Journals Papers

Performance enhancement of hexagonal-patch dual-band array antenna with omega-shaped DGS for dual Band RADAR Applications

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This article presents an antenna array with novel-shaped defected ground structure (DGS) incorporated into the ground plane to enhance the bandwidth. It is observed that cross-polarization of the antenna is reduced by inserting omega-shaped DGS into the design. A 4 × 4 planar antenna with corporate feed has been designed with and without omega-shaped DGS into the ground plane. Four Omega-shaped DGSs have been placed vertically between the patch elements. These have been placed exactly at the back portion of the microstrip feed line in the ground plane. This antenna array is designed for dual-band applications. It has been observed that the bandwidth of the antenna get enhanced drastically. At 2.4 GHz, the bandwidth is 1860 MHz and at 5.8 GHz it is 2500 MHz with DGS. This type of antenna array can be used for WLAN and weather radar systems. The antenna has been designed using CST software.

Keywords: Antenna array, cross-polarization, defected ground structure, performance enhancement, radar.

MICROSTRIP antennas are currently one of the fastest emerging segments in the telecommunication industry and are become a promising medium in the field of communication. These are high-bandwidth, high-gain antennas in the radar systems. The requirements of radar systems are higher bandwidth with lower side lobe level. High-gain antennas are also needed for specific applications. Research has been conducted in the recent past to enhance the performance and efficiency of these patch antennas[1]. Due to their superiority, microstrip antennas are commonly preferred for radar applications. Various techniques are incorporated in the antenna array for enhancement of antenna parameters like gain, bandwidth, and surface wave cancellation. Complimentary Split Ring Resonator (CSRR) has been incorporated into the design. It is the dual counterpart of split ring resonator which manifests band-stop characteristics at resonant frequency if electromagnetic fields are arranged appropriately[2]. Bandwidth improvement achieve by embedding capacitive slits into the design with a truncated ground plane and exciting the antenna through a meandered strip line feed[3]. A novel bandwidth enhanced UWB tapered slot antenna with Y-shaped corrugated edges was proposed earlier[4]. High-efficiency antenna array for automotive radar system has been reported[5]. A combination of series-fed patch antenna arrays and slots has been introduced leading to an antenna array with wide band, low side lobe level and high front-to-back ratio[6]. Feeding techniques play an important role in the antenna array community. Various feeds like corporate feed, centre feed, series feeds are is preferred depending on the antenna application. Centre-fed series array antenna for K/Ka band has been designed and fabricated[7]. A 23-elements series-fed linear array designed at Ka band gives a gain of 19 dBi and SLL better than −15 dB. Seven-element series-fed antenna array has also been designed and fabricated for high gain[8]. An array of 32 identical square microstrip patches has been designed at 9.35