientists to utilize distinctive sources demonstrated the utilization of straight vegetable oils is evaluated by some unobtrusive physical properties, especially their viscosities. Because of higher thickness, the straight vegetable oil causes poor fuel atomization, fragmented ignition and carbon distortion on the injector and valve from bringing about genuine motor fouling. One possible method to convey over the problem of higher viscosity is blending of vegetable oil with diesel in proper proportion, and the other method is transesterification of oils to produce biodiesel.

Transesterification

This process involves removing the glycerin from the vegetable oil or fat in which by-products left behind includes methyl esters and glycerin. So, to reduce and turn zero waste in the process is objective.

2. MATERIALS AND METHODOLOGY

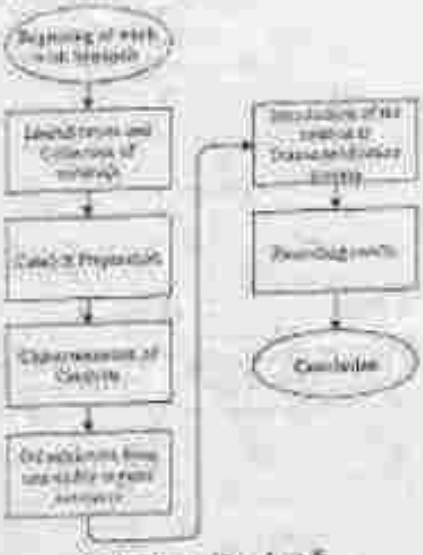

Fig. 1: Process Flowchart

2.1 Step I: feedstock pre-treatment

The chicken waste grease which is collected by locally supplied poultry waste. Heated 70-80 °C for oil extraction mechanically sieving for 2 hr to complete separation. That oil is used for the preparation of biodiesel.

2.2 Step II: Esterification

After extraction of oil, esterification reaction is carried out for reduction of fat by adding 10 ml alcohol (CH_3OH) and 1% acid (H_2SO_4).

2.3 Step III: Transesterification

In natural science, transesterification is the way toward making the natural gathering R' of an ester with the natural gathering R of a liquor. These responses are frequently catalyzed by the expansion of a corrosive or base impetus. [1] The response can likewise be driven with the assistance of proteins (biocatalysts)

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Study on the Strategies to Enhance the Efficiency of Parallel Inverters at Light Loads

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Abstract: This paper presents the various paralleling methods and schemes to enhance the efficiency of parallel inverters at light loads.The various methods to improve the Conversion efficiency of inverters are discussed in the paper, which includes conventional Current Scheme, interleaved flyback converter onboard switching scheme. These methods reduceswitching and magnetizing losses and thereby enhancing the efficiency at light loads. Simulation results show that these schemes increase the efficiency of lightloads to a better range.

Keywords: Hybrid Switch, Parallel Inverters, Particle Swarm Optimization,Phase shipping mode

I. Introduction

Increased amount of carbon dioxide and other gases which causes environmental pollution haveleed to the use of Nonconvertable energy resources which have very less impact on the surroundings. The various Non Renewable Resources include the Solar Energy, Wind Energy, Geothermal Energy, Tidal Energy etc. The commonly used type of Nonconvertable Energy in Home hold applications include the Photovoltaic Generation system which uses single inverters. Due to the limitations of single inverter, they are replaced with the parallel inverters. The advantages of using the parallel Inverters are even if one of the inverterare not functioning or taken for maintenance, the other inverters can meet the demand.There are many types of paralleling schemes but the most commonly used one is the current sharing control.

II. Problem Definition

The efficiency of parallel Inverters are low at light loads. Generally, the efficiency of power-conversion circuits at heavy loads is determined by the conduction losses of semiconductor and magnetic components, whereas their light-load efficiency is primarily determined by switching losses of semiconductors, core losses of magnetics, and drive losses of semiconductor switches. A typical efficiency curve as a function of the load power shows a steep fall as the load is between 1 percentage and 10 percentage of the full load, as illustrated in fig 1, whereas the switching and drive losses of semiconductor switches and core losses of magnetic components are almost independent of the load.

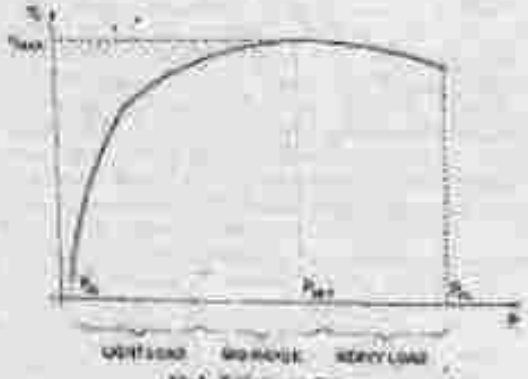

Fig1: Efficiency Curve

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Study on Various Converter Topologies For Power Factor Improvement In SMPS

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Abstract:Due to severe power shortage, the power suppliers are unable to meet the power demand and are forced to purchase it from other states. One method to overcome power shortage, is by improving power factor at the customer side, thereby the energy wasted by various equipments due to low power factor can be reduced. Nowadays personal computers (PCs) are an inevitable part of our day to day activities for which Switched Mode Power Supplies (SMPS) is an integral part. The problem associated with multiple output SMPS is its very poor power factor and voltage regulation and the high total harmonic distortion, which violate the limits of harmonic emissions set by international power quality standards. Hence to improve the power factor and thereby the power quality a power factor corrected (PFC) converter is used which in addition reduces the 100 Hz ripple in its output. This improved output is fed to the secondary isolated converter (SMPS). Control of the Power factor correcting unit as well as the isolated converter is using a PI controller.This can be used in various server power systems, telecommunication system, embedded applications. In this paper a study of various types of converter for Power factor improvement in SMPS is performed.

Keywords: Multiple Output SMPS,Personal computer,Sheppard Taylor Converter, Bridgeless Buck Boost Converter, Zeta Converter.

I. Introduction

Increasing awareness related to harmonic pollution has created the demand of improved power quality (PQ) switched mode power supplies (SMPSs) in today's scenario. Conventional PCs are linear power supply which deteriorates the PQ due to harmonic pollution,high interference levels and low power factor at the point of utility interface. This lowers the efficiency and places stress on various circuit components thus lowering their shelf-life. Currently, we focus on green energy and PQ improvement. This is especially pertinent to industrial scenarios where a large number of electronic devices are used which are vulnerable to PQ related issues. This is becoming relevant even in a home scenario as a large proliferation of electronic devices (e.g., laptops, tablets, cell-phones, televisions) is found even in home environment. To this, now several standards have been set which limits the maximum current distortion that is permissible in power supplies. Because of this, improved power quality SMPSs are becoming more prevalent these days which also provide a solution to the constraints of low cost, compact size and moderate stress levels across the components. Personal computers (PCs) utilize such SMPSs to convert single-phase ac voltage into multiple dc voltages of desired magnitudes associated with a high frequency link. The unregulated charging and discharging of the large capacitor after the diode bridge in conventional SMPS leads to highly distorted, periodically dense supply current, high crest factor (CF) and low power factor with reduced lifetime. Therefore, it is necessary to incorporate a power factor correction (PFC) however at the front-end of an SMPS to attain improved PQ and to regulate the multiple dc voltages even at varying supply voltages and loading conditions. The PFC circuits are integrated in these SMPSs in cascading or in two stages. Single stage SMPS for PCs are less popular because of inadequate output voltage regulation, excessive component stress, high output capacitance value and complex control. However, since it only one conversion stage supporting the efficiency and number of components are less as compared to two stage SMPS. On the contrary, the two stage SMPS offers regulated dc output voltage, improved input PQ and a reduction in second order harmonic resulting in reduced value of output filter capacitors, a fast stable fast dynamic response. Hence, the choice of number of conversion stages is a tradeoff between the above mentioned performance criteria. Usually, a boost converter is preferred for the PFC stage as most of the two stage SMPSsystemsalthough the output dc voltage range is restricted in this case. To expand the output voltage control range even with supply voltage variation, buck-boost converter appears to be a very viable option especially for PC power supplies. The Sheppard Taylor (S-T) buck-boost converter is chosen here for PFC because it can provide both buck and boost operation with high level of PQ, excellent output voltage regulation and low device stress. Although, the component count is increased when compared to the other buck-boost converters, the current stresses of the high frequency switches(main switch as well as the control switch) is very single. The regulated output from the PFC S-T converter is connected to an isolated bridgeless buck

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Fatigue Analysis of Front Axle for Automobile Heavy Motor Vehicle

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Abstract: *The axles in a system must bear the weight of the vehicle as well as any cargo weight. The front axle beam is one of the major parts of vehicle suspension system and it houses the steering assembly as well. About 35 to 45 percent of the total vehicle weight is taken up by the front axle. Corrosion, wear and fatigue are the main causes of failure of mechanical parts. Main failure form of front axle beam is fatigue damage. The axles serve to transmit driving torque to the wheel, as well as to maintain the position of the wheels relative to each other and to the vehicle body. Therefore, the research on the fatigue life has important value. So, proper design and optimization of front axle is extremely crucial to Fatigue strength. The paper focuses on design, analysis and optimization of front axle. The approach in this research paper has been divided into two steps. The First step involves design of front axle by Analytical method. For this, types of forces loads with the help of CAD UNIGRAPHICS NX9.Second step involved further Pre-processing using ANSYS beam work 15.0 and post processing with the help of ANSYS bench work NCODE. Also the experimentation test performed and compared with FEA results.*

Keywords: *Front Axle, Design, Analysis, Automobile axle, construction and working of front axle beam, Fatigue analysis, NCODE ANSYSfool.*

I. INTRODUCTION

In today's competitive industrial world, there is a growing demand for more efficient and economic manufacturing process to reduce production cost, increase productivity, reduce lead time and at the same time improve product quality. During last few decades due to global economic scenario optimum vehicle design & life of different parts of vehicle, like front axle beam (FAB) are major concern. Present off-highway vehicle market demands low cost, lightweight & long life component to meet the need of cost effective vehicle with fuel efficient. This in turn gives rise to more effective use of materials and useful surface treatments that are required to increase the life of vehicle components.

During the vehicle operation, road surface irregularity causes cyclic fluctuation of stresses on the axle, which is the main load carrying member. Therefore it is important to make sure whether the axle resists against the fatigue failure for it predicted service life. Axle experiences different loads in different direction, primarily vertical bending or bending load due to drive torque, cornering load and braking load.

In real life scenario all these loads vary with time. Vertical bearing is one of the severe and frequent loads on an axle. Due to their higher loading capacity, solid axles are typically used in the heavy commercial vehicles. Due to the road surface roughness, dynamic stresses are produced, caused by dynamic forces and these forces lead to fatigue failure of axle.

Fatigue failure often occurs from cracks initiated at bottom of spring pad and notches of front axle beam. It is usually described as a sequential process consisting of three main stages, i.e. crack initiation, crack propagation and final fracture. Therefore, in order to develop durable products against fatigue as well as to access the remaining lifetime of a component or to establish maintenance procedures. Corrosion, wear and fatigue are the main causes of failure of mechanical parts. Main failure form of front axle beam is fatigue damage. The axles serve to transmit driving torque to the wheel, as well as to maintain the position of the wheels relative to each other and to the vehicle body. Therefore, the research on the fatigue life has important value.

During the vehicle life, dynamic forces caused by the road roughness produce dynamic stresses and these forces lead to fatigue failure of axle, which is the main load carrying part of the assembly. Therefore it is vital that the axle resist against the fatigue failure for a predicted service life. On wheeled vehicles, the axle may be fixed to the wheels, rotating with them, or fixed to the surroundings, with the wheels rotating around the axle. The axles serve to transmit driving torque to the wheel, as well as to maintain the position of the wheels relative to each other and to the vehicle body. The axles in a system must also bear the weight of the vehicle plus any cargo. The front axle beam is one of the major parts of vehicle suspension system. It houses the steering assembly as well. Hence, research on fatigue of front axle beam is very important.

Design and Optimization of Alloy Wheel Of 2-Wheeler Vehicle

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Abstract— Now a day's increase in vehicle demand at a lower rate is necessity of vehicle manufacturer. Expectation in terms of durability, efficiency and cost is raising exponentially by customers. Over designed components in vehicle leads to increase weight and reduced efficiency. Alloy wheels carry spring mass of vehicle and are supported by suspension system, they can be redesigned and modified for achieving less weight and thus cost. Existing Alloy component was available in market which is reverse engineered and CAD modeled using CATIA V5 software. Finite element Discretization & Analysis is carried out using ANSYS package. FEA helped in finding out high strain locations in component and also defining area which can be modified and also optimized model is obtained by topology optimization technique. Strain gauging will be done on areas of high strain location indicated by FEA software. Fixture is designed for mounting component on UTM. Vertical loading simulating steering linkage leading to cantilever condition is achieved using UTM. Machining has been done to remove excess material from component. Comparative analysis is done between FEA & Experimental strains.

Keywords—Alloy wheels, 2- Wheeler, topology optimization, FEA.

I. INTRODUCTION

Alloy wheels were initial developed within the last sixties to satisfy the demand of course enthusiasts who were perpetually searching for a position in performance and styling. It had been associate unorganized business then. Since its adoption by Original Equipment manufacturers (OEM's), the alloy wheel market has been steadily growing. Today, because of a lot of refined and environmentally aware client, the development of alloy wheels has become progressively relevant [1]. With this increased demand came new developments in style, technology and producing processes to supply a superior with a large style of designs. Within the fatigue life analysis of aluminium wheel design, the internationally accepted procedure for carriage wheel producing is to pass 2 durability tests, specifically the radial fatigue take a look at and cornering fatigue test [2]. Since alloy wheels area unit designed for variation stylish and have a lot of complicated shapes than regular steel wheels, it's troublesome to assess fatigue life by exploitation analytical strategies [3]. Wheels have very important importance for the protection of the vehicle and a special care is required so as to make sure their durability. The event of the vehicle industry has powerfully influenced the look, the fabric choice and therefore the producing processes of the wheels [4]. The wheels loading manner may be a complicated one, additional engagement and economical wheel style and attainable ... so as to ... of the wheel, 2 goals area unit ... the ... the mechanical properties and allowable stresses of the material that depend upon the vehicle characteristics, service conditions and producing processes [5]. Another risk is to use the finite element methodology so as to ascertain the stresses within the wheel rim and to check the various style solutions.

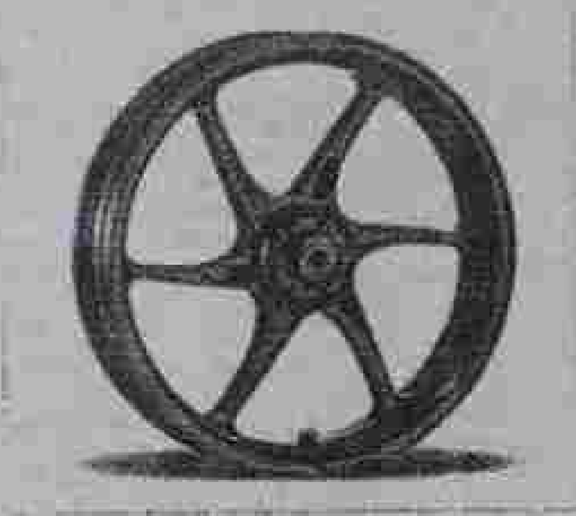

Fig 1: Alloy wheel of 2 wheeler vehicle

Done Modeling of existing 2-wheeler vehicle alloy wheel in CATIA software. Determined stresses and deformation using ANSYS software using static structural analysis Formulated optimized model using topological optimization technique.
Optimized model used to determine for stresses and deformation. Machined of existing wheel as per optimized model obtained from topology optimization. Designed and manufactured fixture to hold wheel firmly in testing. Experimental testing is done and correlating results has find out.

II. LITERATURE REVIEW

Madhu K S et al. [1]This paper state that, the industries in the automobile sector are going to explore the composite material to achieve reduction of weight without significant decrease in vehicle quality and reliability. Reduction of weight leads to more precise handling and minimizing the fuel consumption. Aluminum alloys is the material presently used material for manufacture of two wheeler alloy wheel. Composites are the only materials that cater to the never ending demand of the material technology. Aluminum are the most widely used composite materials in automobile sector due to their light weight and superior strength. Presently aluminum alloys are replaced for steel wheels. Main aim of the paper is presenting the new material for two wheeler alloy wheel by using composite materials.

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Suppression of Brake Squeal by Design and Analysis of Disc Brake Used In Two Wheeler

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ABSTRACT: FE models of the disc brake components an assembly are developed using FE software (ANSYS 15.0). In order to ensure that accuracy of the FE model agree with those of the physical components, two validation stages are used through experimental measurements at both individual components and at assembly levels. First, FE modal analysis at the component level is carried out and then, the mesh sensitivity of the each disc brake components is considered. In order to correct the predicted frequencies with the experimental results, a FE updating is used to reduce relative errors between the two sets of results by tuning the material. Finally, the integrated brake assembly model is corrected with measured data using proper contact interaction between brake components.

KEYWORDS: FE Modal analysis, Mesh sensitivity, FE updating.

I. INTRODUCTION

Finite element analysis (FEA) is widely used to model the dynamic response of a structure and has the advantage that complex geometries can be accurately modeled. But accuracy of the FEA can be questionable and the reliability of the FE model must be validated by comparing the predicted results of natural frequencies and mode shapes of the FE model with the experimental results.

Experimental modal analysis (EMA) is one of the most useful areas of structural dynamics testing. It is a technique which has been widely used in structural engineering for finding the structure's dynamic characteristics under real mechanical conditions by determining modal parameters, such as natural frequencies, damping factors and mode shapes of a structure through experiments, then using them to formulate a mathematical model for its dynamic behavior. The formulated mathematical model is referred to as the modal model of the system and the information on the characteristics is known as its model data.

In the last three decades, there have been numerous applications of modal analysis reported in literature covering wide areas of engineering, science and technology. One common reason for experimental modal analysis is the correction of the results of numerical methods. In practice, the accuracy of FE models is often limited by uncertainties about the actual geometry and material properties. For disc brake components, it is not possible to specify their exact material properties or geometry. Uncertainties in material properties or structural dimensions can be due to manufacturing and assembly imperfections, or lack of knowledge of material properties and coupling parameters between subsystems. Hence, experimental modal analysis is necessary to correlate the measured vibration behavior of disc brake components with that predicted by FEA.

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FEM Based Crack Analysis in Metal Powder Compaction

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ABSTRACT

This paper presents a preliminary assessment and qualitative analysis on fracture criterion and crack growth in metal powder compact during the cold compaction process. Based on the fracture criterion of granular materials in compression a displacement based finite element model has been developed to analyze fracture initiation and crack growth in metal powder compact. Approximate estimation of fracture toughness variation with relative density is established in order to provide the fracture parameter as compaction proceed. A single crack initiated from the boundary of a multi-level component made of iron powder is considered in this work. The finite element simulation of the crack propagation indicates that shear crack grows during the compaction process and propagates in the direction of higher shear stress and higher relative density. This also implies that the crack grows in the direction where the compaction pressure is much higher, which is in line with the conclusion made by previous researchers on shear crack growth in materials under compression. In agreement with reported work by previous researchers, high stress concentration and high density gradient at the inner corner in multi-level component results in fracture of the component during preparation. Powder metallurgy (PM) is widely applied to produce mainly automotive parts such as bearings, cams, and toothed components. Manufacturing parts using PM involves four major steps: powder and lubricant mixing, compacting powders into appropriate shapes in closed dies to produce green compacts, sintering the green compacts at elevated temperature and finally, post-sintering secondary operations. In modeling the compaction process, the macro-mechanical modeling approach is used in this work, which provides information on the macroscopic behavior of the powder assembly such as powder movement, density distribution, stress state and the shape of the compact during and after compaction.

INTRODUCTION

Powder compaction is a production method commonly used in the manufacturing industry today such as those in the ceramic forming, pharmaceutical and detergent industries. The granulated material is consolidated by the application of pressure. Artifacts of the granule structure often persist as pores and inclusions after compaction, and may persist as defects in the sintered microstructure. Such defects can be detrimental to the properties of the final part called "green body". The fracture and deformation behavior of particles under impact loading is important in many industrial processes. For example, impact comminution is widely used to modify the size distribution of a population of particles.

On the other hand, unintentional attrition by impact can degrade particles, and the resulting fragments may cause serious problems elsewhere in the system. Thus, it is desirable to eliminate the granule structure as completely as possible during the compaction. In cold uniaxial powder compaction, the powder is formed into a desired shape with rigid tools and a die. A critical property in the powder pressing process is the mechanical properties of the formed piece. Beyond a defect-free green body, the desired properties are high strength and a uniform density. The compression induces a tensile stress perpendicular to the compressed diameter. Understanding breakage in granulation could lead to a better control of product quality and improved manufacturing efficiency. In either case, it is important to understand the mechanisms of failure under impact conditions so that these attrition and comminution processes can be appropriately controlled.

Powder metallurgy (PM) is widely applied to produce mainly automotive parts such as bearings, cams, and toothed components. Manufacturing parts using PM involves four major steps: powder and lubricant mixing, compacting powders into appropriate shapes in closed dies to produce green compacts, sintering the green compacts at elevated temperature and finally, post-sintering secondary operations.

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Mold Flow Simulation of "Car Door Handle" for Optimization of warpage by Using Different Gate System

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ABSTRACT

Mold flow simulation helps designers to see how their designs will be resulted after injection molding process without needing to do the injection molding process. The use of simulation programs saves time and reduces the costs of the Molding system design. Injection molding design simulation holds an important role in analyzing the outcome of the design. In this paper plastic Car door handle is analyzed and studied to solve the problems war page by using different gate system with different dimensions of gate like Edge gate & Fan gate etc. All the designs were simulated with Autodesk Mold flow Insight & Advisor. Autodesk Simulation Mold flow effectively simulates the use of trial and error method by validating and optimizing the Design of plastic before production. This not only improves the quality but also help us to guide about the selection of machines and the production planning.

Keywords: Injection molding, Mold design, Mold flow simulation, Optimization Plastic Injection Mold, Mold Flow Plastic.

I. INTRODUCTION

Injection Molding is one of the common methods to do the mass-production of plastic product. Thermoplastics are science's gift to the toy industry. They can be melted at fairly low Temperatures, molded in colors with fine detail, and stand up well to play wear because of their Resilience.. Injection molding is the most commonly used manufacturing process for the Fabrication of plastic parts. A wide variety of products are manufactured using injection molding, which vary greatly in their size, Complexity and application. Injection Molding is the way most of our plastic toys are created. The material is injected under pressure into a two-part mold. The material is allowed to cool, The mold is opened, and the solid product inside is ejected into a collection hopper. Common Problems associated with injection molding are numerous.

Nowadays, Computer Aided Design is not limited to sketching and drafting, but also helps to create analyzable models as needed for computer based process simulation. Mold flow Software, used solution for Digital Prototyping, provides injection molding simulation tools for use on digital prototypes. Providing in-depth validation and optimization of plastic parts and associated injection molds, Mold flow software helps study the injection molding processes in use today. The Autodesk Simulation Mold flow results help to identify the main problem areas before the part is manufactured that are particularly difficult to predict with traditional Methods. In conventional optimization process includes actual shop floor trials in which pattern, feeder size, shape and location cores, mold layout, gating etc are required to be changed in each iteration which is associated with machining cost, tooling cost, modification cost, melting cost, fettling and transportation cost as well as energy, materials, time are wasted in each trial until and unless the required results are obtained.

Analysis is essential for designing and mold making through simulation step-up and result interpretation to show how changes to wall thickness, gate location, material and geometry affects manufacturability and also experiment with "what-if" scenarios before finalizing a design. Injection Molding simulation software into the mold design process in order to analyze the product, foresee the possible defects, and optimize the design to achieve the maximum outcome of the products with minimum cycle time in each production cycle . Door handles are the only hardware used for opening and closing of doors. Doors are used by every individual and for its functionality door handles are used. Doors are used for security purposes of our belongings and automobiles. There are many kinds of doors like passage closet, dummy doors etc. similarly there are various kinds of door handles used for variety of doors and their functionality. Door handles are installed on doors to simply open and close the door with minimum effort. Sometimes door handles are equipped with locks for

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Study of Vibration Signature Monitoring on FSW Process and Verification with FEA

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ABSTRACT

The Experimental study conducted during joining butt weld in FSW process on Al 6061 alloy of size 50 mm width X 100 mm length X 5 mm thickness of two plates wherein the effect of the interaction between the plates, tool and the vibration that occurs during the process are investigated, are reported. In this study, joining sides of the workpiece samples are artificially induced with 0° gaps of drilled holes in 2mm, 3mm, 5 mm diameter holes and 3mm width X 4 mm depth of slots in random distances. The vibration behaviour of the tool and workpiece joining system are characterized by a frequencies arrived in modal analysis using Finite Element Analysis (FEA), each mode corresponds to tool and workpiece system. Variations in the amplitudes of vibration signals in the particular range of frequencies from 6.0 to 7.0 kHz are proportional to workpiece and significant changes in linear pattern indicate the defective and steady joining area of workpiece. So, this method is effective in monitoring of workpiece joining in FSW process. The Fast Fourier transform (FFT) analysis of vibration signal shows the changes in individual frequencies and is used for identifying the frequency range of monitoring workpiece with gap and without gap conditions. The steady joining portions cause the vibration which corresponds to 4th region frequencies of workpiece.

INTRODUCTION

The friction stir welding process is a solid state combined that uses a non-expendable tool to link two non-melting material. This method can progress the mechanical properties of the joint, such as the strength and hardness etc. The heat will be created due to friction and plastic distortion between the tool and the work pieces. This friction and plastic distortion result in the mixing and agitation of the materials around the pin from the front to the rear. The heat generated by friction leads to the softening of metals, especially near the friction welding tool. This means that mechanical energy is converted into thermal energy in the contact areas, without the need for heat from other sources. The main function of the friction welding tool is to heat the parts, and then to induce the materials to flow and restrict under the shoulder and Impression action will generate friction between two surfaces and relative motion between two part. People are studying to optimum process parameters for active connection of materials.[2]

LITERATURE REVIEW

Premature failure of the welding tool can lead to unacceptable welding joint quality and loss of welding productivity. Friction welding is a completely machined process. The forces and vibration generated by the process are high enough that manual operation is not possible, except possibly for very fine materials. Therefore, for online monitoring of vibration is therefore in demand.

Sambhare et al. (2015) have investigated force variation, temperature and torque distribution in process with an Al-Si-Mg aluminium alloy that varies the tool's rotation speed and welding speed. Temperature measurements were made using an IR camera. *Prasanna et al. (2010)* have observed the experimental and numerical evaluation with aluminium alloy aa5061. Temperature variation and simulation model is tested parameter with experimental results. *Rajiv. G et al (2009)* have developed the distribution of temperature and tension in welding nugget was investigated. Projected the relationships between the forces of the tool and the variation in the parameters. Temperature profile almost symmetrical to the welding area was found. *Reza-E-Rabbiya et al (2013)* have found pin characteristics in the flow of material and the weldability by stirring by friction of two aluminium alloys (AA 7050 and AA6061) with a pin tool cylinder, including the pin smooth / without thread attached to a geometry of shoulder displacement single invariant. Welds were made under a range of process parameters (welding and rotation speed). *Sadeesh Pa et al (2014)* conducted with plates of aluminium AA2024 and AA6061 dissimilar, and obtained the optimal parameters of the process. Different tool designs have been used to analyze the properties. Investigated the effect of welding speed on the microstructure hardness and tensile properties of the welded joints. As the process parameters varied, seamless, high-efficiency welded joints were produced. *Jaloy Shukla et al (2016)* have observed mechanical and metallurgical properties by changing various parameter that FSW can be used to study the parameters on the process in laboratory. Experiments have been conducted to validate some of the simulation results of the ANSYS software. *Ramesh et al (2016)* have investigated (FSW)

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Design and Analysis of Bevel Gearbox Having Two Output Shaft

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ABSTRACT:
At the beginning of the industrial revolution, belt drives were used for transmitting power, but they were inefficient due to the high rotational speed and friction between the belt and the pulley. The huge loss of energy prompted the need for an alternative mode of transmission and thereafter gear came into existence. Once they were installed in machines it became clear that they are more efficient than the belt drive system. Hence, the revolution arrived with the use of gears in different locations and in combination with other components in order to reduce the load acting on the teeth while they work. The revolution phase didn't stop there, the focus shifted on the appearance of the gears and other components in the casing to make them more aesthetic and efficient. The gear manufacturing industry started to thrive as a result of this revolution.
Gear is a major component of my thesis work. We use toothed cylindrical wheels, also known as "Gears" if we want to transmit power from one revolving unit to another in the mechanical elements. [1] Bevel gears are the most suitable choice to use in any machinery or mechanical systems if we want to adjust the direction of transmission or transmission ratio. In my thesis work, I'll discuss the various types of bevel gears, the comprehensive method for designing a bevel gear, the materials that can be used to manufacture bevel gears, various types of lubricants that can be used when the gear is working in its actual location, various types of failures that can occur in bevel gears while in operation, and various applications of bevel gears in various industries. In addition, I'll go through two main concepts in the field of design; CAD (Computer- Aided Design) and FEA (Finite Element Analysis).The primary goal of this thesis work is to develop a gearbox with two output shafts. I'll start by designing bevel gears geometrically so that I can get the design parameters needed to create the gears in any CAD software, such as Solid Edge, Solid Works, Gear Teq, etc. The next step will be to design the rest of the gearbox's components and assemble (bring them together) them in a housing or enclosure so that we will have two output shafts and just one input shaft. Then, I will perform a Finite Element Analysis of gear assembly when gear teeth are meshing each other. Specifically Static structural analysis to obtain equivalent stress, strain, deformation, etc. I will use either Ansys or Dimscale to do FEA. After finishing all of these steps, the last step will be conducting feasibility of the gearbox, determine various manufacturing possibilities & application of the designed gearbox and provide recommendations on which process will be suitable to produce this kind of gearbox.

I. INTRODUCTION

Bevel Gear
[1]Bevel gears are the gears having intersecting shaft axis and conically shaped tooth-bearing faces. These types of gears are mostly used when shafts are intersecting at 90 degrees but they can be designed to work at other angles as well.
[2] These gears allow mechanical advantage to be changed by changing the number of teeth on each wheel. For example, differing the ratio of teeth between the driver and driven wheels may determine the ratio of rotational speed and torque.

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Application of Tuned Mass Damper For Vibration Control of Frame Structures Under Seismic Excitations

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Abstract: Current trends in construction industry demands taller and lighter structures, which are also more flexible and having quite low damping value. This increases the possibilities and also [illegible] from serviceability point of view. Nowa-days several techniques are available to minimize the vibration of the [illegible] several techniques available for vibration control, concept of using TMD is a newer one. This study was made [illegible] of using TMD for controlling vibration of structure. At first a numerical algorithm was developed to [illegible] shear building fixed with a TMD. Then another numerical algorithm was developed to investigate [illegible] fixed with a TMD. A total of three loading conditions were applied at the base of the structure. [illegible] the second one was corresponding to compatible ruler history as per spectra of IS-1894 (Pa[illegible] 2002 for 5% da[illegible] with (PGA = 1g) and the third one was 1940 El Centro Earthquake record with (PGA = [illegible]). From the s[illegible] structure is less. Gradually effectively used for vibration control of structures. TMD was more effe[illegible] the structure. increasing the mass ratio of the TMD results in gradual decrement in th[illegible]

Index Terms – damping, [illegible] serviceability, vibration, tuned mass [illegible] of IS-1894.

I. INTRODUCTION

Vibration control is [illegible] primarily in aerospace related problems such as tall buildings and pointing, and in flexible space structures, the technology has [illegible] moved into civil engineering and other engineering-related areas, such as the protection of buildings and bridges from extreme [illegible] earthquakes and winds. The number of tall buildings being built is increasing day by day. Today we cannot have a count of [illegible] of low-rise or medium rise and high rise buildings existing in the world. Mostly these structures are having low natural damping. [illegible] increasing damping capacity of a structural system, or considering the need for other mechanical means to increase the damping capacity of a building, has become increasingly common in the new generation of tall and super tall buildings. But, it should be made a routine design practice to design the damping capacity into a structural system while designing the structural system. The control of structural vibrations produced by earthquake or wind can be done by various means such as modifying rigidities, masses, damping, or shape, and by providing passive or active counter forces. To date, some methods of structural control have been used successfully and newly proposed methods offer the possibility of extending applications and improving efficiency. The selection of a particular type of vibration control device is governed by a number of factors which include efficiency, compactness and weight, capital cost, operating cost, maintenance requirements and safety.

Aim and Scope of this work

The aim of the present work is to study the effect of TMD on the dynamic response of multi- storey frame structures under earthquake excitations. The scope of the work includes the modeling the multi-storey building as 1D and 2D models. The finite elements have been used to discretize the building frame structures and TMD. The Newmark Beta method is used to solve the dynamic equations for the structure-TMD system.

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Design and Optimization of Electric Motor Driven Mechanical Oil Press

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Abstract— There are different types of oil press machine developed previously which are used to squeeze oil from different types of oil seed, In this Research, manually operated oil press, is modified into electric motor driven mechanical oil press with rack and pinion gear system as a main mechanical part of the machine. This improvement is used to solve the said problem, reduce work time, and streamline the existing machine to be more efficient and productive. The main procedures to comply this improvement of design of parts of the machine to get optimized dimensions of the parts and setting the controlling mechanism. In this procedure main parts of the machine are designed to find their dimensions and to select appropriate material and also its stress analysis is performed using finite element analysis software to find stress concentration area and its maximum stress value and then to compare with values obtained in the design analysis. The other part and power source of the machine is an electric motor, in this thesis it is also deals with selection of motor type including its specification for safe and appropriate operation. The controlling mechanism of the motor using microcontroller for automatic operation of the motor is selected and assembly language has been written since the motor is bi-directional or it rotates clockwise and anti-clockwise, which is used to move the ram up and down. After completing di design obtained results and selected materials are safe to squeeze edible oil.

Keywords— Oil press machine, rack and pinion gear system, controlling mechanism, finite element analysis.

I. INTRODUCTION

Oil can be extracted manually or using power source by pressing softer oilseeds, such as round nuts and sheer nuts, whereas harder, more fibrous materials such as copra and sunflower seed can be processed. Pulped or ground material is loaded into a manual or hydraulic press to squeeze out the oil-water emulsion. This is more efficient at removing oil than traditional hand squeezing, allowing higher production rates [1]. In Germany, at the institute of Agricultural Engineering in freising Weihen Stephan, small scale extraction of rape seed oil has been studied in laboratory [2]. Capacity, oil extraction efficiency, requirements for power and energy, optimal adjustment, cleaning of the oil, and settling has been studied. Similar investigations have been made in USA [3]. An oil press machine system comprised of three subsystems; energy unit, mechanical power transmission system and processing unit. Energy unit comprised of a motor with programmed microcontroller to control directional motion of the machine through shaft connected to it. The mechanical power transmission unit is composed mainly of the gear system, rack and pinion gear type which is used to allow up and down movements of the press. The processing unit mainly consists of oil tank, cylinder used to store the oil seed, oil filter sheet which is used to differentiate the oil with husks or seed coats during oil extraction process. The full automatic oil pressing complete set of equipment is suitable for extracting different kinds of oil seeds continuously. Seed oil press machine, as the word tells, is widely used in squeezing oil from oil seed such as soybeans, peanut, sunflower seed, cotton etc. All seed oil press machine characterized by their simple design, easy to use, wide suitability and continuous operation, and high productivity and high oil output rate. A press is a sheet metal working tool with a stationary bed and a powered ram which can be driven towards the bed or away from the bed to apply force or required pressure for various metal forming operations. The relative positions of bed and ram in the press are decided by the structure of its frame. The punch is generally gripped into the punch holder and punch holder is attached to ram. A blanker steel plate is attached to the bed of the press and a die is mounted on the blanker steel plate. Power systems on presses are either hydraulic presses using a large piston or cylinder to drive the ram. This system is capable to provide longer ram strokes than mechanical ones. It gives a consistent applied load. Its working speed is comparatively slower. These presses can be single action or double action or more. Number of actions depends on the number of slides operating independently. Mechanical presses utilize several types of drive mechanisms. These drives include eccentric, crankshaft, knuckle joint, etc. These drives are used to convert rotational motion given by a motor into linear motion of the ram. A fly- wheel is generally used as reservoir of energy for forging operations. These presses are recommended for blanking and punching operations as the involved drives are capable to achieve work high forces at the end of their strokes. Rack and pinion driven presses are called rack and pinion presses for long strokes. Major advantage is faster operation of this press due to involvement of quick return motion. [illegible] limiting power and rotary motion from the source to its application with or

DESIGN AND ANALYSIS OF 4-WHEELER RACK ROD OF STEEERING SYSTEM

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Abstract- A tapered roller bearing could be a rolling component bearing that is employed in most of the rotating machinery. These bearings support axial forces furthermore as radial forces. These areas unit the crucial element in mechanical transmission systems unremarkably used for moderate speed, serious duty applications wherever sturdiness is needed. Pragmatic maintenance of the bearing plays a very important role in maintaining the sturdiness operative, checking unforeseen failure, human safety, and value diminution. Any defects occurring in any of the parts, but little it's going to be will cause harmful injury to the bearing furthermore on the complete system. Therefore, it's vital to develop The reliable condition observance & fault designation technique in preventing defective roller bearings. Vibration signature analysis and signal process area unit the foremost vital techniques used these days in condition based mostly observance of rotating parts. This experimental analysis is focused on establishing a sturdy signal process technique from which the behavior of the element will be analyzed simply. Each mechanical element incorporates a characteristic frequency/frequencies. like each person has a singular signature, each machine incorporates a distinctive vibration signature. therefore if one thing is wrong with the machine, the vibration signature would be amended. Considering this idea an experiment has been dispensed with tapered roller bearings having totally different depth of defects in different rollers and also the corresponding vibration signals are investigated for mistreatment of the impulse response experiment. comparing the changes in faulty bearing with the healthy bearing, immediate actions will be taken to vary the machinery condition or to switch the faulty bearing. which may avoid more damaging of the bearing elements or system.

Keywords— tapered roller bearing , ANSYS, vibration , FFT and impact hammer test

I. INTRODUCTION

Rack-and-pinion steering is quickly changing into the foremost common form of steering on cars, little trucks and SUVs. It's really a reasonably easy mechanism. A rack-and-pinion gear is fence like during a metal tube, with every finish of the rack protrusive from the tube. A rod, known as a rod, [illegible] pinion gear is [illegible] by the steering shaft. after you flip the wheel, the gear spins, moving the rack. The [illegible] of the rack connects to the steering arm on the spindle. The rack-and-pinion gear set will 2 things:

- It converts the motility motion of the wheel into the linear motion required to show the wheels.
- It provides a gear reduction, creating it easier to show the wheels.

On most cars, it takes 3 to four complete revolutions of the wheel to form the wheels flip from lock to lock (from left to so much right).

The steering quantitative relation is that the quantitative relation of however so much you flip you switch the wheel to however so much the wheels turn. for example, if one complete revolution (360 degrees) of the wheel ends up in the wheels of the automotive turning twenty degrees, then the steering quantitative relation is 360 divided by twenty, or 18:1. a better quantitative relation means you have got to show the wheel additional to induce the wheels to show a given distance. However, less effort is needed thanks to the upper gear quantitative relation.

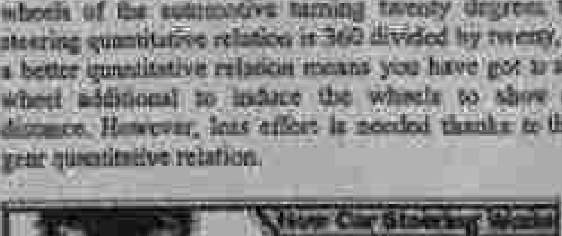

Fig: Steering system

MATERIAL USED FOR RACK ROD MANUFACTURING

The steering rack and pinion is usually made up of aluminum or steel. A plastic gear product of half-hour Glass stuffed Nylon sixty six offers enough strength and has additional strength than empty nylon sixty six. From strength purpose of read, you'll be able to use HNO6 alloy and optimize the look properly for fewer weight. furthermore as you'll be able to use metal 7075 with

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VIBRATION ANALYSIS AND WEIGHT OPTIMIZATION OF FUEL TANK MOUNTING BRACKET

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Abstract- Automobile sector is one of the largest branch of Mechanical Engineering industry. It consumes a lot of fuel while transporting goods and people from one place to other by road. Reducing automobile weight for better economy is the challenge industry faces right now. This work is aimed at on design and weight optimization of HCV fuel tank mounting bracket. Also to find alternative design and to conduct parametric study. It is designed using Taguchi Matrix and the structural and modal Finite Element Analysis is performed using ANSYS software. Numbers of iterations are performed to find out the best possible shape for weight optimization of the brackets. From the optimized models it is find out that 14% weight reduction is obtained.

Keywords— fuel tank mounting bracket, ANSYS, weight optimization, UTM

I. INTRODUCTION

Diesel fuel tanks for the truck industry are generally built for the same applications as those for automotive uses but with larger capacity. Brackets are used to hold or support the fuel tank while being mounted on the chassis. Same time tension in the strap is used to keep the tank in position with some stiffness. Main considerations in design of a diesel fuel tank are deciding placement, choosing shape and calculating the required volume. Side mounting is the most common placement of diesel tanks for trucks. This is typically accomplished by using tie brackets, straps or a combination of both for the purpose of attaching the fuel tank to the truck frame. Shape is generally decided by the need for maximum capacity and the demand for a stylish look.

In this project, we have chosen the TATA LPK 2518 fuel tank bracket for design and optimization. This has fuel capacity of 225 liters. Choosing a appropriate design for fuel tank is the first step towards selection of best design of supporting brackets. Standard inner diameter of fuel tank for truck is 28 inches. By converting in to metric unit, diameter of tank selected will be 457.2 mm.

MATERIALS USED FOR MOUNTING BRACKET:

1. Aluminum Alloy.
2. Stainless steel.
3. Mild Steel.

A composite material can be defined as the combination of two or more materials that results in better properties than those of the individual components used alone. The main advantages of composite material are their high strength and stiffness, combined with low density, when compared with bulk materials.

Benefits and Implications of carbon fibre Reinforcement Polymer.

Carbon fibre reinforced plastic is only one of many fibre reinforced plastics. Apart from carbon, there are such types of fibre as glass, asbestos, aramid, and wood. However, it is carbon fiber reinforced plastic that raised in popularity recently. It is highly required in aircraft, spaceflight, automobile engineering, and medical sphere. This popularity is due to the specific mixture of polymer matrix and fibers which results in unique qualities. While particular characteristics of every composite are mainly influenced by choice of fibers, general features of carbon fiber reinforced plastic include high strength, lightweight, and rigidity.

IMPROVEMENT IN VIBRATION CHARACTERISTICS OF EXHAUST SYSTEM OF DIESEL ENGINE USING FEA AND FFT ANALYSER

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Abstract- *One of the objectives once designing a brand new automobile pipe is to elongate it's sturdiness period, which might be measured, in terms of its life and mileage. The exhaust pipe is subjected to many stresses, most of that square measure because of vibration. explicit attention ought to incline to gas forces which can induce vibration. These vibrations can then induce fatigue life to the system. It's necessary to check the fatigue behavior of the pipe by analyzing the vibration modes and also the response of vibrations by its sources. much, the exhaust gas mass is forced through the pipe when going away from the engine. Its momentum forces the modification within the direction of motion, or within the growth or contraction of the tip pipe. This gas produces some resonance in such frequency vary, which may cause fatigue failure to the pipe once the resonance exists incessantly. While not the thought of these causes, the event of the exhaust can incomplete, and have an effect on the standard of the ultimate product. This could provide enough info to designers to develop a brand new pipe. The fatigue behavior of the pipe is analyzed theoretically with its vibration modes and response to the vibration excited by the engine. Throughout the modes. During this project Digital model of manifold by exploitation CATIA V5 and also the Modal vibration analysis of exhaust manifold is carried out and the results are valid with the assistance of FFT analyser. also FEA alysis is finished to observe the impact of back pressure on manifolds.*

Keywords— *Exhaust manifold , ANSYS, FFT and impact hammer test*

1. INTRODUCTION

Vibrations in automobiles are the major causes for failure of most of the automobile components. Their vibrations have to be minimized to their extent so that each component can perform to their maximum extent. Such vibration in an automobile system occurs during idle and running conditions. Most running condition vibrations are because of the ups and downs on the roads and also because of the reason that the engine is running below its rated speed. Whereas the idle running vibrations are considered, the cause for the vibrations is observed as the frequency that is produced by the engine and its parts. The out coming frequency is transferred through the drive line axis and damped to the road, but not all the frequency is damped. Some are observed by the sub-assemblies of the chassis/frame through linkages. When considered in case of an exhaust system, two types of vibration can affect the exhaust.

The sonic pressure waves coming from the exhaust ports, and the vibration of the engine itself because of torquing. Pressure wave vibrations are usually transparent, travelling through the exhaust system to either absorb into or cancel out in the muffler. These waves are harmonic, like the vibration of a speaker, but they are usually too minute to cause noise through component movement. Engine vibrations, on the other hand, can easily shake the exhaust pipes enough to cause component rattling or impact which leads to the improper functioning of the exhaust components. These vibrations are to be controlled to ensure the proper working of interior parts of the system.

In automotive engineering, an exhaust manifold collects the exhaust gases from multiple cylinders into one pipe.

Exhaust manifolds are generally simple cast iron or stainless steel units which collect engine exhaust gas from multiple cylinders and deliver it to the exhaust pipe. These consist of individual exhaust head pipes for each cylinder, which then usually converge into one tube called a collector. Headers that do not have collectors are called zoomie headers.

The most common types of aftermarket headers are made of mild steel or stainless steel tubing for the primary tubes along with flat flanges and possibly a larger diameter collector made of a similar material as the primaries. They may be coated with a ceramic-type finish (sometimes both inside and outside), or painted with a heat-resistant finish, or born. Chrome plated headers are available but these tend to blue after use. Polished stainless steel will also color (usually a yellow hue), but less than chrome in most cases. Another form of modification used is to insulate a standard or aftermarket manifold. This decreases the amount of heat given off into the engine bay, therefore reducing the intake

ANALYSIS OF LOOSENING BEHAVIOR OF SINGLE LAP BOLTED STRUCTURE UNDER LOW VELOCITY IMPACT LOADING

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ABSTRACT-

The bolted joint is the best choice for detachable assembly of components in structures and machines to maintain integrity in fastened structure due to their high reliability, strong load bearing capacity, easy maintenance and inspection at low cost. Loosening of bolted connections in a structure can significantly reduce its load-bearing capacity. Detecting loosening of bolted connections at an early stage can prevent failure of the structure. Due to the complex geometry of a bolted connection and material discontinuity between clamped components, it is difficult to detect loosening of a bolted connection using conventional non-destructive test methods. A vibration-based method that uses changes in natural frequencies of a structure is effective in to detecting loosening of bolted connections since the method focuses on detecting a stiffness reduction of bolted structure. The present work is focused on analysing loosening behaviour of bolted joined structure subjected to low velocity impact loading by using experimental and finite element analysis. The effect of preload, direction and distance of impact loading, hole clearance, type washers and their combinations and material of fastened plates is carried out for low velocity impact loading. Metal to metal, metal to composite and composite to composite bolted joints are analysed for loosening behaviour. The results of experimental and finite element analysis are interpreted and some conclusions are drawn.

Thermo-Structural analysis of Shell and Tube Heat exchanger as per ASME Section-VIII Div.2 and TEMA codes

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Abstract:

I. Introduction

Heat exchangers are widely used in process industry. Tubesheet is the main part of the exchanger. Many researchers in many countries have done a lot of work in the calculation and design of tubesheet.[1] Typically, thickness of shell and channel in such an exchanger are calculated using the appropriate codes of American Society of Mechanical Engineers (ASME) Boiler and Pressure vessel code[2] and thickness of tubesheet is usually computed from formulas given in the Tubular Exchanger Manufacturers Association (TEMA) Standards[3]. The tube-to-tubesheet joint failure is very common in industries. Therefore, strength level of joints has a direct effect on the safety and reliability of process plants. The fatigue strength of tube-to-tubesheet welded joints under cyclic loading was studied by different researchers.[4]

The difference in shell and tube side pressure of exchanger will cause mechanical stress. Temperature gradient exists widely between tube side and shell side also. Therefore, there may be high thermal stress due to high temperature difference in shell and tube side. Thermal stress has great impact on total stress distribution.[5] By means of thermal analysis coupling with structural analysis, the distribution of temperature, stress and deformation is obtained.[6]

Shell and tube type heat exchangers are the most versatile and suitable for almost all applications, irrespective of its duty, pressure and temperature. Shell and tube heat exchanger consists of a cylindrical shell containing a nest of tubes that run parallel to the longitudinal axis of the shell and are attached to perforated flat plates called tube sheets at

DESIGN AND SYNTHESIS OF POLYMER COMPOSITE MATERIAL FOR TRIBOLOGICAL APPLICATIONS

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ABSTRACT- Polymer composite shows good tribological performance in engineering applications with low cost and ease in manufacturing. The improvement in material developments has carried out for improving mechanical properties without consideration of wear of polymer composites. Wear is main parameter which reduces the effective life of machine or its components. A wear resistance polymer composite material was synthesized containing three element compositions consisting of a matrix material, reinforcing material, friction and anti-wear material in particulate form. In this project different samples containing compositions of Polyaryletherketone (PAEK) as a matrix, alumina (Al_2O_3) and silicon carbide (SiC) as a reinforcing material and Polytetrafluoroethylene (PTFE) as anti-wear material are prepared according to ASTM standards. The aim is to design and synthesize new thermoplastic polymer composite material for improvement in tribological properties specially wear resistance of material, to investigate the new polymer composite material and to test it for wear and other mechanical properties. It will be a good replacement for an isotropic material and may for some of composite materials also if the developed composite gives challenging results and passes the entire mechanical test which will be undertaken during this study. Possible application areas: Gears, Bearings, Artificial human joint in medical field, Brake pad, Clutches, Tires, etc.

Keywords: Polymer Composite; Wear resistance; Friction; ASTM

MODAL ANALYSIS AND FATIGUE TESTING OF LEAF SPRING

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ABSTRACT- Leaf spring is a simple form of spring, commonly used for the suspension in wheeled vehicles. Leaf Springs are long and narrow plates attached to the frame of a trailer that rest above or below the trailer's axle. There are mono leaf springs, or single-leaf springs, that consist of simply one plate of spring steel. These are usually thick in the middle and taper out toward the end, and they don't typically offer too much strength and suspension for towed vehicles. Drivers looking to tow heavier loads typically use multi leaf springs, which consist of several leaf springs of varying length stacked on top of each other. The shorter the leaf spring, the closer to the bottom it will be, giving it the same semielliptical shape, a single leaf spring gets from being thicker in the middle. The objective of this paper is to Predict the fatigue life cycle for crack initiation at maximum stress location in the Leaf spring. The design constraints are stresses and deflections. The aim of this project is to study various parameters of leaf spring like Span length, thickness, number of leafs for existing semi elliptic leaf spring to minimize the overall weight of the assembly without hampering its structural strength. It also involves geometrical and finite element modeling of existing design and optimized design. Geometrical modeling is carried out by using CATIA V5 R -19 and finite modeling in ANSYS 19.0. Results of Static, and fatigue analysis of existing design and optimized design are compare.

Analysis of Residual Stresses in AISI 304 Shaft during Turning under Dry and Wet Environment

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I. INTRODUCTION

With modern analytical techniques, it is often possible to estimate the stresses to which a component is subjected in service. This in itself is not sufficient for the reliable prediction of component performance. Indeed, in many cases where unexpected failure has occurred, this has been due to the presence of residual stresses which have combined with the service stresses which seriously shorten component life. Residual (locked-in) stresses in a structural material or component are those stresses that exist in the object without (and usually prior to) the application of any service or other external loads. Residual stress is usually defined as the stress which remains in mechanical parts which are not subjected to any outside stresses. Residual stress exists in practically all rigid parts, whether metallic or not (wood, polymer, glass, ceramic, etc.). It is the result of the metallurgical and mechanical history of each point in the part and the part as a whole during its manufacture.

With the view of recent trends in modelling this research work is to create a model to simulate the machining induced residual stresses. On the basis of dry and wet machining conditions at various cutting parameters behavior of material have been evaluated. This evaluation gives the effect of cutting parameters on residual stresses in material. In this study for development of modelling ABAQUS 6.14 finite element software is considered and for experimental analysis X-Ray diffraction measurement technique is used.

Furthermore, because of residual stress distribution over the component, dimensional instability occurred. This may create problems in assembling of various components. Also, the residual stresses have great influence on fatigue life. Fatigue life of component is mainly depending on induced compressive residual stresses. Therefore, for more fatigue life of component, compressive residual stresses can be induced intentionally in particular component by methods i.e., shot peening. However, in machining processes such as turning, milling, grinding etc. these compressive residual stresses cannot be predicted. For prediction of such compressive residual stresses both experimental methods and numerical models can be developed.

In this study, experimental analysis X-Ray diffraction technique has been used. Nowadays this X-Ray diffraction technique used widely as it gives accurate result as compared to other experimental techniques. As compared to modelling method this

FEA & EXPERIMENTAL OF NANO-NOTCHES PROVIDED ON CHIP SURFACE

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Abstract- *Increasing the use of silicon chip in solar cell makes the thinning of chip necessary. Thinning of chip is implemented in case of multi crystalline as well as mono crystalline silicon chip to increase the performance of solar cell. Surface defects are easily introduced on silicon chip during thinning and machining process. The stress concentration resulted from the defects would be the source of the crack and failure of silicon chip. The cracks and the notches are the important reasons for the failure of the any component because at the tip of the cracks and the notches the stress generated is higher than the nominal stress. This phenomenon introduces the term stress concentration factor. To avoid the failures of the specimens the study of the stress concentration factor gets vital importance. The reasons and causes of generation of the stress concentration factor will be discussed in the next articles.The thinning of the chips of the different materials has become necessary such as silicon chips in the solar cells. Surface defects are easily induced on chip during the thinning and machining processes. The stress concentration resulted from defects would be the source of crack and failure of silicon chips. From Past few years, the finite element method (FEM) has been successfully applied to predict performance and life of various components. It has been shown that the FEA can be used to estimate the mechanical performance of components. Furthermore the correlation of material and geometric variables to the component life may lead to researchers to implement a systematic approach for best performance as well as process optimization. This project will focus on stress concentration on thin E924 material chip due to crack developed during thinning and machining process. stress concentration factor is studied in tensile loading condition and performance is studied.Simulating module through Finite Elements (FE) would enable its prediction under different scenarios and increases the life of component.*

Keywords— *Finite Element Methods, Magnetic Particle Investigation (MPI) Test, Tensile Test of plates*

I. INTRODUCTION

This chapter explains review of researchers about thinning of material and its effect on stress concentration. How it affect the strength and life of component. Here we have take example of silicon chips used to manufacture the solar panels.
The cracks and the notches are the important reasons for the failure of the any component because at the tip of the cracks and the notches the stress generated is higher than the nominal stress. This phenomenon introduces the term stress concentration factor.

To avoid the failures of the specimens the study of the stress concentration factor gets vital importance.
The reasons and causes of generation of the stress concentration factor will be discussed in the next pages. In the development of the basic stress equations for tension, compression, bending, and torsion, it was assumed that no geometric irregularities occurred in the member under consideration. But it is quite difficult to design a machine without permitting some changes in the cross sections of the members. Rotating shaft must have shoulders designed on them so that the bearings can be properly seated and so that they will take thrust loads, also the shafts must have key slots machined into them for securing pulleys and gears, etc. Abrupt changes in geometry can give rise to stress values that are larger than would be expected. This can be a source of difficulty for designers. In solar cell thin-film technologies reduces the amount of active material in a cell.Most design sandwich active material between two panes of glass. Since silicon solar panels only use one pane of glass, thin film panels are approximately twice as heavy as crystalline silicon panels, although they have a smaller ecological impact. Thin film solar cell are increasing due to it being silent, renewable and solar energy being a most abundant energy source on earth. Silicon thin film cells are mainly deposited by chemical vapour deposition. Depending on deposition parameters ,this can yield amorphous, protocrystalline or nanocrystalline silicon.
The project has been completed for predicting the difference in value of stress concentration factor for two thin chips of EN24 material, first chip is having single crack developed during machining and thinning process and another chip is having single initial crack provided with multiple nano-notches on its surface. The structural performance is characterized by taking into material and geometrical parameters. The results obtained are validated experimentally. A two dimensional model of EN24 material consists of thin chip of 100 mm length,10mm width and 1mm thickness. Performance is studied for 2 plates of same dimension. One of the plate is having single crack and another plate is provide with notches having dimensions in microns. The mechanical performance is characterized by considering different material aspects in tensile loading condition. The actual model was analyzed in ANSYS Workbench. One face of the chip was fixed and another face is applied with axial force ranging from 150 N to 800 N. Values for stress, strain and elongation is taken for each force applied and stress concentration factor is calculated for both plates. Finite Element Analysis & Experimental of Nano-Notches Provided on Chip Surface will be done . Results of FEA & Experimental will be compare. To distribute the high stresses occurring at the crack tip in EN24 chip, chip will be provided with nano-notches.

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A Review on Optimization of Heat Treatment Process Parameter for High Speed Steel Taper Shank Drill

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Abstract: *Drilling is a cutting process that uses a drill bit to make or widen a hole of circular cross section in solid material. The bit is pressed against the work piece and rotates at high speed. Due to the increasing competitiveness in the market, the performance of drill bit must be increased. There are various methods to improve the performance of Tool Steel like Surface coating, cryogenic treatment, and optimization of heat treatment process parameter to obtain best possible metallurgical properties. By comparing with other competitor it is revealed that there is gap in performance of Taper Shank Drill. This project based on Optimization of Heat Treatment Process Parameter to improve performance with reduction in cost per component. High Speed Steel M2 material is used as drill material for experimentation. There are four parameter in heat treatment process i.e. austing temperature, austing time, tempering temperature and tempering time. Different experiments are performed, for that Taguchi orthogonal array (L9) is used with three levels of heat treatment process parameter. From the response of design of experiments the desired heat treatment cycle is selected. The performance of Taper shank Drills in terms of number of holes drilled between two re-sharpening has to be measured. And it is expected from project that the performance of drill in terms of number of drill to be improved with a best possible temp-time relation.*

Keywords: HSS M2, Taguchi Orthogonal Array, Hardness, Heat treatment.

I. INTRODUCTION

Metal cutting process forms the foundation of the engineering industry and is involved either directly or indirectly in the manufacture of nearly every manufactured goods of our modern civilization. The cutting tool is one of the important elements in realizing the full building out of any metal cutting operation. Over the years the fruitless of economic competition have motivated a lot of research in the areas of metal cutting leading to the development of new tool materials of remarkable performance and vast potential for a remarkable increase in productivity. Changes in work place materials, manufacturing processes and even government guidelines catalyze parallel advances in metal cutting tooling technology.

As manufacturers continually seek and apply new engineering materials that are lighter and tougher and therefore more fuel efficient it follows that cutting tools must be so established that our machine new materials at the highest possible productivity. The most important factor in the design of cutting tools is the material construction and their judicious selection The properties that a tool material must possess are as follows:

1. Capacity to hold firm stability at elevated temperatures during high cutting speeds.
2. Cost and easiness of fabrication.
3. Resistance to thermal and mechanical shock.
4. Highly resistance to brittle fracture.

Developmental activities in the area of cutting tool materials are guided by the knowledge of the extreme circumstances of stress and temperature produced at the tool-work piece interface. Tool wear happens by one or more complex mechanisms which comprises abrasive wear, chipping at the cutting edge, thermal cracking etc. Since most of these processes are significantly accelerated by increased temperatures, the most obvious requirements for tool materials are enhancements in physical, mechanical and chemical properties.

Study of Chatter Vibration Analysis in the Machining Operations and Control Methods

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Abstract— Chatter effect as a self-excited vibration in machine tools contributes to undesired surface finish of the work piece, and can deteriorate the surface quality. Machine tool chatter is one of the major constraints that limit productivity of the turning process. It is a self-excited vibration that is mainly caused by the interaction between the machine-tool/work piece structure and the cutting process dynamics. The frictional and lapsed chatter are mainly due to the nonlinearity of the dry friction and the intermittent contact between the cutting tool and the work piece. Chatter becomes even more critical when machining materials that are difficult to cut. The productivity of expensive machining systems is often limited by chatter. It has defined chatter as self-generative vibrations that occur when the chip width is too great versus dynamic stiffness. This phenomenon leads to a bad surface aspect and high noise level. As it reduces tool life, it increases production costs. By using various methods we can avoid the chatter vibration.

Keywords: HSS M2, vibration, Matlab, Symulink Model, hardness

I. INTRODUCTION

From the manufacturing there is research carried out on the chatter vibration [1] [2] there is still many problem in the obtaining accordance for the machining operations such as milling, drilling and turning. Chatter vibration shows some various problems such as noise, noise, breaking of machine tool components, poor surface finishing and tool life as well as productivity. In the machining processes, turning is the widely used operations to cut the metals and to produce the various types of products. The machining of metals is often accompanied by a violent relative motion between tool and workpiece which is called chatter vibration [1].

Chatter is caused by material to cut, chip proportions is affected by depth of cut, feed, tool contour, cutting speed, stiffness of work, stiffness of tool, stiffness of tool support, stiffness of work support, vibration caused and multiplied by nature and design of machine tool, such as the gear ratio and tool items used, setting with respect to the work.

In the machining processes, there is often self-excited vibration between the cutting tool and the work piece this vibration is nothing but chatter vibration. Due to the chatter, the amplitude of the self-excited vibration gets increase to the maximum limits [2]. The cutting conditions, work piece material and the cutting tool type and its material plays important role in the chatter vibration. The variation of the tool position with respect to work piece also effect on it when work piece flexibility is the consideration. In the same cutting conditions, when movement of cutting tool from the chuck to the tailstock along the work piece, chatter may occur when the tool paries a critical position. In the metal cutting field, chatter is one of the challenging research topics.

II. OBJECTIVE

The purpose of this topic is to study the chatter vibration analysis and its control methods.

By using Simulink model it can be shown that how chatter vibration affect on the machining operations such as turning, milling, grinding.

III. LITERATURE REVIEW

V.K. Murugan, P. Koshy [1] Mathematics discussed in his paper an optimal setting of carburizing process parameters (carburizing temperature, soaking time, gas diffusion effect, furnace air circulation) causing an optimal values of the correct depth of the case in the surface of the components. Taguchi method is a influential design of the experiments (DOE) tool for engineering optimization of a process and they concluded that The Taguchi method efficiently, obtains optimal heat treatment parameters for the plain low carbon steel, reduces the number of experiments, and analyzes the effect of each heat treatment parameter on the experiment [illegible].

S.Z. Chavoshi [2] has analyzed results of mechanical testing performed on variously heat treated AIII steel samples, to arrive at modified the heat treatment strategy for [illegible]. The [illegible] were machined using precision turning and EDM. These samples were exposed to various heat treatment arrangements, consisting of annealing, hardening, air and oil quenching, and tempering at different temperatures. Heat treated samples then mechanically tested for hardness (Rockwell), impact toughness (Charpy), and tensile properties (yield strength, ultimate strength, ductility). The paper concludes that mechanical testing of AIII samples revealed that with increasing temper temperatures hardness first increases to a maximum and then gradually decreases; impact toughness first decreases to a minimum and then increases.

Harvinder Singh, Amresh Goyal [3] found out that the Cryogenic treatment process uses sub-zero temperatures down to -185°C to modify the micro-structure and properties of material. This process is an extension of heat treatment which further improves the properties of material. This paper focuses on the effect of cryogenic treatment on High Speed Steel (T-31) tool material. Cryogenic treatment at -184°C is conducted in this research and its properties compared with untreated material. It has been found that as the temperature is decreased, microstructure of material is refined and more number of carbide precipitates appeared on the surface after the treatment. Interestingly to note that the retained austenite is completely converted into martensite after subjecting the T42 HSS specimen to cryogenic treatment. The main

Design and analysis of spur gear to decrease vibrations using damping particles

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Abstract - *The vibration and noise from spur gear transmission have gigantic polarization on the mechanical hardware and administrators. Through inelastic impacts and contact between particles, the vitality is frequently dispersed in gear transmission. A powerful model of molecule dampers outfitted transmission is proposed during study. The vibration from gear commitment is thus the primary wellspring of the motion and vibration under overwhelming load and rapid speed. In order to scatter the vitality of vibrations, and to reduce as much as possible the vibrations generated, we bring the molecule damping technique into gear transmission. During this paper, the model of the molecule dampers is build inside the characteristic lighting [illegible] of the apparatus. At that point we utilize the discrete component strategy to explore the kinematics and elements of the damping particles and decide the association between vitality dispersal and grinding coefficient (surface unpleasantness) of the particles at various particle size, constant rotational speed and load. In preset research damping particle of different sizes are selected to study the effect on experimental setup. We found at the end from results that as the particle size goes on increasing the damping effect also increases. Also at low rotational speed, smoother particles have better damping impact, while at fast, more unpleasant particles are better. From modal analysis and experimentation results comparison a correlation is build and found the results are well within the range. There's no apparent connection between the heap and in this way the coefficient of static rubbing. At long last, the recreation results are confirmed by exploratory outcomes.*

Keyword—Spur gear, Particle damping, and Modal analysis

I. INTRODUCTION

Particle damping innovation is a type of an auxiliary-mass type vibration damper, where metal, tungsten carbide, [illegible] or different sorts of little particles are set inside the cavities of the vibrating structure, or the walled in areas appended to the vibrating structure so as to relieve the reaction of the essential structure. The essential structure vibrates; motor vitality is altogether consumed through the joined impacts of particle-to-particle and particle-to-wall inelastic crashes and frictional uniformness, creating extensive damping to the essential structure. Particle damping works in combination of impact and friction damping [1]. Particle damping innovation has been broadly utilized because of its effortlessness, moderate cost, great strength, and temperature [illegible]. Particle dampers are additionally appropriate for work in long-time [illegible] situations, for example, high temperature, extreme cold, and oil [illegible], where different kinds of damping gadgets are not, at this point, reasonable or effective, consequently making Particle dampers a low-[illegible] damping procedure. Vibration damping can be [illegible] [illegible] wall, when the [illegible] [illegible] and degradation of lubricant are [illegible] matter [2]. The main measure to decrease the gear vibration is active and passive vibration control. Active method controls the parameters while particle damping is one of the passive vibration controls [4]. The vibration concealment innovation has been broadly utilized in the aviation and apparatus fields, creating numerous sorts of modern applications, for example, the vibration concealment of cutting devices, motor turbine framework of the space transport, and radio wire structures. Vibration concealment for gear transmission can be isolated into dynamic vibration concealment and latent vibration concealment. Dynamic technique smothers vibration is utilized for improving the apparatus produce accuracy by tuning boundaries, or altering form. Nonetheless, excitation and time-changing solidness can't be wiped out even by streamlining the structure and Gears' boundaries. Additionally, dynamic vibration concealment has the downside that even another little vibration utilizing dynamic technique will prompt incredible assembling cost and bulky outfitted plan. Then again, aloof vibration concealment strategy scatters the vitality from gear transmission by vitality expending hardware. Such vitality is mostly scattered by other hardware, bringing about the decrease of vibration and commotion. The examination on the uninvolved vibration concealment of rigging transmission is generally uncommon, principally concentrating on the investigation of viscoelastic damper and erosion damper. The Particle damping innovation is a sort of aloof vibration concealment innovation. In view of damping instrument, the innovation utilizes particles as the damping media. By grating and inelastic crash of damping particles being placed into the holes of the apparatus, the vibration and noise can be diminished. The particle impact damping is a form of passive vibration control technique wherein the energy of a vibrating system is dissipated through impact and friction in the form of heat, elastic wave, sound etc. [5]. In a particle impact damping technique, a single spherical mass (impactor) is constrained to move between two stoppers or in an enclosure.

Gears are typically classified as highly stressed and functional parts with the task of transferring forces during operation. Adding particle damping to gears opens the possibility of addressing the field of Noise-Vibration-and-Harshness (NVH)-behavior in gear boxes if gears with damping elements are used. Especially vibration causes problems in transmissions, can reduce lifetime, and increases the probability of breakdown. Particle damping offers the potential for the design of a better passive damping technique with minimal impact on the strength, stiffness and weight of a vibrating structure. With a proper choice of particle material, this technique appears to be independent of temperature and is very durable.

The main objectives of the research are as below:

1. Understanding the effect of damping particles on the spur gear with different particle size at constant rotational speed and load.

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Design Analysis and Performance Evaluation of Auto-Pitch Line Sprayer for Pesticide Spraying and Rotatable USB Camera for Horticulture Crops

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ABSTRACT: Pesticide spraying is an important part of agriculture it is necessary for pest control and proper growth and disease free stages of crops. But nowadays the excess use of pesticide is leading to increase pollution and leading to drug resistant pest. The excess use of pesticide leads to economic loss and also soil, water and air pollution. Presently two methods of pesticide spraying are in use one is manual method and other using the tractor mounted sprayer. Either method is inefficient as the manual methods are time-consuming and labours intensive whereas the tractor mounted sprayer method is costly and waste a lot of pesticides and leads to pollution. Thus the project work proposes an effective method of pitch line spraying i.e. spraying only on the plant by use of an effective line wise spray thus limited use of pesticide, automation will reduce the time required and labour required for the operation. Lesser pesticide use will help pollution reduction. The rotatable camera will help detect disease on the crop in time and thus the corrective action can be taken. Project work includes the design development manufacturing and testing of the automated sprayer vehicle. The paper presents a brief overview of the design and analysis of the critical components like the frame plate, rotatable Oyster shaft and driven shaft. The components have been developed using Unigraphics NX8 and the structural analysis has been done using Ansys Workbench 16.0. The testing was carried out on the machine to determine the experimental pitch, wasted area per charge and the savings in pesticide consumption.

I. INTRODUCTION

A sprayer is a device used to spray a liquid. In agriculture, a sprayer is a piece of equipment that applys nutrients to apply herbicides, pesticides, and fertilizers to agricultural crops. Sprayers range in size from man-portable units (typical backpacks with spray guns) to self-propelled units similar to tractors, with boom lengths of 60-151 feet in length [1].

As we know that the India is an agriculture-based country and comprising 70% of people whose study is going farming and its relating work. Agriculture is required to be boosted to enhance the Gross Domestic Product (GDP) of the country by improving productivity. The productivity of the crops can be increased with the help of pest control. Pesticide spraying is usually practiced during crop cultivation so the presenting idea is dealing through designing of advocating a pesticide sprayer which will be only useful but also affordable to the farmers that will tend to increase the crop productivity. In order to reduce the harm to the environment and people the research and development of plant protecting machine focus on improving the mechanical work efficiency and the effective availability of pesticide. The sprayer has spread among people all over the world, especially in the developed country. Agriculture is an important sector of the Indian economy, accounting for 14 % of the nation's GDP[2]. India is set to be an agriculture based country approximately 70 % of the population of India is dependent on agriculture directly or indirectly. Our farmers are using the same methods and equipment for the spray. Indian agriculture is having large diversity because of its climatic and extensive areas involving a large number of crops. It has been one of the remarkable success stories of the post-independence era through the introduction of Green Revolution technologies. Generally, mechanization of small farms are very difficult and non-affordable but the following make it happen. One of the most common forms of pesticide application, especially in conventional agriculture, is the use of mechanical sprayers. Hydraulic sprayers consist of a tank, a pump, a boom (for single nozzles) or hoses, and a nozzle (or multiple nozzles). Sprayers change the pesticide concentration by mixing the contents of water pesticides and chemical fertilizer that tends to changes in the size of the droplets they sit large size rain of drops or like almost like invisible particles [3]. This invention is accomplished by forcing the spray solution through a spray nozzle under pressure. The droplet size can be changed by using different nozzles or by changing pressure nozzle which if it is raised, large sized droplets have the advantage of having less tendency to rebound or pollinate still the required mean amount of water per unit area of land covered. Our

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Experimental & Theoretical Analysis of Solar Powered Desiccant Dehumidification System for Indoor Air

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ABSTRAC: The exponentially increasing need of human comfort in area of conditioned air has given great thrust in energy consumption, specifically electrical energy, to run AC equipment's used in home or industry. Energy demand depletes the fossil fuel reservoir, affects the climate changes adversely and hence it is a matter of utmost concern to save the both. Calcium Chloride ($CaCl_2$) has been one of the most economical liquid desiccants and can be processed in many ways to reduce the latent heat content of air. The main objective of this research is to investigate the energy performance enhancement, low-cost sustainable cooling operation, the boiler providing regeneration heat to the weak desiccant solution consumes most of the energy. To reduce the energy consumption in the conventional air cooling system a heat pump-integrated liquid desiccant is suggested in this research. This paper, gives us a detailed study of ($CaCl_2$) driven air dehumidifier. Consideration of basic working cycles of solar powered system, properties of liquid desiccant and practical methods used for heating, ventilation and air conditioning applications. Also explains, the performance review of the calcium chloride driven air dehumidifier for HVAC applications on its inception to the recent research going on ($CaCl_2$) incisively given with vital effects of its performance parameters to help summarize the progress and trends of application. It is noticeable from the given performance review that ($CaCl_2$) driven air dehumidifier has progressed well, working and experimented in different conditions with and without internal cooling of air dehumidifier in the field of HVAC. However, there is scope of improvement to satisfy the increased demand of performance and to accommodate into its fully developed form to take its place in day to day need of air conditioning in place of conventional vapour compression system.

KEYWORDS: Solar collector, Liquid desiccant, Regeneration, Dehumidification.

I. INTRODUCTION

It is self-evident that electrical power consumption has been increasing significantly and has reached to the peak of all the other energy consumptions forms. The average temperature range over the year in building can be expected between temperature ranges of 12°C to 44°C as average in India [1]. Therefore, it is likely to have increased use of air conditioning specifically during hot and humid climate conditions. The contribution of power consumption for running the conventional vapour compression type air conditioning equipment's in domestic/commercial sector is as high as 30 to 40 % and highest among all remaining type of energy consuming equipment's used in domestic/commercial sector [1]. It directly correlates the consumption of fossil fuels, which in turn increases the greenhouse gases and hence global warming of the environment. In near future, if the price of fossil fuels shoots very high due to fast depletion of it, then it is almost impossible to run the domestic air conditioning equipment by the average and below average class of

IoT Applications in Smart Agriculture: Issues and Challenges

[illegible]

I. INTRODUCTION

[illegible]

II. RELATED WORKS

[illegible]

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Original Article

Deep Learning Based Tomato PLDD

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Abstract *- Agriculture sector is the prime source of food and industrial raw material that satisfies the increasing population demand and industrial revolution. However, plant leaf disease detection (PLDD) degrades the quality of food and agricultural products, leading to economic loss for farmers. Recently, many deep learning frameworks have been presented for the PLDD that has shown gigantic improvement over traditional machine learning-based leaf disease detection. The performance of these deep learning frameworks is often limited due to fewer feature variability, data scarcity problem, and low accuracy for multiple plant disease detection. This article presents PLDD based on a deep convolutional neural network (DCNN) to improve the feature variation and disease detection accuracy. The effectiveness of the proposed approach is evaluated on tomato plants from the PlantVillage dataset. The proposed method provides 98.83% and 99.06% accuracy in 7-class and 9-class for PLDD.*

Keywords *- Agricultural Automation, PLDD, Deep Learning, Precision Agriculture, Convolutional Neural Network.*

1. Introduction

Tremendous global population growth leads to a huge demand for food sources and industrial raw materials. The agriculture sector is the prominent source of food and industrial raw material. The economic and social growth of developing countries like India, China, Indonesia, etc., hugely depends upon the growth of the agriculture sector [1-2]. Also, the agriculture sector is the prime source of employment. However, plant disease caused due to adverse climate conditions, less or excess water, pest, viruses, and insects decreases the quality of food and agricultural products [3-5]. Manual disease detection is tedious and inefficient because of various factors such as being prone to error, less accurate due to inadequate knowledge of expert/farmer, less understanding due to vision problems, etc. The leaves of the plants show the disease symptoms reflected in leaf color variation, texture variation, spots on the leaf surface, and damage to the leaf. Various automatic computer vision-based techniques are used for PLDD using ML and DL [6-10].

The CNN-based deep learning architectures are widely accepted for many complex vision-based applications. Various deep and transfer learning-based PLDD systems have been presented in the past few years. Mohanty et al. [11] investigated GoogleNet and AlexNet for disease detection of 26 classes, resulting in an accuracy of 99.34% and 99.27%, respectively. Sladojevic et al. [12] explored fine-tuned CNN framework for PLDD of 13 plants, giving an accuracy of 96.30%. Ramcharan et al. [13] proposed transfer learning based on GoogleNet (InceptionV3) for pests damage and disease detection in Cassava plants. Further, Fuentes et al. [14] developed faster R-CNNs for PLDD, resulting in 83% accuracy. Barbedo et al. [15] explored various DL frameworks for PLDD, such as AlexNetOWTBn and VGG. It provided 99.53% and 99.69% accuracy for 5x diseases for VGG and AlexNetOWTBn, respectively. Hasan et al. and Boulent et al.

The proposed article presents deep learning-based PLDD. The major contributions of this article are summarized as follows:

- PLDD uses DCNN to improve the feature distinctiveness of the plant leaf image features.
- Performance evaluation of proposed PLDD using various performance metrics for the tomato plant.

The remaining article is structured as follows: Section 2 provides a detailed description of the proposed DCNN-based PLDD. Section 3 elaborates on the experimental results and findings from the results. Further, section 4 depicts the conclusion and future scope of the work.

2. Related Work

The tremendous global population growth leads to a huge demand increase for food sources and industrial raw materials. The agriculture sector is the prominent source of food and industrial raw material. The economic and social growth of developing countries like India, China, Indonesia, etc., hugely depends upon the growth of the agriculture sector [1-2]. Also, the agriculture sector is the prime source of employment. However, plant disease caused due to adverse climate conditions, less or excess water, pest, viruses, and insects decreases the quality of food and agricultural products [3-5]. Manual disease detection is tedious and inefficient because of various factors such as being prone to error, less accurate due to inadequate knowledge of expert/farmer, less understanding due to vision problems, etc. The leaves of the plants show the disease symptoms reflected in leaf color variation, texture variation, spots on the leaf surface, and damage to the leaf.

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Fuzzy Logic-based automatic Energy Efficient Irrigation Management

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Abstract - Traditional farming is time-consuming, and farmers may find the need to constantly monitor crops to be a hardship. Wireless Sensor Networks (WSN), and Internet of Things (IoT) technology and. Furthermore, in real-life situations, using timers to manage the pumps in a traditional irrigation system is not persistently viable. This study provides a framework for using advanced fuzzy logic to manage an irrigation time based on various real time soil and ambient variables, with sensors serving as the system's major component and contributor. The output of the irrigation system depends upon the various sensor's output, thus an optimized node placement strategy based on Energy Efficient Coverage Aware Particle Swarm Optimization (EECA-PSO) algorithm is suggested for the deployment of the sensor nodes over the agriculture field. The effectiveness of the proposed node placement scheme is compared with conventional node placement scenarios which indicate that the proposed node placement strategy provides superior network lifetime, reduced delay and optimal selection of nodes for the irrigation management.
Keywords - Agricultural Field Monitoring, Irrigation Management, Fuzzy Logic, Precision Agriculture, Internet of Things

INTRODUCTION

The tremendous growth in the global population leads to needing for ample food sources. The agriculture sector is the prominent source of food. The elevation in food demand causes various issues regarding agriculture such as air and water pollution, global warming, greenhouse gas emission, degradation in quality and nutrients in food, etc. Agriculture sector is the focal source of raw material needed for numerous industrial products. Thus, the economical, cultural, and social growth of any country majorly depends upon the prosperity of the agriculture sector [1-3].

The WSN is a collection of sensor nodes distributed over the surface in a structured or unstructured way. Each sensor module includes a transducer, signal conditioning unit, central processing unit, transmitter, receiver, and battery. As the sensor modules are battery-operated devices, the lifetime of the network is limited. Depending upon the deployment surface, the WSNs are categorized into terrestrial, underwater, underwater, and aerial/mobile WSNs. WSNs plays important role in precision agriculture for various activities such as irrigation management, crop monitoring, agriculture land protection, crop disease detection, soil analysis, etc [4-5]. The deployment of the sensor nodes over the agriculture field is challenging because of various parameters such as soil type, environmental factors, wild animals, swarms, intruders, etc. the agriculture productivity and quality depend upon proper watering, fertilizers, and pesticides. There is a need for efficient irrigation management due to the decline of underground water levels and uncertainty in rain. the automatic irrigation system helps to minimize human efforts and to save water. However, efficient node placement will help to minimize the deployment cost of the network and select the potential positions that can cover the maximum agriculture field with minimum energy requirements [6-7].

The IoT devices can collect the different agriculture field conditions such as humidity, moisture, and temperature for irrigation management to improve crop productivity and water conservation. The IoT is becoming more popular in many industrial, commercial and agricultural monitoring systems. Currently, many farmers require manual labor for the intensive monitoring and control of the agricultural/crop activities and cattle monitoring which leads to wastage of resources and time. These disadvantages can be overcome by implementing the automatic agriculture monitoring using the combination of WSN, IoT, and soft computing algorithms such as irrigation management, node placement, cattle monitoring crop disease monitoring, etc [8-10].

The proposed scheme provides an energy-efficient node placement strategy for sensor node deployment and irrigation management to improve agriculture productivity. The contributions of the proposed work are summarized as follows.

- Implementation of energy-efficient and coverage-aware node placement scheme using Particle Swarm Optimization for the deployment of sensor nodes over the agricultural field.
- To investigate the irrigation management based on Fuzzy logic for agriculture productivity improvement and water conservation.

The rest of the article is arranged as follows. Section 2 provides a brief discussion of the various strategies employed for agricultural automation. Section 3 gives detailed information regarding the proposed PSO-based node placement strategy and Fuzzy logic-based irrigation management scheme. Further, section 4 provides various simulation results and experimental evidence for the performance evaluation of the proposed schemes. Lastly, section 5 depicts the crisp conclusions and shows the future direction for enhancement of the proposed research work.

Multidirectional Line Junction Detection for Blood Vessel Segmentation for Diabetic Retinopathy

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Abstract
Line junction detection plays a crucial role in the segmentation of biomedical images in various applications such as face, blood vessel detection, diabetic retinopathy, vessel reconstruction method, etc. Precise line junction detection largely depend upon skeletonization and image segmentation. In this paper, we present line junction detection based on three levels of filters such as Gaussian filter, directional filter, Gabor filter and Histogram of Oriented Gradient (HOG) employed for the line junction point detection, ridge forks and branches detection, ridge point detection and junction strength detection respectively. We have employed experimentation on the DRIVE retinal fundus image database for diabetic retinopathy and vessel segmentation. The proposed algorithm's performance is evaluated based on qualitative and quantitative analysis, and it is observed that the proposed technique provides an accuracy of 96.84 % for diabetic retinopathy and outperforms state-of-art approaches.

Keywords: Line detection, Gaussian filter, Gabor filter, Directional filter

I. Introduction

Line junction detection is crucial in biomedical image processing such as diabetic retinopathy, lung cancer detection, liver cancer detection. The junction is the point where two or more regions or lines are connected. The junctions are generally divided into two types such as natural junction (general junctions) and line junction. Natural intersection represents the connection of two or more image regions, whereas line junction represents the connection point of two or more lines. Depending on the relationship of several regions and lines, junctions are categorized in 'L' junction, 'T' or 'Y' junction or higher-order junctions. 'L' junction is formed by the connection of two regions or lines. 'T' or 'Y' junctions are formed by the connection of three regions or lines, and higher-order junctions are created by the connection of multiple regions and lines. Different types of natural junctions and line junctions are shown in Fig. 1.

Line junction approaches categorized in three types such as model-based, contour and template-based approaches. Edge points, forks, and ridge branches are the significant properties of the line. The many literatures based systems are based on the detection of changes in intensity over the local region such as FAST (Features from Accelerated Segment Test) corner detector [1], [2], SUSAN (smallest univalue segment assimilating nucleus) [3], Harris's method [4], etc. Contour-based approaches are based on contour extraction and junction localization, such as ROBICA (Robust Detection Operator Based on Circumferential Anchor) [5], Mark's method [6], and Xia's contrary detection theory [7]. Template-based approaches consider junction model for the matching [8].

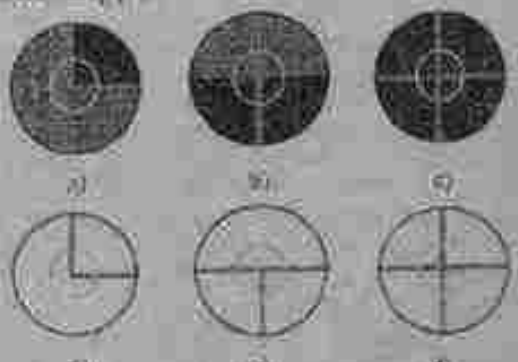

Fig. 1 Examples of junctions a) 'L' natural junction b) 'Y' natural junction c) 'X' natural junction d) 'L' line junction e) 'T' line junction f) 'X' line junction

Recently, Radkova et al. [9] projected line junction and termination detection in proton microscopic images based on fuzzy logic. They have used two-level fuzzy logic for mapping the features of neuron tree images obtained from 3D directional filter and profile profile analysis. Saranathi et al.[10] proposed vessel key points detection (VKD) and Curvature Orientation Histogram (COH) for the extraction of line junctions and random forest classifier (RF) for classification of the type of junction. This method could easily discriminate between the complex crossover and bifurcation points. Dasa et al. [11] proposed a multi-task network based on restricted Boltzmann Machine (RBM) for detecting vessel junctions, edges, and center lines of retinal fundus images to maximize the sparsity problem of labeled data from DRIVE and IOSTAR database. It reached to a precision of 0.75 and 0.67 for the DRIVE and IOSTAR databases, respectively. Most of the traditional techniques are sensitive to the noise in the detection of diabetic lesion in images. It is observed that smoothing helps to minimize the speckle effect and gives better results for line detection in

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Sound based Human Emotion Recognition using MFCC & Multiple SVM

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Abstract—Emotion recognition using human speech is one of the latest challenges in speech processing and Human Machine Interaction (HMI) for the purpose of addressing varied operational needs for the real world applications. Besides human facial expressions, speech has been proven to be one of the most valuable modalities for automatic recognition of human emotions. Speech is a spontaneous medium of perceiving emotions which provides in-depth. Here in this paper, we have used MFCC for extraction of features and Multiple Support Vector Machine (SVM) as a classifier. We have performed extensive experiment on happy, anger, sad, disgust, surprise and neutral emotion sound database. Performance analysis of multiple SVM revealed that non-linear kernel SVM achieved greater accuracy than linear SVM.

Keywords— Automatic Speech Recognition, Mel Frequency Cepstrum Coefficients, Support Vector Machine, Speech Emotion Recognition.

I. INTRODUCTION

Human beings always do the communication with each other by expressive gestures of emotions and feelings which are accompanied by some experiences and knowledge. These expressions are conveyed in speech form or through body language. Emotions are part and parcel of human life and among other things, highly influence decision making [5][3][7]. In this paper various kinds of features that might carry more information about the emotional meaning of each utterance are considered. The features that contribute to emotions may be different for different spoken languages. The approach is to calculate which features carry more information and to combine those features to get a better recognition rate. It also depends on which emotions we want a machine to recognize and its purpose. Active learning tries to select the most informative examples to build a training set for a predictive model. In this paper, we have used the Support Vector Machine model to model the phonetic units corresponding to sentences taken from the training base[3]. The results obtained are very encouraging given the size of the training set and the number of people taken to the registration. This algorithm is based on the flexibility of the Support Vector Machine for sentences by means of dynamic programming.

The speech Recognition (which is also known as Automatic Speech Recognition (ASR) or computer speech recognition) is the process of converting a speech signal to a sequence of words by means of an algorithm implemented as a computer program. Speech is a unique human characteristics used as a tool to communicate and express ideas. Research work in the field of automatic speech recognition (ASR) using machine has attracted a great deal of attention over the past few decades due to various reasons[1]. This has technological strong desire regarding the mechanisms for mechanical realization of human speech capabilities and the desire to automate simple tasks inherently requiring machine interactions. Speech recognition technology ha it possible for computer to follow various human commands and try to understand human languages [12 The main purpose of speech recognition field is dev techniques and systems for speech input to machine. S the primary means of communication between humans[11][10]

II. FEATURE EXTRACTION

The generalized block diagram of voice recognition is shown in fig. 1.Main stages of automatic sound recognition are feature extraction and classification. For our implementation. We have used MFCC for the extraction of features and classification is done with Support Vector Machine (SVM). In this paper, we are building a English emotional speech corpus with various emotions like happy, anger, fear, neutral and sad. The corpus has been evaluated using SVM based emotion recognition engine.

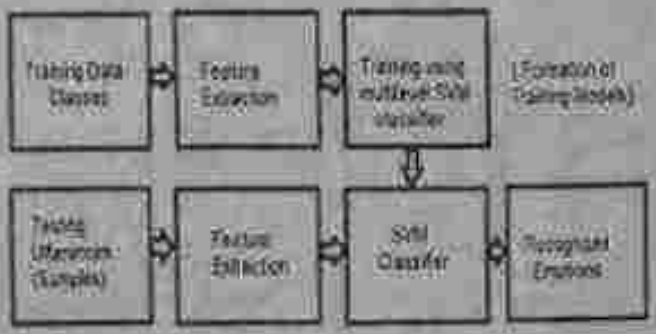

Fig.1 Generalized block diagram of automatic speech recognition

The ideal representation of parameter extraction of acoustic signals is an important task to produce a better performance in recognition. This phase's efficiency is important for the next phase since it affects its behavior. MFCC is dependent on

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Automatic Rheumatoid Arthritis Detection using Hand Radiographic Images

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ARTICLE DETAILS

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Rheumatoid Arthritis, derivative filter, joint space width, neural network

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ABSTRACT

The measurement of joint space width on hand X-ray images of Rheumatoid arthritis (RA) patient is a time consuming task. Manual method is observer dependent and it is less accurate. In this paper an automatic joint space width measurement is proposed using digital image processing techniques. For the removal of noise and image enhancement we used Gaussian filtering. Initial joint locations are obtained by second order derivatives filtering technique. Thresholding can be used to create binary images and morphological filter is used to remove small binary object. Joint space width is measured between two bones. The percentage of erosion is measured on the basis of bone area. The erosion of bone contour classify into classes pre-erosion, middle level erosion and severe level of erosion. The Neural Network Classifier is used to classify the Rheumatoid Arthritis (RA) and Non-Rheumatoid Arthritis person.

1. Introduction

Rheumatoid arthritis (RA) is the most common type of autoimmune arthritis [1]. It is caused when the immune system (the body's defense system) is not working properly. RA causes pain and swelling in the wrist and small joints of the hand and feet. It can occur at all ages, but the often onset is between the ages of 30 and 50. It is suspected that genetic, environmental, hormonal and infectious factor. This results in inflammation and thickening of the joint capsule. It also affects the bone and cartilage. Rheumatologists detect joint swelling by the classical examination technique. But in early stages of the disease, patients may not suffer apparent joint swelling and can have negative radiographs. The ultrasound and MRI are used to monitor synovitis and short term changes. But radiography is standard method to monitor long term progression of RA. The second order derivatives filtering which uses texture appearance, to locate the relevant joint positions on a hand radiograph. The neural network classifier classify the normal and rheumatoid arthritis patient.

Normal synovial tissue consists of an intimal lining of cell layers. The synovial sublining which connects with the joint capsule. The intimal lining consists mainly of macrophages and fibroblasts. The sublining contains scattered blood vessels, fat cells and fibroblasts. Macrophages are large white blood cells that destroy foreign and harmful particles.

The inflamed synovium begins to grow irregularly and the several mechanisms between macrophages and fibroblasts bone resorptive cells named osteoclasts are formed. Osteoclasts can produce enzymes named matrix metalloproteinases, which are thought to be largely responsible for cartilage and bone degradation in RA.

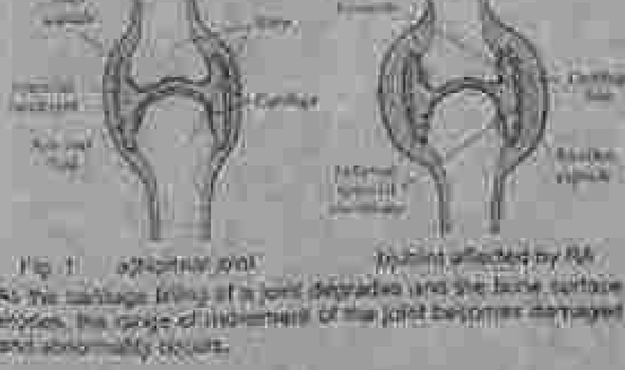

Fig. 1 a)Normal joint b)Joint affected by RA

As the cartilage lining of a joint degrades and the bone surface erodes, the range of movement of the joint becomes damaged and abnormality occurs.

The evaluations of hand radiographs from RA patients, in which the joints have been manually delineated, are used. For the joint margin detection, most of the researches dependent on supervised learning. The drawback of the supervised learning method is heavily depends on the choice of the training set [2]. The steerable filter maybe designed to quadrature pair to allow adaptive control over phase and orientation [3]. The measurements of finger and wrist joints in RA patients twice the standard deviation of the absolute deviation from the mean was 0.1 mm, when compared with the normal width of these joint spaces, which is 2 mm [4]. Due to the sesamoid bones situated only in the thumb, analysis of thumb joints is more complex than analysis of other finger joints [5].

The paper is organized with five sections. The first section is an introduction including previous research on measurement of JSW and erosion of RA patient. The second section narrates the system methodology including second order derivatives filtering technique, thresholding and morphological filtering. The third section provides experimental results of hand radiographic images. Last section concludes the work.

2. System Methodology

There are following steps to detect RA by using measurement of joint space width and erosion of bones. Hand radiographic images. The data consist of hand radiographic images. The images are in JPEG format. The image resolution are in 300×400 pixels.

RGB to gray level conversion

- Gray level images

It is also known as an intensity or gray scale image. Gray levels represent the interval number of quantization in gray scale image processing. The most commonly used storage method is 8-bit storage. There are 256 gray levels in an 8 bit gray scale image, and the intensity of each pixel can have from 0 to 255, with 0 being black and 255 being white. [13]

- RGB color images

In RGB color image each color appears in its primary spectral components of red, green, and blue. In the RGB color image, a color image can be represented by the intensity function:

$$IRGB = (FR, FG, FB) \quad (1)$$

Where

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Micro-Aneurysm Detection in Retinal Images for Diabetic Retinopathy

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ARTICLE DETAILS

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Computer-aided diagnosis, diabetic retinopathy, local convergence filter, microaneurysm detection, rusboost

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ABSTRACT

Detection of microaneurysms is crucial for the early diagnosis of diabetic retinopathy and prevention of blindness. In this work, a novel and reliable method for automatic detection of microaneurysms in retinal images is proposed. In the first stage of the proposed method, several preliminary microaneurysm candidates are extracted using a gradient weighting technique and an iterative thresholding approach. In the next stage, in addition to intensity and shape descriptors, a new set of features based on local convergence index filters is extracted for each candidate. Finally, the collective set of features is fed to a hybrid sampling/boosting classifier to discriminate the MAs from non-MAs candidates. The method is evaluated on images with different resolutions and modalities (RGB and SLO) using six publicly available datasets including the Retinopathy Online Challenges dataset (ROC). The proposed method achieves an average sensitivity score of 0.471 on the ROC dataset outperforming state-of-the-art approaches in an extensive comparison. The experimental results on the other five datasets demonstrate the effectiveness and robustness of the proposed microaneurysms detection method regardless of different image resolutions and modalities.

1. Introduction

DIABETIC retinopathy (DR) is the most common cause of vision loss among people with diabetes and the leading cause of vision impairment and blindness among middle-aged population in the world [1]. Chronically high blood sugar levels from diabetes are associated with increasing damage to the tiny blood vessels in the retina, leading to diabetic retinopathy [2]. DR can cause vessels in the retina to leak fluid or to bleed, and in advanced stages, new abnormal blood vessels may proliferate on the surface of the retina, which can lead to scarring and cell loss in the retina [3]. Small swellings in the retina's tiny blood vessels, called microaneurysms (MAs), occur at the earliest stage of the disease [3], [4]. In digital color fundus images, MAs appear as tiny, reddish isolated dots near tiny blood vessels [4]. The detection of MAs is considered as one of the most important clinical strategies for the early diagnosis of DR and blindness prevention in a cost-effective health care practice. However, due to the limited number of ophthalmologists and the large number of people that require screening, an automated computer-aided diagnosis tool can significantly improve the efficiency and reduce the costs in a large-scale screening setting [5]. In this work, we propose a novel method for the detection of MAs using local convergence index filters (LCF) and a random undersampling boosting classifier (RUSBoost). In the first stage, the MA candidates are extracted using multi-scale multi-orientation gradient weighting and iterative thresholding. The gradient weighting technique is particularly useful for the detection of small objects with weak boundaries, and in low contrast regions. Compared to other techniques, the multi-orientation and multi-scale gradient weighting technique enhances the boundary of gradient structures that is very characteristic of local shape, and it provides local representations which have an easily controllable degree of invariance to local geometric transformations such as translations and rotations. Afterwards, the method generates a set of features for each candidate depending upon their intensity, shape and LCF responses. The LCF filters are based on gradient convergence but not intensity and as such can represent low contrast MAs which otherwise would be easily lost in the background noise. The true MA candidates are then selected using a hybrid sampling/boosting classifier to avoid the drawback of imbalanced data learning and to improve the performance of MA detection. The RUSBoost (with decision trees as the weak learners) is a suitable classifier since we deal with a skewed set with the minority of MA candidates and the majority of non-MA candidates.

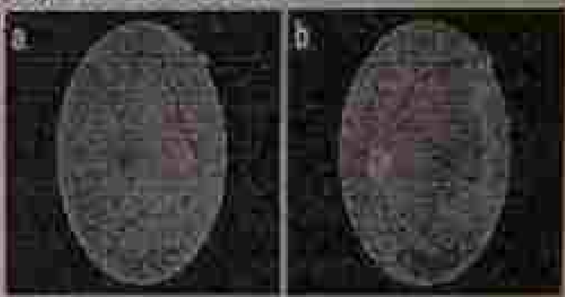

Figure 1. Normal and diabetic retinal image

The paper is organized with five sections: The first section is an introduction including previous research on diabetic retinopathy. The second section narrates the system methodology including various feature-extraction methods and classification. The third section provides experimental results. Last section concludes the work.

2. System Methodology

There are following steps to detect RA by using measurement of joint space width and erosion of bones. Hand radiographic images. The data consist of hand radiographic images. The images are in JPEG format. The image resolution set is 100×100 pixels.

Extracting suitable features and descriptors for the candidate regions is an important step for the final classification stage. Since the MAs appear in different colors and sizes, several shape and intensity features are extracted. The feature set is completed by including the responses and the estimated radii of different local convergence index filters (LCF). The rest of the

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Cloud Based E-Learning Platform with Machine Learning

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Abstract - Cloud computing is the latest and rapidly growing technology that has brought new changes and opportunities in the field of education and IT industries. Consequently, e-learning emphasizes more on technology to transform and provide training and education to users. E-learning system using cloud computing platform introduces efficient and effective learning mechanism. In this paper, we briefly discuss the effectiveness of cloud-based e-learning along with its issues, challenges, and benefits. The analysis suggests that the cloud computing platform for e-learning is quite feasible and effective that brings greater clarity landscape assist in cloud computing assistance. With the increasing popularity of cloud-based services, there is a need for an e-learning platform that can take advantage of the cloud to provide more scalable and reliable service. This paper presents a cloud-based e-learning platform that uses machine learning to provide a more personalized learning experience. The platform uses a cloud based architecture to provide scalable and reliable service. It also uses machine learning to provide a more personalized learning experience. The platform has been designed to be easy to use and to provide a high quality learning experience.

Keywords: Cloud Computing, Machine Learning, Deep Learning.

1. Introduction

Cloud-based e-learning platforms offer many advantages over traditional learning platforms, including the ability to scale quickly and easily, the flexibility to customize the learning environment to the needs of each individual learner, and the ability to connect learners with experts from around the world. Machine learning can further enhance the effectiveness of cloud-based e-learning platforms by personalizing the learning experience for each individual learner and providing real-time feedback and recommendations. Cloud-based learning is online learning that takes place in the cloud – a virtual space that is not tied to any one computer. There are various cloud-based learning [illegible]

which best of benefits for the classroom at all educational levels. Enhance the quality of learning and teaching. Meet the learning style or needs of students. Improve the efficiency and effectiveness. Improve user accessibility and time flexibility to engage learners in the learning process.

2. Problem Statement

With the increasing popularity of cloud-based learning platforms, many educational institutions are looking to develop their own versions of these platforms to increase student interaction and engagement. Machine learning can be used to develop these platforms by providing recommendations on what content to include based on student interactions and preferences. Additionally, machine learning can be used to monitor student progress and identify areas where they may need assistance.

3. Proposed System

With the increasing popularity of cloud-based learning platforms many educational institutions are looking to develop their own versions of these platforms to increase student interaction and engagement. Machine learning can be used to develop these platforms by providing recommendations on what content to include based on student preferences. Additionally machine learning can be interactions and Used to monitor student progress and identify areas where they may need assistance.

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AUTO-SPEECH CASTING SYSTEM FOR PROGRAMING IDE PLATFROM

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ABSTRACT—*Speech Recognition is the process of automatically recognizing a certain word spoken by a particular speaker based on individual information included in speech waves. This technique makes it possible to use the speaker's voice to verify his/her identity and provide controlled access to services like voice based biometrics, database access services, voice based dialing, voice mail and remote access to computers. Voice can be a powerful tool for use in human computer interaction because it is the fundamental means of human communication. With the rapid growth of wireless communications, the need for voice recognition techniques has increased greatly. Portable and wearable, which are necessary more for being computationally powerful computer devices, will be reinforced by this new voice applications, since voice can support invisible communicating with a computer device as a natural way of communicating. Signal processing front end for extracting the feature set is an important stage in any speech recognition system. The optimum feature set is still not yet decided through the vast efforts of researchers. There are many types of features, which are derived differently and have good impact on the recognition rate. This project proposes one of the techniques to extract the feature set from a speech signal, which can be used in speech recognition systems.*

Keywords: *HCI, Voice Identification, Text To Speech, Speech To Text, Syllable recognition, Voice casting, Voice synthesis, Voice applications, Voice-based interfaces.*

I. INTRODUCTION

With advances in new technologies, computer devices have grown in popularity to become one of the most common consumer devices. Even as these devices are shrinking in size, however, their capability and content are changing into more complex and diverse functionalities to meet user requests. Now, it is common for many computer devices to include a phone, a personal directory, a memo capability, an alarm clock, a scheduler, a camera, games, and several applications which were working in Personal Digital Assistants (PDAs) before, so there is no boundary between computer devices and PDAs.

However computer designers in which designers have worked more and more to decrease their size are likely to have small keypads and screens, whereas they should have more complex and diverse functions for users. Their functionality and ease-of-use are greatly limited, and this many researchers note to find alternative communication channels when interacting with these devices. In recent years, many researchers in the area of human computer interaction (HCI) have attempted to enhance the effectiveness and efficiency with which work and other activities are performed using voice based interfaces. Even if voice technology has been explored for use in desktop computer and telephone information systems, the role of voice in interfaces has received little attention because of its difficulty of use and low success of recognition.

Actually, in the past, the accuracy of voice recognition was unacceptably low, and as a rule in a system not particularly because of ambiguity and error. However, voice technology has reached the point of commercial viability and reliability now, and also many computer devices adopt voice applications for providing better services to users. Using voice allows the interface size to be scaled down because voice interaction requires only audio I/O devices such as a microphone and speaker, which are already quite small and inexpensive. Currently, in a computer device voice interfaces need only small space and power consumption, but are able to provide every user with a friendly interface by adding a feeling of natural interaction. voice interfaces are sufficient to replace graphical user interfaces for accessing all information and content without using keyboards, buttons, and touch screens, since voice is the fundamental means of human communication.

II. RELATED WORK

In[1] Voice technology has been explored for use in desktop computers and telephone information systems, so that multiple studies have been focused on voice recognition systems or applications for general computer systems. Rosenfeld and others considered how to build voice application interfaces, especially achieving reliable and accurate speech recognition, and presented their thoughts about the future of speech-based interaction with at least three fundamental advantages for speech.

Speech[2] is an ambient medium rather than an exceptional one. Visual screens required our focused attention while speech allows us to do something else.

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A Survey Paper on Smart Human Activity Detection Using Yolo

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Abstract: A simple operational model could allow one person to monitor all around us to ensure security and privacy, while maintaining cost and performance of management and getting it right. This inspection with real-time video monitoring function can be used to hospitals or caring homes for the sick and elderly, as well as various people working in important area such as airports. In we decided to use the YOLOv4 (You Only One Shot) algorithm, which is the newest and fastest of the real algorithms for fast analysis of actions and accurate results when dealing with complex human behaviour. This method uses a bounding box to indicate the action. In these cases, we collected 4,671 different data from different hospitals or different cases, making the most accurate one of one of the largest datasets used in this type of project. When we research, we divide our actions into three different classes, standing, sitting, and walking. Model can control and analyse the activities of many patients or other normal people, and support can monitor the activities of many. After completing three projects, the model achieved an average accuracy of 94.667.

Keywords: YOLOv4, DarkNet, ResNet50, Opencv.

I. INTRODUCTION

Human activity recognition is the study that includes correctly identifying activities performed by humans, stored in different ways. Human activity is the continuous flow of single or multiple human movements or progression. Some human activity represents the performance of steps in which a subject takes a step, walks forward, sits down, stands up, etc. Human activity recognition can widely apply to some real-world applications like patient monitoring, surveillance of essential locations, activity-based search, etc. You can perform it at various abstract levels. Students, researchers and makers have studied human activity recognition in every part of the world for a long time. The Machine Learning-based activity recognition uses Computer vision techniques like YoloV4 and DarkNet to recognize activities performed by humans. We will mainly be focused on the various activities and detect these actions through video. The Human Activity

other human activity complex to find human activities without manual operations automatically. In this paper, we will be using the YOLO (You Only Look Once) library to build a system that will detect human activities. YOLOv4 is fast, very fast, and not only that, we can change between faster speed and better accuracy by just changing the amount and data for the model, without any additional retraining of data required. Human Action Recognition is an area of computer vision research and applications. The goal of Human Action Recognition is to identify and understand possible actions.

II. MOTIVATION

Understanding human activity and their interaction with surrounding objects are crucial for developing an intelligent system. Human action recognition is a field that deals with the problems generated in the integration of sensing and reasoning to provide context-aware data that can offer personalized support across an application. Several issues still plague human action recognition, such as privacy concerns regarding continuous monitoring of activities, difficulty in performing HAR (Human activity recognition) in real-time, and lack of correctly labeled datasets able to work users at any time. Human activity recognition is a very critical monitoring system. Human action detection sensors report movement from video surveillance or still pictures. The continual improvement of artificial intelligence and deep learning algorithms helps us humans and get vital physiological data to the medical personnel and simplifies the examination. As a result, it raises the efficiency of the patient monitoring system. A human activity recognition system can enhance the patient's experience in the medical sector.

Additionally, we can use the technology in many other fields. The active or assistive system can use HAR technology to monitor its residential area for better security. Our research aims to offer medical support, well-being services, and health benefits to older adults and other security purposes for critical infrastructure. It was exciting because we were about to create an intelligent system that would detect human acts by and monitor the activity intelligently. That's

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Online Voting System Using Cloud Computing

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Abstract - In this investigation work, Voting is commonly related to politics and is finished with often taking advantage and manual approach where voters stand to vote for his or her decisions. In the new era of advanced technology where online system improve work speed, reduces mistakes and encourage the generation of accurate results, having manual election system becomes a misfortune. A public election system add up to the backbone of a democracy where the people have to elect their state's leader. India currently uses a manual election system, which source several kinds of problems. Due to this papape tally used election system, some problems are faced by voters before or during elections and others are faced by the management before and after the voting. An online system, which involves procedures like booking voters, vote casting, vote counting, and declaring results would constitute a good solution to replace current system and put forward system in this thesis will be helpful for the voters by using any resources like their own system or arranged by executive. Moreover, the put forward system will also decrease the risk for corruption. The system is put forward after interviewing officials of two departments, the Nation Database and Registration Authority India (NADRA) and the Election cask of India (ECI). NADRA has an online archive of the citizens of India, and is providing the Computerized National Identity Cards (NIC) and also hold up different organizations with their online system. So, by using NADRA's system it becomes easy to register all voters at the age 18 or above, and furthermore to verify and secure their data. Our system is also provide with a chat bot that works as a support or guide to the voters, this helps the using the voting process.

Keywords: Online Voting System, Cloud Computing.

and put forward system in this thesis will be helpful for the

I. INTRODUCTION

In the new period of trend setting innovation where online framework supports work, an incident Introducing new technology is always a complex undertaking, and has many different aspects. These aspects are partly technical, partly social, political, organization and legal, and partly cultural. This is also the case for information and communication technologies, and we see the study of these dimensions in various disciplines. Besides these, the research then aims at bringing forward practical knowledge about design, development and implementation of ICT's, and at the same time at contributing to the theoretical knowledge of the discipline involved. As a largely multidisciplinary research is the characterization of the social research related to technological change, and this paper is not different.

Of the aims our study has is to inform practical development and use of ICT's for politics, but also to learn [illegible] things where the disciplines involved. Here we focus on one of the important dimensions, that is the role of social and socio-psychological factors. Experiments with Internet technology in real life situations may inform us about various things, all studied by different disciplines. However, taking the design, the development, the implementation and the use of new technologies as point of departure, all these disciplinary approaches to studying Internet voting should inform the designer.

This is what we call 'design oriented research', in which we try to produce results that inform the scholarly debates as well as the practical discourse. In the research project on which this paper is based, these many things are in fact done. First of all designing and building a prototype. Secondly, testing the innovation in real situations: experimenting with the 2 prototype in order to find out the political, organizational, administrative, legal context. And finally, experimenting with the prototype in order to learn about the acceptance, use, usability, evaluation, trust by the individual voter, and the implications for the vote.

II. LITERATURE REVIEW

Distributed computing is make use for information putting away [illegible] and these information can be gotten to effectively from anyplace whenever. E-Voting can be consideration of in Good Governance in India. Current E-Voting substructure has a few issues of including votes, fraud in making sham votes and pool of security. In any case, in settle such issues, give our computing offers openings of chance, yet the development in distributed computing advances are still at drawn days improving. In this paper, we speak to the general of distributed computing, survey of various techniques make use for cloud based E-Voting framework over the enhanced, SMS and Traditional System.

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JARVIS: Voice Controlled AI for Help Human

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Abstract - This Paper considers an overview of speech recognition technology, Software development, and its applications. The first section deals with the description of speech recognition process, its applications in different sectors, its flaws and finally the future of technology. Later part of report covers the speech recognition process, and the code for the software and it is working. Speech Recognition is the process of automatically recognizing a certain word spoken by a particular speaker based on individual information included in speech waves. In this project, we will use algorithms for the speech recognition which will implement on JAVA for platform independent facility this system can be used for any security system in which the person authentication is required.

Keywords: Speech recognition, signal processing.

1. Introduction

Speech Recognition is the process of automatically recognizing a certain word spoken by a particular speaker based on individual information included in speech waves. This technique makes it possible to use the speaker's voice to verify his/her identity and provide controlled access to services like voice based biometrics, database access services, voice based dialing, voice mail and remote access to computers. In this project, we will use algorithms for the speech recognition which will implement on JAVA for platform independent facility. This system can be used for any security system in which the person authentication is required.

Speech is the most natural way to communicate for humans. While this has been true since the dawn of civilization, the invention and widespread use of the telephone, audio-phonic storage media, radio, and television has given even further importance to speech communication and speech processing.

The advances in digital signal processing technology has led the use of speech processing in many different application areas like speech compression, enhancement, synthesis, and recognition humans. While this has been true since the dawn of civilization, the invention and widespread use of the telephone, audio-phonic storage media, radio, and television has given even further importance to speech communication and speech processing.

The objective of the current research is

- To understand the speech recognition and its fundamentals
- Its working and applications in different areas
- Its implementation as a desktop application
- Development for software that can mainly be used for:

1) Speech Recognition
2) Speech Generation
3) Text Editing Tool for operating Machine through voice

2. Problem Statement

In the 21th century everything is based on Computer. As we can say there are lots of companies which are developing so advanced technologies that can/may shape the future of our world that we are living in. Nowadays we use several different technologies that make our life easy.

So we required various software for making our life quite a bit easy. We required software for protection and security of our machine, developers use eclipse for making programming easy, we use Google chrome for searching etc. In short we are surrounded by software.

3. Proposed System

In Today's world we use keyboard and mouse for operating our computer normally. This is where our software comes into picture. Using this software we can fully operate our computer with our own voice. It sounds a quite hi-tech and quite impossible but it's true, this can happen.

Today various company are working on it to make advance into this Speech Recognition System. Ultimately, once the system will help reduce the use of the keyboard and pad. Just you will require a Mic or Bluetooth device from which we can give a voice input to the system.

It will be use technology as for security mechanism you will use your voice as a security password you will operate the [illegible]

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A Survey Paper on Academic Certificate Verification Using Blockchain

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Abstract - According to the statistics of the Indian Ministry of Education, there are around 1 million graduates every year, of whom 4,444 will go to the country's [illegible] university to continue their education and 4,444 will be ready to solve a job. All certificates of achievement, transcripts, graduation certificates etc. received by the students during their education will be important documents for new school or new job admission. Only schools and students entered on schools awarded many awards or certificates. Because there is no effective way to prevent fraudulent transactions, there are often situations that lead to fraudulent certificates. To solve the certificate fraud problem, a digital certificate based on blockchain technology will be proposed. Using modified tools of the blockchain, digital certificates can be created that prevent fraud and have proofs. The process of issuing a digital certificate through the system is as follows. Before creating the electronic file of the certificate, add and store other important information in the file and also calculate the hash value of the electronic file. Finally, the hash value is stored in a block in the chain system. The system will generate an interactive QR code and a question string code to be added to the certificate. The application verifies the authenticity of the certificate by sending a mobile or web query. The system changes the nature of the blockchain, not only increasing the reliability of various certificates, but also electronically reduces the risk of various types of certificates.

Keywords: Academic Certificates, University, Fraudulent Certificates, Blockchain System

I. Introduction

Existing certificate generation system which manually creates the certificates based on the user and students data. Various centralized methods follow the similar approach for verification. The centralized approaches can't defend the various attacks under like SQL injection, Collusion, brute force etc. Blockchain approach using decentralized approach. Fog computing or fog networking, also known as fogging, is pushing the parts of computing application, data, and services away from centralized cloud to the logical extremes of the [illegible] control, configuration, and management over the [illegible] hardware rather than the primarily control by network gateways and switches those which are embedded in the LTO network. It is an architecture that uses one or more [illegible] highly virtualized computing subordinates which provides [illegible] computing facilities with the help of edge servers and nodes. Data fog nodes organize the wide applications and services to store and process the contents in close proximity of end users.

2. Existing System

During our research, we were able to find some of the works done which were related to our field. Following are some of the findings.

In [1], in a permissioned Blockchain (Hyperledger Fabric), a user, depending upon the kind of authorization given to it, can query or manipulate any Blockchain data. This paper highlights the effects of create fraud. Authors have created a platform for companies and universities using Hyperledger. Institutions can store student data and companies can store receiving info on the platform. Users can query or manipulate student or recruiter info.

In [2], the main method is to create a hash of the fingerprint of the student which will be stored in the block and for verification, the institute just needs to scan the fingerprint of the candidate.

In [3] published in the year 2020, they apply the hash number which was generated while creating a block as a corresponding to the original document and verify can use this hash key to fetch the original document from the blockchain.

In [4] before issuing certificates to the students, a hash of an digital identity would be calculated and stored in a chain system. When students apply for a job in any company, the recruiter would just have to upload the digital document given by the candidate, a hash will be generated and then compared and the result if valid or forged will be displayed.

In [5], A Blockchain application retrieves a digital

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Digital Leave Tracking System

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Abstract – In the existing Leave Management System, College follows paper-based procedure to maintain leave of staff and administration department record their leave information in a register book. At the end of each month, the administration department calculates the leaves of every staff, which is a time-consuming process and there are chances of losing data. The Web-based Leave Management System is an Intranet-based application that can be accessed throughout the college. At anytime and anywhere, an staff can apply for their leave, efficiently using this application. There is no necessity for manual filling of leave forms and wait to get higher authorities' approval. The Admin is responsible for creating, updating and deleting the details of the user and creating department and leave types. Also, Admin can generate leave reports of all staff. In the staff role, the staff can apply for leave and view the previous leave applied. Head of Department (HOD) can accept /reject leave applications of his/her department staff through this system and can view leave details of every member of their department. The Admin can view all staff leave details, accept/reject leave applications of HODs, and generate leave reports. Thus, this system can be used to automate the workflow of leave process and their approval process. Web-based Leave Management System will reduce manual work, and it helps to maintain leave records efficiently.

Keywords: Admin, Staff, College, Leave Management System

I. INTRODUCTION

When done the usual way, managing, processing, and obtaining approvals for all forms of work is a difficult undertaking at most colleges. The traditional method is relying on using papers for all types of requests. There are very few colleges that use an online automatic system for approvals. The online approval system will change the manual system of the future. Office work is done online in most firms and organizations around the world. However, these techniques have yet to be noticed in educational settings. Currently, the mechanism for submitting requests is extremely time consuming, since staff must submit each request on a certain document that must be physically shared by the appropriate faculty members. To get around this difficulty, a mobile or web-based application can deliver a considerably more effective and time-saving experience. The objectives of the current research is,

- To eliminate paperwork and reduce the process time for leave request.
- To provide convenient, simple and user friendly environment.
- To increase the efficiency of college leave management.

II. EXISTING SYSTEM

The existing Leave Management System of the college is manual. It is a lengthy process and many properties are not considered in the current system. Staff fills a leave request form manually and submits it to their HOD for approval (2). After the HOD's consent, the leave form is submitted to the administration department. At the end of each month, the administration department calculates the leaves of every staff, which is a time-consuming process, and there are chances of losing data or errors in the records. This increases the manual work, and handling records becomes more challenging and also it is a time-consuming process. The forms cannot be maintained systematically and efficiently.

III. PROPOSED SYSTEM

Sally K. [1] emphasize that the Web-based Leave Management System is an online application and approval mechanism which is the recent way to request a leave and keep track of leave status in the College. All the staff of the College can access it. This application can be used to maintain leave applications and their approvals easily. It also reduces the duration of data loss [4]. This system automates the paperwork and data duplication. It provides a comfortable, centralized and systematic environment for the higher authorities (Head of Department – HOD) to approve leave. HOD will have permission to look over the leave details of every member of their department. HOD can approve the leave through this system and view every individual's leave information in their department. This system will reduce paperwork and maintain the record more efficiently and

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IRJIET

Research Paper on Drug Pill Recognition System

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Abstract - Vision loss and forgetfulness are two aspects of aging and are normal processes. The elderly may be affected by these deformities, which may put them at risk during daily activities. Inappropriate drug use is one of the most dangerous problems. These mistakes pose a great risk to the health and life of the elderly. In addition, current solutions to this problem are designed for professionals or the public, without covering the needs of the elderly. As the first part of a large collection of devices designed specifically for the elderly, imaging devices have been proposed to help fill this lack of assistance. The concept continues to use its form, size and material for steps such as photography and tablet. Colour Tablet data in the local database is used to characterize and store the system during operation. The same feature then calculates and analyzes the data during the authentication process to provide users with useful information about the authenticated tablet.

Keywords: Healthcare, Blind, Pill Recognition, Image Processing, CNN.

I. INTRODUCTION

This help does not come from the health care system. Therefore, based on current technological developments [illegible], we propose a different approach for this [illegible] system. This solution was developed as part of a larger [illegible] system. Computer technology is being used to [illegible] that help seniors identify medications [illegible] Decisions that are part of a matter of medical knowledge must be independent and reliable. [9]

Blind or visually impaired elderly people often take the wrong medicine or forget to take it. This study also addresses [illegible]. Patients with visual impairment who use the wrong drug suffer greatly and cannot receive adequate help for this. Eliminating the need to specify a procedure [illegible]. Drug [illegible] patients with permanent [illegible] solve this problem. Drug safety to patients with visual impairment can be ensured using the [illegible] [7].

This article describes the [illegible] visually impaired people use to identify drugs or tablets. Part I introduces the topic and provides an overview. After Part II evaluates the data, analysis of various data and the data generated the validation.

II. LITERATURE REVIEW

Various strategies have been proposed by various researchers. This approach is presented in this section. Various related tools have been created and modified to provide different functionality (such as pill detection and medication notification) and encourage safe drug use.

D.O. Kavas, E. Canpolat, M. Sozen and F. Medeiros, "Benchmarking pill recognition methods for a new National library of medicine image dataset"

Accurate drug identification has become an important issue in patient care and safety. Using the National Library of Medicine's (NLM) newly available tablet image database for search and characterization, this study searched for descriptions of tablets. The authors describe their investigation of using the SIFT method for tablet image segmentation and the [illegible] features were extracted to compute the dictionary and [illegible] combinations for the body of the tablet according to [illegible] standards. Evaluation of the 1,000 most popular drugs in the US, providing results and sample matches for NLM tablets using [illegible] to provide reproducible results, and the [illegible] without understanding that our tablet is part of [illegible] image search.

W.Z. Yaniv, F. Eltaqiyah, S. Holm, K. [illegible], D. [illegible], F. Rand, [illegible], "The national library of medicine pill image recognition challenge: An initial report"

The US Library of Medicine launched a competition in January 2016 to develop and discover effective methods and software for [illegible] image quality of drug pills, similar to the drug images in the RxIMAGE registry. The need for doctors and the public to quickly identify unlabeled drugs is the driving force behind this campaign. These methods will help identify drugs in situations where the drug and data are separated, such as in a disaster or emergency, when the drug is changed from a brand to a generic, or when the drug's shape and colour changes. Other reasons. This is the first step to support the development of the NLM software system and API to facilitate drug information.

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An Analysis of causes and effects of change orders on construction projects in Mumbai.

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ABSTRACT: Construction is one of the most important employment sectors in India with very minimal research being done to identify the causes and effects in construction industry. Large construction projects are facing problem of delays and extra costs. In all types of construction projects cost and time is an important role. The purpose of this paper to focus on various change order and cause, effects and control measures for construction projects in East region of Mumbai. A set of questions were circulated between the professionals working so, the aim to acquire the causes and effects of delays faced by them. The respondents are engineering professionals having minimum 5 years of experience in construction industry for handling projects. From the data collected by the questionnaire survey we first take Cronbach's Alpha test for internal consistency test by using SPSS statistics software. After analyzing and find out conclusion we used relative importance index method.

KEYWORDS: Construction delays, Change Management, Construction Project, Cronbach's Alpha, Causes, Change Order, Effects, Relative Importance Index.

I. INTRODUCTION

Change orders have long been an inherent part of the construction industry. It is seldom or split a construction project being executed without a change which normally arises as a result of some causes attributed to the different parties involved in the project execution. The management of these changes is vital, to what extent we manage the change without affecting our goal. Managing change is the greatest importance in the success of construction project. The change orders created when change occur from any reason it may owner, contractor, etc. A change is the work for addition or rework. Many of the time change causing the demolition and rework. These causes decrease the labour productivity. Change orders are easy to manage at the initial phases of construction which reduce the rework and extra effects for particular stage. So the change orders are from any reason they collective effect on construction project which resulted in delay or cost overheads.

II. LITERATURE REVIEW

Change Order

A change order is order which specifies the proper changes in the contract which alters the project duration and cost of the project. It is also stated as any guidance to the contractor which changes the specification of work by the owner, consultants. (Mokbel, 2003)

Reviews of Technical Papers

1. Khalil Ismail Wali Nasrk Ismail Saleh (2019) One of the most important problems facing the construction management process is the occurrence of change orders, which became inevitable in many construction project and the magnitude of these variations varies considerably from project to project. Considerably causing different effects to the project like changes in cost, time, quality, and completion schedule.

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Comparison of Barrel Vaults

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Abstract - This study compares the performance of barrel vaults made of reinforced concrete (RCC) and steel grid structures. Barrel vaults are commonly used in the construction of large span structures such as airports, sports arenas, and exhibition halls. RCC and steel grid structures are two of the most popular construction materials used for barrel vaults. This study examines the structural performance and cost-effectiveness of these two materials using statistical analysis. The analysis is based on data collected from case studies of several barrel vault structures constructed using RCC and steel grid materials. The results show that RCC barrel vaults have a lower cost per unit area than steel grid barrel vaults, but steel grid barrel vaults have a longer service life and require less maintenance.

Keywords: Barrel vault, RC barrel vault, Double Layer Grid, Slab type barrel vault, cost- effectiveness.

1. Introduction

Now a day the growth of construction is increased and required maximum space and large span. The barrel vault is the best for large span structures. The popularity of barrel vaults is partially due to the economy of these structures. At the same time, their cylindrical shape provides a great deal of volume under the roof, a distinct advantage for railway stations, or for large span warehouses, providing a welcome increase in their storage space. Barrel vaults are lightweight and cost-effective structures that are used to cover large areas such as exhibition halls, stadium and concert halls. These structures provide a completely unobstructed inner space, and they are economical in terms of materials compared to many other conventional forms of structures as explained by Makowski [15].

2. Space Frame

Space frame is a sophisticated structural system that combines elegance and efficiency to achieve large, unsupported spans. Its unique geometric configuration allows for both structural strength and aesthetic appeal, making it a popular choice for a variety of architectural applications. Space frames offer significant advantages over traditional structural systems, including lighter weight, reduced material consumption, and faster installation times. With its striking visual impact and impressive engineering capabilities, space frame continues to push the boundaries of modern architecture.

1) Flat Lattice
2) Lattice Dome
3) Barrel vault

Flat Lattice

A space frame is a structure system assembled of linear elements so arranged that forces are transferred in a three-dimensional manner. In some cases, the constituent element may be two dimensional. Macroscopically a space frame often takes the form of a flat or curved surface. It should be noted that virtually the term structure defined as space frame here is referred to as lattice structures. A lattice structure is a structure system in the form of a network of elements (as opposed to a continuous surface). Rolled, extruded or fabricated sections comprise the member elements. Another characteristic of lattice structural system is that their load-carrying mechanism is three dimensional in nature. Flat lattice is composed of planner unit which connected with unit beam to piece plane covers. These spatial structures are composed of planar substructures. Their behavior is similar to that of a plate in which the deflections in the plane are channeled through the horizontal bars and the shear forces are supported by the diagonals. Flat lattices can have one, two, three or even multiple layers, but they are widely used in the form of two layers. Double-layer lattices consist of two parallel plates which are jointed together by elements [1,2,17].

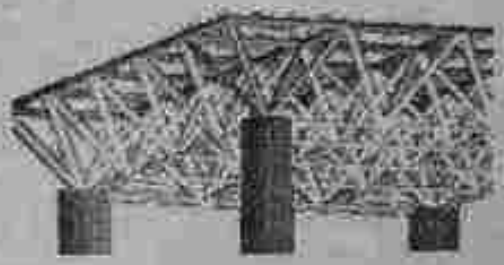

Figure 1. Double Layer Grid Flat Lattice

Lattice Dome

Dome is a lattice has curvature in two directions. Domes are structures with high rigidity and are used for very large

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Geological and Geomorphological studies at Khadki Nala Basin, Mangalwedha Taluka, Solapur District, Maharashtra, India

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ABSTRACT

The linking of the geomorphological parameters and geology with the hydrological characteristics of the basin provides a simple way to understand the hydrologic behavior of the different basins particularly of the ungauged basin in hard rocks like Deccan basalt. The techniques of geomorphometric analysis are useful in the quantitative description of the geometry of the drainage basins and its network which helps in characterizing the drainage network. The geomorphological landforms are important from the hydrological point of view and include the linear, aerial and relief aspects of the drainage basin. It has also been found that hydrogeological/geomorphological investigations besides helping in targeting potential zones for groundwater exploration provides inputs towards estimation of the total groundwater resources in the area, the selection of appropriate sites for artificial recharge and the depth of the weathering.

In present investigation Khadki Nala basin which falls geographically under Solapur district of Maharashtra, has been taken up for groundwater development. The area falls under the rain shadow zone and frequent drought is a common feature in the area due to adverse climatic conditions. Geologically the area falls under the hard rock terrain consisting of basaltic lava flows. Geology of Khadki Nala basin contain massive basalt, vesicular, weathered or pelitic basalt and quaternary soil. The study area is focused on Survey of India Toposheet No 47O/8, 47O/7 on the scale of 1: 50,000. It lies between latitudes 17° 19' 00" N to 17° 33' 00" N and longitude 75° 11' 00" E to 75° 25' 00" E. The total area is about 567.36 sq km. Khadki Nala basin is a fifth order basin with a bifurcation ratio of 3.313, and the weighted mean bifurcation ratio is 3.10, indicating normal bifurcation ratio for all the orders of stream. Drainage density is 2.98, stream frequency is 3.35, the length of overland flow is 0.1689 km. The mean slope ratio is 1.746. The relief ratio is 4.52. The ruggedness number is 0.1286, which is considerably small indicative of mature basin. The hypsometric curves for Khadki Nala basin is 0.3

KEYWORDS: Khadki Nala, Geomorphology, Morphometric analysis, Geological Map

INTRODUCTION

Geomorphology deals with the landforms in terms of its lithology, structure, basin geometry, drainage and other morphometric factors that result from the dynamic processes like rainfall, erosion and drainage pattern on the earth surface creating divergent geomorphological characteristics. The hydrology factors like rainfall and runoff affects general hydrological setup of the basin. Therefore, geomorphological characteristics become much more important and significant for hydrological studies. Geomorphological parameters which has been used in deciphering their relationship with those of hydrology can broadly be classified as the linear and aerial aspects of channel system and the relief aspects of the basin. The geomorphological process include physical and chemical change modifies earth surface form. Geomorphological agents are capable of transporting earth material with the help of geometric agents. The linking of the geomorphological parameters and geology with the hydrological characteristics of the basin provides a simple way to understand the hydrologic behavior of the different basins particularly of the ungauged basin in hard rocks like Deccan basalt. The morphometric analyses provide information related to formation of various processes occurring on the surface of land, which

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Life cycle assessment approach to analyse the impact of application of urban waste compost for agricultural purpose

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Abstract—The disposal of solid waste is one of the major problems faced by fast developing urban areas today. Among all the disposal option of solid waste, Composting can be one of the sustainable solution for waste disposal, fixing the amount of compost generated through MSW it can be effectively used for agricultural purposes as a replacement for synthetic fertilizer. As synthetic fertilizers do not support microbiological life in the soil and also leads to a negative impact on the environment throughout its lifecycle. Thus, integrated use of synthetic fertilizer along with urban waste compost can be an excellent solution to waste disposal these problems and it would also improve the soil properties. This study focuses on the importance of supplementing synthetic fertilizer with urban waste compost so that it would improve soil properties and analyzing its effect on environment. Life cycle assessment is carried out to predict the impact of integrated use of synthetic fertilizer and urban waste compost on environment.

Index Terms—Synthetic fertilizer, Urban waste compost, Life cycle assessment, Solid waste management

I. INTRODUCTION

The disposal of solid waste has always been a major problem throughout India. The problem continues to grow with the growth of population and development of industries. Disposal of waste in open pits has become routine in majority of places. The four main methods of disposal of solid waste in India are a) Landfilling b) Composting c) Incineration d) Recycling. The majority of landfills in India are open dumps without facilities of gas recovery systems. Incineration leads to emissions of harmful gases in the environment.

Composting is one of the best methods of waste disposal as it converts biodegradable organic waste into useful compost. The wastes such as remains of plants, garden and kitchen waste undergo decomposition process and are turned into nutrient rich food for plants. This can be used in agricultural fields as fertilizer.

Artificial or natural substance containing chemicals that improve growth and fertility productivity are known as fertilizers. Fertilizers enhance the natural fertility of the soil. People are prepared to which type of fertilizers to use on their agricultural fields [3]. This is because of the different advantages and disadvantages of organic and synthetic fertilizers. Synthetic fertilizers and organic fertilizers have different impacts on crop productivity, soil health and minerals available to crops.

Organic fertilizers when used replenish the necessary nutrients to allow to meet the crop requirements. Ito [1] believes that organic compost has a number of shortcomings, like low nutrient quality, slow decomposition and different nutrient composition depending on its organic materials. This leads to the need of synthetic fertilizer.

However, excessive use of synthetic fertilizer will hamper soil quality and fertility. Research conducted by [2] showed that complete fertilizer application for a long time significantly decreased soil pH, exchangeable Ca, Mg, K as well as Cation Exchange Capacity (CEC). The purpose of this research is to explore the feasibility of supplementing synthetic fertilizer with urban waste compost in view of the fact that it would improve soil quality & to achieve sustainability in waste disposal.

A. Disposal options of Municipal solid waste

The waste disposal has been a matter of concern for several decades, the main problem has been due to growth in population and industrialization, the two major factors that contribute to waste generation. Despite the fact that some advancements has been made in waste disposal methods, they are still not sufficient. The challenge is to develop an optimal method of waste disposal and put the method to use.

The commonly practiced solid waste disposal options in India are: a) Open pits b) Landfills c) Incineration d) Bio-remediation and e) composting. Disposal of solid waste on open pits and landfills leads to generation of leachate. This leads to contamination of both soil and ground water. Further, harmful emissions are also released from these dumping sites. Incineration greatly reduces the volume of waste but it leads to emission of harmful gases in the atmosphere.

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Data Analysis of Village Sangawade (An Approach to Town Planning)

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Abstract: Village development planning is a technical and methodological process concerned with the controlled land use planning and design of the several environment including utilities and transportation network to guide and ensure the orderly development of settlement and communities. It concerns itself with research and analysis, strategic planning, urban design, public consultation, policy recommendations, implementation and management. These project is associated with collection of data like water samples, soil samples and detailed road surveys along with an analysis and design of the same. These will helps in future planning and designing of study area within improved quality of work and other benefits comes with environmental and social benefits.

Keywords: Development, Environment, Planning

I. INTRODUCTION

Village development is an art of shaping and guiding the physical growth of the village creating building and living environment to meet the various needs such as social, cultural, economic and recreational and providing healthy conditions for human to live, to work, bringing about the socio economic well-being for the majority of mankind. throughout human civilization settlements were built according to geographical location, water and land resources, trade or other reasons that were beneficial for human habitation. these settlements developed through rural into towns and cities of which some achieved historical meaning. the development of new settlements still continues, although today, there are different reasons for their existence such as the supply of housing needs.

The stress on rural development is also due to many constraints facing the rural areas, which generally suffer from inadequate infrastructure facilities and technological advancements, the rural areas are not well placed in terms of even minimum required needs like safe drinking water, primary health and road transport facilities. Apart, the rural population suffers from indigence, ignorance and illiteracy. their traditional outlook towards development has been preventing them from taking full advantage of the incentives offered by the government. also, the ownership of land and other assets has been heavily concentrated in hands of a few. It is precisely for this reason that the benefits of rural development programs failed to reach the rural population targeted for above benefits to the extent expected. to overcome this types of critical issues the samples are collected at various selected points and some test and experiments are conducted related to soil, water, and road. this offers a critical review of key literature on the issues relating to planning and designing of transportation and communication facilities, zoning of area according to it and like rules, development like primary health centre, school, any sorts industries and other requirements too. need of rural development in india

Rural economy is an example of an agrarian economy although farming and agriculture are one of the most important primary activities, the problem lies in the fact that the share in gdp of agriculture sector is on a constant decline. at the same time, about two thirds of india's population depends on agriculture. as a result, the productivity is not up to the mark with conditions only getting worse. moreover, public investment (omitted since 1991 coupled with lack of adequate infrastructure, credit, transport, employment and other health issues, henceforth the agricultural output has grown at only 1.2% during 2007-2011. all these factors have been denting the process of development. therefore there is a need to focus on rural development and not just urban development.

A. Scope for Improvement

The primary area to improve should be providing utilities, transportation and communication facilities, employment in rural areas and improving the productivity of agricultural sector. Often villages in our country are not in sync with the urban areas because of bad connectivity. Eventually, this leads to segregation and a social divide between urban and rural areas. In essence, the infrastructure of rural areas should drastically improve. Even after so many years of independence, these stigmas still have a grip on rural people.

Quality education can help in achieving the goal of eradication of such social evils. The dwindling literacy rates in rural India, especially the females, are a major matter of concern. There is a need for land and technical reforms. Modern technologies like

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Feasibility Study to Sangawade Village Development

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Abstract: What is feasibility study? As the name implies a feasibility study is used to determine the viability of an idea such as ensuring a project is legally and technically feasible. The study is to be done to determine the feasibility of developing village by checking the parameters such as road survey, water test, soil test, census data collection, etc. The goal feasibility checking is to determine whether the project should go ahead, be redesigned or else abandoned altogether. The feasibility study concluded that the project will be able to be implemented to success as it was carefully planned. Generally, such studies provide valuable development and project implementation.

Keywords: feasibility, planning, implemented, parameters, viability.

I. INTRODUCTION

Single approach to rural development would not be effective. In fact, rural development is the product of interaction between various physical, technological, economic, social-cultural, institutional and environmental factors. Indeed, the rural sector should experience the required changes so that it can join the mainstream of national development and contribute its share for economic development. It has been rightly said, "To the end, however, rural development should not be seen as a package of specific needs but as a transformation of rural life and conditions."

Rural development has been receiving increasing attention of the governments across the world. In the Indian context rural development assumes special significance for two important reasons. First about two thirds of the population still lives in villages and there cannot be any progress so long as rural areas remain backward. Second, the backwardness of the rural sector would be a major impediment to the overall progress of the economy.

Feasibility of the project can be explained by considering following terms:

1) *Technical Feasibility*: this kind of assessment focuses on the technical resources available for the project. It helps engineers to determine whether the project is technically feasible or not. After implementing all the technical skills, one can be able to decide the feasibility of the project.
2) *Economic Feasibility*: This assessment typically gives us the cost/benefit analysis of the project and automatically it helps us to determine the viability, cost and benefits associated with project before financial resources are allocated.
3) *Legal Feasibility*: This assessment investigates whether any aspect of the proposed project conflicts with legal requirements like zoning laws, data protection acts, or social media laws. Let's say an organization wants to construct a new office building in a specific location. A feasibility study might reveal the organization's ideal location isn't zoned for this type of business. That organization has just saved considerable time and effort by learning that their project was not feasible right from the beginning.
4) *Operational Feasibility*: This assessment involves undertaking a study to analyze and determine whether—and how well—the organization's needs can be met by completing the project. This assessment is the most important for project success; after all, PROJECTS will fail if not completed on time. Procedure for Paper Submission.

II. LITRATURE REVIEW

Review of literature is an important aspect of research work as it helps in understanding specific problems and in drawing some hypothesis. Keeping in this view, literature connected with the problem in hand has been reviewed pertaining to from various sources, viz., journal books, journals, dissertations, reports, research projects, surveys, etc. This part of the present chapter takes into consideration the conclusions and views of various scholars regarding the overall performance of Integrated Rural Development Programme (IRDP) and causes of its success or otherwise, and various drawbacks associated with the programme.

Kulkarni et al (1989) carried out a study in Bijapur district of Karnataka. They find that different socio-economic factor affect the success of failure of different schemes of IRDP. According to them the success of IRDP mainly depends upon the level of education.

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Face Recognition Attendance System

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Abstract: Biometrics which can be used for identification of individuals based on their physical or behavioral characteristics has gained importance in today's society where information security is essential.
Face geometry based identification systems utilize the geometric features of the face like length and width of the face. The proposed system is a verification system which utilizes these face geometry features for user authentication. This project introduces an inexpensive, powerful and easy to use hand geometry based biometric person authentication system. One of the novelties of this work comprises on the introduction of face geometry's related, pruning independent, feature extraction and identification which can be useful in problems related to image processing.

I. INTRODUCTION

- Biometrics authentication is the ideal solution to the security requirements. Not only it is much more user friendly than remembering a number of passwords or carrying around a card, but it is something that cannot be stolen or cracked. The biometric authentication systems use human traits which are unique to the individual and neither be stolen nor duplicated. Biometrics authentication is truly the future of personal identification.
- face geometry based biometry systems exploit features on the human head to perform identity verification. Due to limited discriminatory power of the face geometry features, these systems are rarely employed for applications that require performing identity recognition from a large scale database. Nevertheless, these systems have gained immense popularity and public acceptance as evident from their extensive deployment for applications in access control, attendance tracking and several other verification tasks.
- 1.Significant discriminatory information(Combination of 2-D and 3-D features)
- 2.Contactless Hygienic method
- 3.Improved Performance
- 4.Difficult to forge or counterfeit
- It has Significant discriminatory information means It is Combination of 2-D and 3-D features. This is Contract less Hygienic method, face geometry has had lesser attention paid to it really because most of the difficulties associated with shape definitions and modeling.It doesn't require physical presence like existing system.

Our system uniquely.

Behavioural :
It helps in determining if the system requires special effort to educate, retrain, transfer, motivate or compensate employee's job status or new ways of conducting business.

Operational :
1. It determines whether the system is operating effectively once it is developed and implemented.
2. It ensures that the management should support the proposed system and its working feasible in the current organizational environment.
3. It analyzes whether the users will be affected and they accept the modified or new business methods that affect the possible system benefits.

Table:

BITS/PIXEL	POSSIBLE COLORS
1	2
2	4
3	8
4	16
8	256
16	65,000

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Recipe Detection of Image Using Deep Learning

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Abstract – Food is necessary for human existence, and people are always trying out new, tasty dishes. People frequently select food products from grocery stores that they don't even know the names of or that they don't immediately recognize. It's crucial to understand which elements may be combined to create different cuisine recipes. For a beginner chef, picking the proper recipe from a list of items is really challenging. Even for specialists, it may be a challenge. Machine learning is constantly being used in our daily lives. One such instance is object recognition using image processing. Even though there are many different food items involved in this procedure, traditional methods will result in a higher risk of error, ingredients. Deep learning and machine learning techniques can be used to overcome these issues. In this research, we constructed a model for identifying food ingredients and created an algorithm for recipe recommendation based on identified ingredients. We created a unique dataset with 9856 photos divided into 32 types of food items. We used a Convolution Neural Network (CNN) model to recognize food items, and machine learning to generate recipes. We had a 94% accuracy rate, which is extremely helpful.

Keywords: Deep Learning, CNN, Indian Food, Picture recognition, MAX-pooling, Convolution layer, Convolution Layer, Convolutional Neural Networks.

1. Problem Statement

The server will house the Indian Food Classification application. As a consequence, a user or visitor can utilize image processing to look for recipes in the application. A user or visitor can use image processing to look for recipes in the application.

2. Introduction

People nowadays are more careful of their food and nutrition in order to avoid either approaching or present ailments. Because people rely on smart technology, the availability of an application that automatically monitors an individual's nutrition is beneficial in a variety of ways. It raises people's awareness of their eating habits and diet. Throughout the last two decades, research has concentrated on automatically recognizing food and nutritional information learning algorithms. It is critical to accurately estimate food's calorie content in order to analyze dietary consumption. The majority of individuals overeat and don't exercise enough. Today's busy and stressed-out society makes it simple to neglect to maintain track of their food intake. This simply highlights how crucial it is to correctly track calories.

Lately, the number of intelligent applications for smartphones, including Android and iPhone models, has greatly expanded. They have the power to balance consumers' eating actions and alert them to harmful meals. Smartphones' processing capability has risen as a result of developments in the many technologies that are employed in them. They have the computational ability to analyze real-time multi-media data, but standard mobile devices cannot. As a result, photos are sent to high-processing servers, increasing transmission costs and delays. Given that modern cellphones can also handle high-quality photographs, the development of real-time apps that take photos and locally train machine learning models is the main goal of research on identifying foods. To prevent illnesses like diabetes, high blood pressure, and other issues, prevention is key.

Self-reporting and manually recorded equipment are used in several of the current dietary evaluation techniques. The problem with these methods of evaluation is that participants often underestimate and underreport their food intake, which leads to bias in the participant's judgement of their calorie intake. Improvements to the existing techniques are needed in order to boost accuracy and lower bias. A mobile cloud computing system, which utilizes tools like cellphones to collect nutritional and calorie data, is one such potential option. The next stage is to automatically analyze the calorie and diet data using cloud computing power for an impartial evaluation. Users must still manually enter the data, though. Many attempts have been undertaken in the last several years to conduct research and create visual-based dietary and calorie information analysis. The effective extraction of information from food photographs, however, is still a difficult problem.

Convolutional neural networks have been used in this article to attempt to categorize food photos for further diet monitoring applications (CNNs). The CNNs have been used for the purpose of classifying foods since they can handle enormous amounts of data and can estimate the attributes

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Integrated ERP & E-Commerce for Medicines

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ABSTRACT

In Medicals and chemist is very essential and most required thing in the world so here is the need to reach to every user to Medical solution for all. The idea required to the main purpose of this integrated system is to keep the owner medicals record as well as to notify about the need and expiry date. It is an simple and so that the system should act as a online warehouse which will be reliable as well. So that every store could refill their stock and would get notify by the expire date for each medicine. An integrated ERP we get details of medicines from medical store owners and stock details using the medicine batch number. Using this batch number of medicine check for its expire.

KEYWORDS: ERP, e-commerce security, distributed algorithm, random forest, commodity trading, Batch no

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I. INTRODUCTION

An ERP system integrated with e-commerce is attempt to provide all function across a single company. With these system all these functions "specific needs" integration is the key word for ERP & E-commerce. Issues gathered while communicating with the medical store owner:

1. Maintains of stock information.
2. It lasting expire inventory.
3. It couldn't recognize whether the stock is finished or not. According to analysis we understand the issue faced by medical store owners now we providing them and ERP system. It Collecting the information from medical Store owner's using our ERP system and store all the information in a database we providing them the stock information. Get the detail information from owner of medical store and store it into the database. Using search method we find about the expiry details of the age inventory. Recognize the details of product which have to get referral and send a message to the owner. Distributed database is the term we are using to integrate the databases which we will get from different ERP systems. In particular areas multiple medical stores are present about services system we are providing for a single medical store and if we consider a particular area there are multiple medical stores then the database will be in the distributed format. Now we have separate the database of each medical store and we are going to integrate the data to obtain the medical inventory properly.

II. LITERATURE SURVEY

In e-commerce, the security involves two areas: hard security and soft security. Hard security includes cryptography, information hiding, while soft security is associated with the methods which are based on trust. Integrated means combining more than two data items and working on them at the same time to implement this we are going to implement one ERP system and one E-Commerce application so it will get the information through ERP and process those data here through e-commerce.

Following are the papers we have surveyed to get the detailed information of ERP system and e-commerce application.

1. Proposing a Distributed Algorithm to Finding Malevolent Bubbles and Improving Security in E-Commerce Environments.
2. Developing an E-Commerce Website.
3. A Rule Oriented Requirements Analysis for ERP Implementation in Medical Service Organizations.
4. An Ad Hoc-based ERP for Medical Treatment Provision in Crisis Conditions.

Enterprise resource planning is the integrated management of main business processes, often in real time and mediated by software and technology. ERP system is easy to design and easy to maintain the data. E-Commerce is a business strategy that aimed to sell anything on internet, and e-commerce is hard to design but easy to collaborate or to integrate with the data created by ERP system.

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Survey paper on AI chatbot on intelligent nutritionist

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Abstract - *People rush around the world is getting increasingly concerned with their health and way of life in modern's ultramodern terrain of the moment. Still, simply avoiding junk food and exercising isn't enough, not sufficient, we need a well-balanced diet. We can live a healthy life with a balanced diet grounded on our height, weight, and age. Your diet can help you achieve and maintain a healthy weight, lower your chance of developing chronic conditions(including cancer and heart complaints) and ameliorate your general health when combined with physical exertion. For this there is a need for a smart AI chatbot that can be a personal chatbot for suggesting diet and exercise and calculating BMI.*

Key Words: Chatbot, Smart nutritionist, BMI Calculator, Bot, Machine Learning.

1. INTRODUCTION

The thing of food recommendation is to give consumers a list of ranked food products that will satisfy their unique salutary requirements.

Then, the term " food" has a broader meaning and refers to all food- related products, including collections, kitchens, coffee shops, and dining establishments. Exploration on nutrition, food wisdom, psychology, biology, anthropology, sociology, and other natural and social disciplines is frequently multidisciplinary in nature.

There are primarily three factors that make food recommendations different from other features of recommendations. Food recommendations bear a variety of environment and subjects matter inputs. Rich stoner environment(similar as heart rate and number of way taken) and external environmental environment(similar as physical exertion applicable and health applicable environment) collected from colorful detectors describe druggies' factual physical conditions and their surroundings, and as a result, give useful information for precise matching between stoner demand and food particulars.

For instance, a food recommendation after exercise that user oneness is likely to suggest to one person foods high in protein and water. Additionally, eating advice is crucial for good health. Therefore, for colorful optimization and computing the food recommender system should also include medical information, nutritional knowledge, and other pertinent domain knowledge. (2) The most notable distinction from the user's perspective is that dietary recommendations are highly relevant to users' health. As a result, the ideal meal recommendation system should self-adaptively create a trade-off between individual dietary preferences or interests and nutritional needs.

Integration of context and knowledge:

The ability to filter out unrelated recommendations can be aided by basic context information (like time and location). Compared Food recommendations involve more complex, varied, and even dynamic factors than other types of recommendations do. Rich user context and external environmental context information provide crucial information for an exact match between user requirements and food items of interest by describing users' actual physical conditions and their surroundings. Numerous wearable electronic devices and ambient sensors have been developed over the past few years. By connecting users to nearby machines, they can instantly monitor changes in the environment and conditions of people's bodies everywhere.

2. Related Work

Many medical Chatbot prototypes have been released in recent years with the intention of guiding the user with medical advice after extracting the illness details from user messages. This research describes a system and approach for virtual discussion that can help adolescents deal with their psychological stress. With the help of this chatbot, users will be able to ask inquiries like they would to a real person. Natural Language Processing ("NLP") is the technology at the heart of the proposed chatbot. [1]

This essay offers an analysis of the types of many recommender systems recommendations that focus mostly on divided into three groups: cooperative content-based filtering, filtering, and hybrid filtering. This essay also covers benefits and drawbacks of recommendation techniques. Each technique has advantages and disadvantages that are relevant to the field.

This article suggests a method for developing a chat application with knowledge that forbids users from sending improper or unsuitable messages to other users by implementing natural language processing at the lowest level possible (NLP). [3]

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Survey Paper on Stock Prediction Using Machine Learning Algorithms

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Abstract - *Stock Market Prediction is a challenging and trending topic for researchers in recent years. Although it contains significant risk, it is frequently utilized in investment schemes that promise big returns. The returns on stocks are quite erratic. They are influenced by a number of variables, including prior stock prices, current market trends, financial news, social media, etc. There are many methods used to forecast stock value, including technical analysis, fundamental analysis, time series analysis, and statistical analysis, however none of these methods has been demonstrated to be a reliable forecasting method. In order to improve the accuracy of stock price prediction, a variety of machine learning approaches and algorithms are examined in this study.*

Key Words: CNN, ARIMA, LSTM, Stock price, Machine learning.

1.INTRODUCTION

The stock market has a significant impact on a country's economic performance. Its prediction has been very tiresome and troublesome since markets' existence and one of the most significant problems faced by many stockholders is predicting its price. It is an area where prediction does not follow any rules as the nature of the market is very volatile. Due to its volatile nature and high risk, there is a high return on investments, but 95% of the traders make losses in the stock market because they try to gamble by randomly speculating the price or movement and lack a proper trading setup. The share market is based on the concept of demand and supply. If the demand for a particular company's stock is higher and the supply is low, then that company's share price would tend to increase and if the demand for company's share is low then the company share value tends to decrease. The successful predictions of a stock's price by its analysts could lead to a significant profit. This reinforces the idea that time series patterns have great predictive potential and a high likelihood of producing lucrative trades and high returns for investment in company by using extraordinarily large historical data sets to show different conditions. The primary goal of this research is to improve stock price prediction systems so that investments grow, and investors can optimize their earnings. PREDICTION METHODS: 1. By attempting to calculate a security's intrinsic value, fundamental analysis estimates securities. It is a technique for figuring out the true or "fair market" value of a stock. The stock is seen as being underestimated and a buy recommendation is issued if the fair market value is higher than the current market price. 2. Technical analysis seeks to anticipate price fluctuations in the future, giving retailers the information they need to turn a profit. Charts are used by traders to identify entry and exit points for potential trades using technical analysis tools.

2. Related Work

The artificial neural network work that has been proposed by K. Sridhar, M. Sreemathi, P. Chaitanya [1] is a very well-liked method for support vector machines and stock market price prediction. List the benefits and drawbacks of each model and contrast how the stock market is executed using these models. On machine learning tasks like categorization and prediction, artificial neural networks (ANN) look to have a lot of potential, using a nonlinear mapping technique in which the input vector is fed into a high-dimensional feature space to execute nonlinear class partitions using a linear model. Time series data are handled by the ARIMA model. The prediction of Nifty bank data is done in this paper using machine learning techniques like Support Vector Machine, Artificial Neural Network, and Auto Regressive Integrated Moving Average. Here, the 2015 Nifty bank dataset is used. Chetna Uteja, Indu Kumar, Kiran Dogra, Premlata Yadav [2] proposed to get over these stock issues, by machine learning approaches that have been used for stock price prediction. Five models have been built and their performance in predicting stock market trends is compared in this research. Support Vector Machine (SVM), Random Forest, K-Nearest Neighbor (KNN), Naïve Bayes, and SoftMax are the five supervised learning methods. The findings of the probing indicate that the Naive Bayesian Classifier performs better for smaller datasets and the Random Forest algorithm performs best for larger datasets. Kasoju Nayan Reddy Challa, Venkata Sasank Pagolu, Ganapati Panda [3] proposed the project to investigate the relationship between public opinions expressed on Twitter and changes in a company's stock price, including climbs and declines. In this research, they analyse the relationship between stock market movements of a firm and attitudes on twitter by using sentiment analysis and supervised machine learning methods on tweets extracted from twitter. Wassim El-hajj, Mariam Moukalled, Mohamad Jaber [4] proposed to increase stock expectation precision and enable profitable

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Recommendation by Service Rating Using GPS for Mobile Users

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ABSTRACT

Social media is for scoring system currently a day's. Users update share or tag photos throughout their visits. The geographical knowledge set by smart phone bridges the gap between physical and digital worlds. Location knowledge functions as a results of the affiliation between user's physical behaviors and virtual social net works structured by the smart phone or internet services user offers ratings thereto place and this place becomes popular the assistance of rating prediction and user is employed social media for rating. Currently a day's social media becomes fashionable. We tend to sit down with these social networks involving geographical data as location-based social networks (LBSNs). Such data brings opportunities and challenges for recommender systems to unravel the cold begin, meagerness downside of datasets and rating prediction. During this paper, we tend to alter use of the mobile users' location sensitive characteristics to hold out rating postulation. The connection between user's ratings and user-item geographical location distances, known as user-item geographical affiliation, the connection between users' rating variations and user-user geographical location distances, known as user-user geographical affiliation. Paper, we've got to change use of the mobile users' location sensitive characteristics to hold out rating postulation.

Keywords: Geographical location, Rating prediction, Recommender system, Location-based social network

I INTRODUCTION

With the fast development of mobile devices and omnipresent net access, social network services, like Facebook, Twitter become prevailing. in step with statistics, good phone users have created knowledge volume 10 times of a customary telephone. In 2015, there have been one.9 billion good phone users within the world, and half them had accessed to social network services. Through mobile device or on-line location primarily based social networks (LBSNs), we will share our geographical position data or check-ins. This service has attracted innumerable users. It additionally permits users to share their experiences, like reviews, ratings, photos, check-ins and moods in LBSNs with their friends. Such data brings opportunities and challenges for recommender systems. Especially, the geographical location data bridges the gap between the important world and on-line social network services. the primary generation of recommender systems with ancient cooperative filtering algorithms is facing nice challenges of cold begin for users (new users within the recommender system with very little historical records) and therefore the sparseness of datasets. If the geographical location issue is unheeded, once we search the web for a Travel, advocatee systems could recommend U.S.A. a brand new scenic spot while no considering whether or not there area unit native friend to assist U.S.A., however if recommender system contemplate geographical location issue, the recommendations could also be a lot of humanized and [illegible]

II LITERATURE SURVEY

Paper 1: Toward the next generation o recommender systems: a survey of the state-of-the art and possible extensions

Description: Author presents an overview of the world of recommender systems and describes this generation of recommendation methods that are generally classified into the following three main categories content-based, cooperative, and hybrid.

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Stability and steady state analysis of control and safety systems of Nuclear Power Plants

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ABSTRACT

Control Systems are the first layer of safety in Nuclear Power Plants, the failure of which makes Safety Systems. The failure of safety systems can lead to radiation exposure to the public. Therefore, it is essential to ensure the stability of such systems. This paper proposes an effective methodology for stability and steady state analysis of control and safety systems of Nuclear Power Plants. The methodology includes Petri net modeling and analysis of its dynamic behavior. Despite of its simplicity, it is very accurate. The application of the proposed techniques is shown and validated on a reactor protection system, which is under operation in an Nuclear Power Plant.

1. Introduction

Safety-critical and control systems permeate our everyday lives (Lalit, 2014). Such systems are nervous systems of NPP and hence they must undergo for stability analysis. Important attributes of dependability, before commissioning phase. In general, these systems are real time in nature.

Researchers and practitioners are putting their tireless efforts to ensure and measure the dependability of such systems (Kamal et al., 2017; Kumar et al., 2019). These systems are composed of heterogeneous hardware, software and firmware components. Failure of one component may fail to perform the system function and hence effects of component failure on the overall system needs to be analyzed. Some dependability [illegible] Dependability includes several critical attributes of the system such as reliability, safety, security, performability, stability, availability, etc. Researchers attempted to propose effective methods to deal with each of these attributes. Methods based on Software Reliability Growth Models & state based methods (Kumar and Singh, 2018; Singh and Tripathi, 2015) are used to deal with software reliability; Reliability Block Diagrams, Reliability Graphs, Fault Trees & stochastic models (Singh and Virani, 2019) are used to deal with system reliability. Fault Trees, Event trees & stochastic models (Singh and Rajput, 2015a,b; Singh et al., 2015) are used to deal with system safety. State Feedback mechanism (6), Benhouari and Pritchard, 1992, 1993) and Linear Matrix Inequality (LMI)-based methods (Chilali, 1996) are used to deal with system stability.

Due to uncertainty associated in such systems, the problem of stability and steady state analysis poses several challenges and hence has a rich long history of literature. From the literature survey, some researchers deal with the worst bounds (Dullerud and Paganini, 1999; Skogestad and Postlethwaite, 2007) on uncertainty and rest of them deal with stochastic random variable [illegible] et al., 2007). Conservatively, the stochastic uncertainty [illegible]

[illegible] (Schmidt et al., 2007). Such systems which have uncertainty in time delay in input/output communication channel can be modelled as a system with multiplicative uncertainty. Several issues and challenges for stability of such systems are addressed by many researchers (Elia and Eisenbeis, 2011; Gupta et al., 2007). Some researchers have extended their work on stability for nonlinear systems (Diwadkar and Vaidya, 2013; Vaidya and Elia, 2010). A lot of work is done on stability analysis of the systems with nonlinear dynamics with multiplicative stochastic uncertainty (Deng et al., 2001; Diwadkar et al., 2015).

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IDENTIFICATION AND RECOGNITION OF LEAF DISEASE USING ENHANCED SEGMENTATION TECHNIQUES

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Abstract

Segmenting refers to the technique of breaking up an image into its component parts one by one. When it comes to the process of segmenting photos, there is a plethora of choices available at current point in time. These options range from the easy thresholding approach to the complicated color image segmentation techniques. The bulk of the time, the parts that go into making up these sub-assemblies are items that individuals are able to easily identify and categorize as being distinct from one another. As a result of the limitation of computer lack of intelligence to differentiate between distinct items, a wide variety of techniques have been devised and utilized in the process of segmenting photographs. In order to complete its tasks, the image segmentation algorithm requires a wide range of image characteristics to be provided as inputs. This could be referring to the colors that are contained within an image, the borders that are included within the image, or a particular region that is contained within the image. In order to break down color images into their component elements, we make use of an algorithm that is inspired by natural selection. The research uses enhanced segmentation techniques to identify and recognize the leaf disease on plants. The study conducts extensive simulation to test the efficacy of the model. The results show that the proposed method achieves higher segmentation accuracy than other methods.

Keywords:
Identification, Recognition, Leaf Disease, Segmentation

1. INTRODUCTION

In many parts of the world, agricultural land is put to use for a wide range of activities in addition to the production of food. Agriculture has a significant role in India entire economy and is hence of great significance. As a direct result of this, the process of identifying diseases that affect plants is of the utmost significance to the agricultural sector. Utilizing a strategy that is based on automatic disease detection is advantageous when it comes to recognizing plant diseases in the early phases in which they manifest. For instance, in the United States, pine trees are subject to the small leaf disease, which is caused by a fungus that has the ability to do significant damage and is named after the sickness. The tree does not survive for more than six years after it was planted since it is unable to reach its full potential. The states of Alabama and Georgia, which are located in the southeastern part of the United States, are beginning to experience the consequences of it. In accordance with to this text, the detection of the issue sooner may have led to the good outcomes being achieved [1].

The well-trained eyes of specialists who carry out visual inspections are currently the only approach that is used to diagnose and identify plant illnesses. This method is fully dependent on the fact that it is the only way that is currently employed. Because it requires the usage of a large number of professionals and the continual inspection of the plant, controlling this will cost large farms a considerable. This is because it necessitates for the goal to be accomplished. In the meanwhile, farmers in some countries will have access to the necessary resources or knowledge about where they can acquire assistance from trained professionals. This may prevent them from receiving the assistance they require. Receiving professional counseling requires an excessive amount of effort as well as a significant amount of both time and money. This is a direct result of the problem. The technique that was developed for identifying a large swath of agricultural land functions poorly and is not employed in this situation. Simply paying attention to the signs that appear themselves on a plant leaves us all that is required in order to successfully diagnose a disease. This could be due to a reduction in the amount of work that is required as well as the expenditures that are linked with it. Machine vision, which is used not only for quality control, inspection, and object guidance based on pictures [2], is also added by this which is helpful. Machine vision is utilized for automatic process control, inspection, and robot guidance.

The process of visually diagnosing leaf diseases is not only labor-intensive, but it can also only be carried out in situations that are relatively optimized. On the other hand, a detection method that is automated would save a lot of the amount of time that is often required while also requiring less work. Fungi, viruses, and bacteria can all cause many different types of diseases in plants, many of which are fatal. A few examples of these flaws are early and late blooming, brown and yellow patches, and others. Image processing enables the assessment of color differences between healthy and sick areas [3], as well as the estimation of the total area that has been affected by the disease [4]. Image processing also enables the measurement of the total area that has been damaged by the disease.

2. RELATED WORKS

The author [5] carry out an in-depth analysis of the SVMs with different classification methods for plant leaf diseases. It is safe to say that the k-nearest neighbor algorithm is the most accurate and the easiest to understand of all based on the various data that was provided for testing. This conclusion is based on the fact that the k-nearest neighbor approach should be the best results when it was put through its paces. Employing support vector parameters [6]. On SVM can be difficult if the training data are not linearly separable. This is considered to be one of the SVM approach's weaknesses. It is considered to be one of the SVM approach's weaknesses.

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State of the Art Challenges and Technique for 5G and 6G using Software Defined network

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Abstract— The current age is progressing in terms of technology, new technologies are launching at a very rapid pace. A drastic shift in technology has been seen from 1G to 2G, 2G to 3G, and 3G to 4G, right now the shift is going from 4G to 5G, and soon it will go from 5G to 6G. Future will showcase new technologies coming in to picture with good optimized features and performances. The paper elaborates on the security challenges and techniques of open technologies like Software Defined Mobile Networks (SDMN) and Software Defined Networks (SDN). Experimentation was carried out with the security solution on two standard datasets KDD and NSL KDD datasets using our intelligent security mechanism. All the features present in the datasets are discussed in detail with all types of attacks for future directions. The security results showcased that new technologies like 5G or 6G will provide security using the mentioned security technique in the future too.

Keywords—Software Defined network, Security, 5G, 6G

I. INTRODUCTION

In this paper the SDN technology provides the 5G and 6G related infrastructure at a very low cost. So this motivated us to provide the paper that gives insights into the 5G and 6G technologies at low cost. But the security of the solutions is also very important, so the authors have proposed the mechanism for the same in this paper. The proposed mechanism is a free and open-source solution that will reduce the cost drastically. Section 1 will give an introduction to the evolution of SDN and SDMN technology. Section 2 will provide the literature review on security challenges and solutions. Section 3 will discuss two standardized datasets which were used for experimentation. Section 4 will elaborate on an intelligent security mechanism that provides security to SDN for 5G and 6G. Section 5 will provide insights into the experimentation carried out and result analysis for the same. Xia et al. [1]. In the early history of the programmable network in the mid-1990s, the two most significant early ideas were OpenSig (Open signaling) and active networking. In 1995 Open Sig was based on ATM networks. During that time, two frameworks were most popular in it namely the tempest framework and Distributed Control of ATM Network (DCAN). In Tempest Framework, it is a [illegible] and multiple switch controllers are used for the simultaneous and autonomous management of multiple partitions. It also helps in running multiple control architectures. In DCAN, the management and the control function of the ATM network switches should be assigned to an external dedicated workstation and should be decoupled from the devices. In mid-1990 Active networking was used and where general architecture of an Active network consisted of three layers stacked on Active nodes. Firstly, the operating system (Node OS) in [illegible] node is used for communication and is present in the bottom layer. Secondly, the middle layer consists of [illegible]. Thirdly, the packet flow monitoring the node is present in the top layer consisting of computational resources. Apart from it two models namely the Capsule model and the programmable switch / router model were also present. The code is present inside the regular data packets in the Capsule model. The code is present inside the network node in the programmable router/switch model. The shortcoming of the approaches was performance issues, security issues and a lack of clear distinction between data and control plane. SDN provided some solutions to overcome these shortcomings. Firstly, centralization of control: physical centralized controller NOX, Maestro, etc. The drawback was the failure of a single point for the whole control. Secondly, physically decentralized control plane but logically centralized, Onix, HyperFlow, etc. The drawback was controller components help in maintaining the consistency of the network state. Thirdly, Hybrid solution, Kandoo, the advantages were scalability and consistency. SDN [illegible] controller, [illegible] [illegible] the same forwarding plane is shared by multiple controllers. OpenFlow consists of two [illegible] components. Flow tables are for packet forwarding of the [illegible] and switching information. OpenFlow client is API which is for communication between controllers and switches. There are three fields of the flow table generated by the OpenFlow protocol. Firstly, the Packet header, the flow is defined using it. Secondly, action, the packet processing is taken care of by the action field. Thirdly, statistics helps in keeping the track of different types of statistical information like total no of packets, bytes, data and information transferred from one source to another destination within the SDN. Network virtualization, another important solution provided was network virtualization. It helps in the separation between network topology and the underlying physical hardware. SDN and network virtualization are both separate entities. Network Function Virtualization (NFV), with the help of network virtualization, a new concept was introduced by the same which helps in optimizing the results of various problems. It helps in providing all the traditional device-specific features on the virtual platform using Virtualized Network Functions (VNF) such as Network Address Translation (NAT), caching, Domain Name Service (DNS) and intrusion detection. Below are the advantages of NFV, reducing Operational expenditure cost (OPEX), reducing deployment expenditure cost (CAPEX), No need for expensive proprietary hardware solutions. NFV and SDN are complementary to each other and do not depend on each other. The advantages of both NFV and SDN can benefit each other. Multiple researchers have tried to combine both technologies to provide various types of solutions. The following are the major contributions of this paper • An introduction to the evolution of SDN and SDMN technology.
• The literature review for security challenges and solutions

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Identify the new medicine target to anticipate repositioning targets using bioinformatics

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ABSTRACT

In healthcare and the pharmaceutical sector, bioinformatics techniques should be increasingly important to inform the clinical research. The major factors in the clinical development process are resolved through statistical manipulation of the increasing amounts of data collected during the production stages. We should review some of the areas where bioinformatics tools and methodologies have been developed to facilitate the process of medical development. Mostly data warehouses, bioinformatics methods to obtain [illegible] data that produce potential treatment goals for diagnostics, programmes to evaluate effective comorbidities, and forecast of repurposing possibilities that [illegible] medications to treat multiple conditions.

Keywords: Bioinformatics, Medicine, Anticipate Repositioning Targets, Drug development process

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INTRODUCTION

The goal of delivering improved pharmaceuticals to suffer in a timely fashion would be to reduce the expenses and period required of the many processes in the clinical research pipeline. Enhancing the knowledge obtained through fundamental research [1] was a technique that has the power to enhance the productivity of the medicine development process. Transformational medicine detection is the process of effectively translating discoveries in basic biology but also chemical research development of novel medications and treatment managements to sufferers [2]. Transformational techniques have the added benefit of allowing new medicines and education knowledge to reach the patient subpopulations they were designed, informing improved clinical testing structure, and assisting in the reduction of treatment's often adverse side impacts [3]. Various techniques are used to examine malignant, genetic and contagious disorders to aliment bioinformatics techniques of transformative medicinal development depending on the requirements of ailment investigation. Malignant cells show a wide range of heredity and epigenetic alterations, and chromosome fragility.

A major operator of malignancy for each individual could be identified using bioinformatics techniques. As a result, they offer the ability to facilitate a more tailored approach to malignant treatment, paving the way for new and remanufactured medications that identify particular molecules, destroying or incapacitating the infected tissue.

The heredity variation influences danger of contracting a spectrum of ailments, and the response to different pharmacological therapies and the development of several infectious ailments [4-6]. When it comes to hereditary diseases, bioinformatics approaches are typically used to uncover potential heredity treatments and non-intrusive prediction and therapeutic methods. Bioinformatics could be used in the development of transformative medicines for infectious diseases. For example, the existence of a variety of infectious diseases causes specific heredity expression levels within the cell [7]. By correlating the patterns to disorders and hereditary characteristics, current medications could be repositioned.

Human genome was first mapped; greater throughput genomic, proteomic, and metabolomic systems have become more capable of evaluating massive datasets across a wide range of disorders. To detect anomalous patterns that correspond with the illness phase, information science, computer [illegible]

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Research Article

Some Enhancements in the Choice of Functionalities for Data Mining and their Application in Opinion Mining

[illegible]

Abstract

[illegible]

Keywords: [illegible]

Introduction

Social media monitoring and analysis

[illegible]

Organization responsible: [illegible]

Information Exposure Via Social Media is Becoming ... Popular

[illegible]

Figure 1: [illegible]

A Smart Handling of Bio-Medical Waste and its Segregation with Intelligant Machine Learning Model

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Abstract—*The Bio-Medical waste management system organizes everyday medical waste disposal in hospitals. Daily medical waste from hospitals is delivered through it. A separate system is in place for treating medical supplies, including needles, plastic, glassware, medical clothes, expired medications, and human waste. Based on that, they use the Biomedical Waste Management Centre to accept everyday medical waste from their hospitals and appropriately dispose of it. No hospital should ever dispose of medical trash. It is illegal, and the hospital responsible must appropriately separate the medical waste and deliver it to the biomedical waste treatment facility. In this paper, an intelligent machine learning model was proposed in handling the different bio medical wastages and segregate it based on the medical rules. Medical waste disposed of in hospitals is safely transported and incinerated. The proposed model helpful the disposal of such medical waste, which is usually contagious, takes place.*

Keywords—*Medical Waste Disposal, Bio Medical, Waste Management System, Separate Handling.*

I. INTRODUCTION

Typically, they recycle glassware, plastic, and medical supplies like needles. The correct segregation and incineration of bio-medical waste involving the human body are necessary, but [1]. Infection might result from not doing this. Not only this but also have to dispose of medical equipment and expired medicines [2]. The amount of medical waste coming out of treatment hospitals and testing centre's also increasing day by day. They warn that if these are not handled properly, the chances of infection are high. Incinerators are very important for treatment of medical waste [3]. The Central Pollution Control Board has framed rules for the construction and operation of these incinerators [4]. The temperature should be between 1000 degrees to 1200 degrees. Air pollution control equipment should be installed and equipment to monitor toxic gases such as mercury, sulphur, HCL, nitrogen gas, methane gas etc. are very important conditions [5]. Biomedical waste is the trash produced when patients are being treated in hospitals. In hospitals, a minimum of 10 to 20 percent of biological waste is produced. About 1 kilogram per patient daily [6].

The dumping of medical waste in public bins, public places and water bodies causes the rapid spread of germs. There is a risk of respiratory problems and the spread of cancer by burning medical waste in the open air and inhaling polluted fumes [7]. Medical wastes generated by a growing number of diabetics and those receiving treatment from home in critical condition are likely to mix directly with other waste [8]. This is a very dangerous process. Birds and animals are mostly affected by medical waste. Eating polythene plastic found in the litter can cause suffocation in animals [9]. Adding sharp-edged medical waste to public garbage can increase the risk of injury and disease transmission to those involved in garbage disposal. Gases such as dioxin and furan affect not only humans but also animals and birds. Their reproduction is affected by heavy metal waste, which can lead to reduced immunity [10].

Dismantling after use of a single-use needle is necessary. Bloody and soiled items such as cotton wool and bandages should not be placed in public waste bins [11]. Separate and dispose of medical waste in black polythene bags. It is essential to take precautions to prevent youngsters from handling these waste materials [12]. It is better to avoid the use of expired medicines. Medical waste management is one of the biggest challenges facing mankind today. In addition to finding a solution to this problem scientifically, it is necessary for the general public to have awareness about it [13-14]. Each and every one of us has a role to play in implementing medical waste management so that we, our community and the environment are protected. Over 48 hours should not be spent storing untreated garbage in this space [15]. These should be positioned so they are not too close to combustible substances. A barbed wire fence should be installed [16-17]. Maintain guards and watch out for unauthorized visitors. It will stop unlicensed waste products from being sold again. Infectious trash is directly removed from the source using these carts [18]. It aids in moving garbage from the source of generation to the locations where it is collected. Take care to avoid immediately depositing rubbish there [19]. The [illegible] rubbish should be carefully bagged in polythene and transferred to these carts.

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DEEP LEARNING ALGORITHMS FOR DETECTION AND CLASSIFICATION OF CONGENITAL BRAIN ANOMALY

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Abstract

Congenital brain anomalies are structural abnormalities that occur during fetal development and can have a significant impact on an individual's neurological function. Detecting and classifying these anomalies accurately and efficiently is crucial for early diagnosis, intervention, and treatment planning. In recent years, recurrent neural networks (RNNs) have emerged as powerful tools for analyzing sequential and time-series data in various domains, including medical imaging. This research presents an overview of RNN-based algorithms for the detection and classification of congenital brain anomalies. Specifically, Long Short-Term Memory (LSTM) networks and Convolutional LSTM networks have demonstrated great potential in this domain. LSTMs excel at capturing long-range dependencies in sequential data and mitigating the vanishing gradient problem, making them well-suited for analyzing brain scans or other medical imaging sequences. Convolutional LSTM networks combine the strengths of convolutional neural networks (CNNs) and LSTMs, enabling them to extract spatial features from brain images while preserving temporal dependencies. The application of RNN algorithms in the detection and classification of congenital brain anomalies shows promising results, enabling accurate and timely identification of these abnormalities. However, further research is needed to validate and refine these algorithms, improve their interpretability, and enhance their clinical utility in real-world scenarios.

Keywords:

Deep Learning, Brain Anomalies, Automation, Diagnosis, MRI

1. INTRODUCTION

Deep Learning Algorithms are a powerful tool for detection and classification of Congenital Brain Anomaly. Congenital brain anomaly is an important issue to consider since it can cause physical abnormalities, intellectual disability, and epilepsy. It is a medical challenge for the healthcare field to diagnose this anomaly, as there is a lack of accurate imaging technologies available. Deep Learning Algorithms have enabled us to identify and classify difficult to visualize anomalies more precisely [1].

To detect and classify congenital brain anomalies with deep learning algorithms, a three-dimensional model of the brain is obtained from CT or MRI scans. The model is used as input to the deep learning algorithms to automatically detect abnormal features of the brain structure. The algorithms are trained using data of known anomalies, and they develop the ability to recognize them in the scans. This is done by creating a predictive model that can differentiate between normal findings and anomalies [2].

Based on this model, input images are classified as normal or not, and anomalies are specified for classification. Once the anomaly is identified and classified, follow-up procedures can be adopted for better diagnosis and treatment. Furthermore, deep learning algorithms can infer information about the prognosis and potential complications that may arise due to congenital brain anomalies. Thus deep learning algorithms offer the opportunity to identify, classify and predict the consequences of congenital brain anomalies with precision [3].

The deep learning algorithms provide a powerful tool to detect and classify congenital brain anomalies with extreme precision. This is especially important since current imaging technologies are not as effective, and the diagnosis and complications that come with the anomaly can be problematic in the long term. Deep learning algorithms offer an invaluable contribution to the healthcare field in this regard, making diagnosis and treatment easier and more efficient [4].

Deep learning algorithms have revolutionized medical diagnosis and treatment of many conditions, including congenital brain anomaly. In recent years, advances in the fields of artificial intelligence (AI) and computer vision have enabled the development of powerful algorithmic systems that are capable of deep learning and automatic pattern recognition. These systems are being used in a variety of contexts, such as medical imaging, for the detection and classification of congenital brain anomaly.

In medical imaging, deep learning algorithms enable automated segmentation of tissues for characterizing anatomical structure and detecting abnormalities [5]. Segmentation is the process of accurately delineating regions in the image by grouping image pixels that belong together. Due to its automated nature, deep learning-based segmentation is much more precise and time-saving than traditional manual segmentation methods. Furthermore, deep learning algorithms are well-suited for segmentation tasks due to their ability to learn complex feature relationships and extract high-level information from large databases of medical images [6].

By harnessing deep learning, researchers have been able to develop automated segmentation models that can detect abnormalities in brain MRI and CT scans used to diagnose congenital brain anomaly, such as agenesis of the corpus callosum, Chiari malformation, or Dandy-Walker malformation. On the classification side, deep learning algorithms are also being applied for the identification of both normal and abnormal image patterns in brain MRI and CT images [7]. By extracting and analyzing features from the scanned images, such as age, ethnicity, tissue type, and region location, deep learning algorithms are able to classify image pixels as either normal or abnormal.

In addition, researchers are using transfer learning strategies, whereby an algorithm has been pre-trained on a large set of images, and then "tuned" to recognize specific types of anomalies. This approach allows the algorithm to generalize the results to different kinds of images and quickly learn the features important for a particular medical image task [8].

The use of deep learning algorithms for detection and classification of congenital brain anomaly is showing great potential. The automated segmentation [9] and robust

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REVIEW PAPER

An empirical study of dermatoglyphics fingerprint pattern classification for human behavior analysis

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Abstract
Human motivates many things consciously or subconsciously by touching and sensing without any intractable challenges. However, measuring intangible features like human behavior is a challenging task. Human behavior analysis is an important computer vision technique with a lot of attention which includes human-computer interaction and analyzing image. It is essential not only for a wide range of applications but also to understand the emotional behavior of humans. This survey paper reviews various methods used for the analysis of human behavior by dermatoglyphics fingerprint pattern classification. This survey studies 50 research papers based on fingerprint pattern classification and presents techniques related overviews such as deep learning (DL)-based methods, convolutional neural network (CNN)-based DL methods, machine learning (ML)-based methods, Support vector machine (SVM)-based ML methods, and optimization methods. The overview of this survey comprised of classification of research methods, year of publication, evaluation metrics, employed datasets, and locations for human behavior analysis. The analysis demonstrates that accuracy is the most commonly used evaluation parameter in fingerprint classification which is used by 35 research papers. Finally, the research gap of analyzed methods is explained, which encourages researchers to develop new effective methods for human behavior analysis using fingerprint pattern classification.

Keywords Fingerprint pattern classification · Deep learning · Convolutional neural network · Fingerprint pattern · Machine learning

1 Introduction

The science of biometrics is used to recognize the physical traits of people which include a person's voice, iris, palm, face, and fingerprint (Abharana et al. 2022). Biometrics is considered important for real-world applications due to its ease convenient approaches and increasing demand in security applications. The biometrics of an individual is identified using physical characteristics and behavioral characteristics where, different biometric characteristics have been employed for identification. Because of their singularity, integrity, and consistency, biometric qualities including fingerprint, palm veins, ear identification, retina, face recognition, Deoxyribonucleic Acid (DNA), palm prints, hand geometry, odor, typing rhythm, stride, and voice are excellent candidates for human recognition (Mandhare et al. 2017). Biometrics easily identifies individuals by extracting behavioral and human features that are unique to them. The most popular reliable and safe biometric authentication method is the fingerprint, which is the distinctive pattern of each and every individual human person. The fingerprint is the first imaging technique for biometric identification which is more accurate and less costly as compared to other techniques. The ridges and furrow patterns of the fingerprint surface will not change at any time and are used for easy classification of fingerprints (Saeed et al. 2018). Fingerprints of each person's have a unique biometric characteristic which has been widely used by forensic divisions and civil applications around the world for criminal investigations despite the fact that even twins have an identical fingerprint (Abharana et al. 2022).

Fingerprint classification can be effectively done on the basis of different characteristics such as ridges, cores,

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Block Chain Technology Based Multi User Secure File Sharing System Using Cloud

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Abstract: Access Control frameworks are utilized in PC security to manage the access to basic or significant assets, for example, information, administrations, computational frameworks, extra room, etc. In Attribute-based Access Control (ABAC) arrangements comprise of a lot of conditions over the attributes which portray the highlights of the subjects, assets, condition, and so on., associated with the access demand. This report proposes another methodology based on blockchain innovation to distribute the strategies commanding the privilege to access an information and asset and to permit the appropriated exchange of such ideal among clients in distributed computing by utilizing keen contracts for self enforceable approaches over Ethereum Virtual Machine (EVM). In our proposed model the arrangements and the rights under are freely noticeable on the blockchain which are put away in scrambled structure, and information will be put away on cloud, subsequently any client can know whenever the strategy combined with an information or asset and the subjects who presently receive the rights to access that information or asset. This arrangement permits appropriated auditability, keeping a gathering from falsely denying the rights allowed by an enforceable approach.

Index Terms - Block chain technology, Cloud Computing, Cryptography, Security.

I. Introduction

High accessibility, traceability, straightforwardness, and the circulation of trust make Blockchains not just fascinating for a wide range of money related applications, yet in addition for cryptosystems which as of now regularly depend on a trusted enabled to key server, for example, Attribute Based Encryption (ABE). Ten years after the presentation of Bitcoin, the Blockchain innovation has developed from a minor cryptographic money framework to a plenty of circulated record frameworks which set up trust in the rightness of code execution and shared stockpiling without the requirement for a typical certified to gathering. ABE is another class of encryption plan that permit the encryption of information under an access arrangement overlaid attributes. In Ciphertext-approach attribute-based encryption (CP-ABE) plans the access strategy turns out to be a piece of the figure content, during the encryption of information. In exemplary open key cryptography information is scrambled for a particular tantalizer utilizing his private key, for example you need to know the proposed beneficiary of the information and her open key. Clearly such developments don't scale when the arrangement of persons changes consistently, as the informational collection would need to be scrambled separately re-encoded for each authentic client at whatever point a teammate is including or evacuated. Half breed plans offer an answer, but at the same time are ended boggling to deal with, when the quantity of members turn.

On the other hand, a CP-ABE plan enables a client to scramble information for any attribute, for example, "Director" or "representative" without knowing precisely the separate people possessing these attributes. Significantly further, ABE permits the unscrambling of ciphertexts made some time before a customary key, in the presumption that the attributes of the key match the access strategy. A striking bit of leeway of ABE frameworks is that issues illustrated by bothering customary access control frameworks would now be able to be compensated cryptographically. Therefore, the information itself can be put away openly, yet must be decoded by real clients. A focal key administration is responsible for doling out attributes to clients and issuing individually created private keys to them. Be that as it may, a noteworthy con in ABE frameworks has been profound disavowal of client keys and the outright trust in the key server concerning accurately issuing private keys just to real clients.

The present world is computerized universe of cell phones associated everywhere throughout the world by the methods for Internet. This time of Internet and cell phones creates a tremendous measure of computerized information and data which is solid boggling and delicate in nature and profoundly moving to any client through information sharing. This quick or exponential increment in measure of information originates from industry, trade and research. The field of science, astronomy, cosmology, military, schools and innovative establishments, all are delivering enormous informational collections every day. Be that as it may, the traditional database frameworks can't deal with such enormous informational collections as they were structured by big business foundation and along these lines not meet the necessities of adaptability, adaptation to non-critical failure and so on. This issue of putting away tremendous measure of information is illuminated by distributed computing.

II. Literature Survey

It aim to make attribute-based encryption (ABE) increasingly reasonable for access control to information put away in the cloud. For this reason, we focus on providing for the encryptor full control over the access rights, giving achievable key administration even if there should be an occurrence of various autonomous specialties, and empowering impossible client repudiation, which is fundamental practically speaking. Our primary outcome is an augmentation of the decentralized CP-ABE plans of Lewko and Waters [6] with personality based client revocation. Our double framework is made possible by executing the

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Big Data Redundancy Avoidance in Data Centers using Deep Learning Framework

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Abstract: The creative information accumulation advancements are applying to each part of our general public, the information volume is soaring. Such wonder presents colossal difficulties to server farms concerning empowering capacity. In this paper, a cross breed stream huge information examination model is proposed to perform interactive media enormous information investigation. This model contains four techniques, i.e., information pre-handling, information order, information acknowledgment and information end decrease.. There are four processes in this model, that is, information pre-processing, information categorization and data validation and reduction in data load. In particular, an innovative multidimensional conversion neural network (CNN) is planned to consider the reputation of each and every one video frame. In this way, those insignificant frames can be eliminate by reliable decision-making algorithms. To make sure the quality of the video, the minimum correlation and minimum redundancy (MCMR) are collective to improve the decision-making algorithm. Reproduction Grade indicates that the quantity of processed video has decreased considerably and because of the adding of MCMR, the video quality is preserved. Partial implementation of project too prove so as to the projected effort performs rapidly and large data crashes in the data centers are largely strong to accommodate the crush.

Keywords: Data centers, Redundancy avoidance, Multimedia, Storage, Big data, Convolution Neural Network.

I. INTRODUCTION

The arena of image classification has seen great advances in the state-of-the-art using CNNs. The availability of large datasets such as ImageNet and CIFAR-10 have enhanced the body of research and machines can now surpass humans on some image classification tasks. Much of CNN video analysis involves feature extraction using networks pre-trained on the still images of ImageNet such as the VGG networks or AlexNet. This includes work inside the turf of illustration entity tracking, work in the area of video content understanding and in the area of video classification. With such widespread use of compressed video analysis using networks trained on still images, it is worth investigating how video
Compression affects the features learned in CNNs. Results show that performance in CNNs is improved by using the quality of the test data to inform the quality of the training data, rather than the established method of using only the highest quality data for training.

II. LITERATURE SURVEY

Kai XU and Fengbo Ren [1] proposed a system CSVideoNet, A Real-time End-to-end Learning System for High-outline rate Video Compressive Sensing, system High-frame rate statements the ongoing encoding-translating issue for video compression sensing (CS). Contrary to earlier works, which rebuild by using

Machine Learning Ensemble approach for Attack defence System

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Abstract: Intrusion disclosure is complicated best in class zone, as a regularly developing number of complex data is being secured and taken care of in multimodded frameworks. With wide utilization of internet service, there is consistent danger of intrusions and abuse. Along these lines Intrusion Detection system is most significant constituent of PC and its system security. Intrusion Detection System is programming focused checking instrument for a PC arrange that searches scantness of mischievous action in the system. IDS system should octogenarian thought by continuing high wellbeing levels shielding solid and secure transmission of the data between various associations. Intrusion revelation systems arrange PC exercises into two fundamental classifications: ordinary and doubtful exercises. Numerous points of view for intrusion detection have been proposed in advance of however none shows agreeable outcomes so we inspect for better outcome in this field. The proposed examination similarly takes a graph of a few sorts of course of action procedures for Intrusion Detection System (IDS). We furthermore look into in these uncommon systems, their precision and furthermore false positive extents.

IndexTerms - IDS, GA, Ensemble Learning, Machine Learning.

I. INTRODUCTION

Over the previous decades, Internet and PC systems have raised various security issues because of the sensible utilization of systems. Any sentient intrusion or assault on the system may offer ascent to genuine catastrophes. Intrusion is a malevolent, destructive substance which is in charge of system assault. They disregard trustworthiness, privacy and accessibility of a system asset. For this situation, system is neglected to react for information stolen or being lost. In this way, Intrusion Detection Systems (IDSs) are must to diminish the genuine impact of these assaults. Intrusion Detection System is characterized as the system or programming device to recognize unapproved access to a system or PC system. IDS is fit for identifying various kinds assault like malevolent, unruly assault, weakness, information driven assaults, have based assaults for instance benefit infringement, delicate record get to, unapproved logins and malwares [1].

We need IDS once we have firewall on the grounds that the systems having firewall were not intended to distinguish assault at system layer and application layer, for example, worms, infections, Denial of services (DoS), appropriated refusal of services (DDoS) and Trojans. Crafted by firewall is to prevent outer traffic from entering in the interior system. The intrusions resemble infections, worms, Trojans, or system assaults like unapproved login, access of delicate documents, or information driven assaults on application. The intrusion disregards the trustworthiness, classification and accessibility. In view of this system can't react or access is denied. In this way intrusion detection implies detection of unapproved utilization of system or an assault on a system or system. The Intrusion detection system (IDS) is an equipment or programming instrument to distinguish these exercises. The IDS works behind the firewall as appeared in figure. In this way IDS is second and last degree of security to shield the system from intrusion [2].

II. LITERATURE SURVEY

Liao, Hung-Jen, et al. It is standard issue to keep up the n/w security. As PC n/w is creating well ordered, Security is the most prevailing instrument for a PC n/w. Firewalls are need to be equipped to stay n/w from assaults since firewall can simply recognize the assaults which start from outside of the n/w. The most basic inspiration driving intrusion detection system is to perceive assaults against information systems. It is a security methodology trying to recognize various assaults. In this paper, we reviewed street to maltreatment based intrusion detection system similarly as ALAD, PHAD, LERAD, NETAD as abnormality based factual calculations [3].

Parmakov, Martin I., and Vladimir K. Pouliev. The gauration of intrusion detection systems for IoT Circumstances presents various troubles. One of them being the prerequisite for an execution of basic leadership and unaided learning in the detection system. The figuring displayed in this paper can do decitively recognizing a colossal degree of possible intrusions as clear or false without the need of manager input. Our recommendation depends on the Negative Selection estimation and the co-incitement measures of Immunology. It uses a two-layered negative decision method to realize a co-incitement approach went for decreasing the amount of detection botches without the need of a head input [2].

Khamruss, Asaas, et al. This attempts to misuse some intriguing ideas proposed by the new peril hypothesis to defeat the issues related with oderiff and non-self model. That by improving NSA so as to accomplish better detection rates by coordinating the essential peril ideas. In this methodology, the intrusion detection is identified with the harm that can happen in the system and that can be brought about by both outside components, for example, main components. The proposed calculation incorporates and

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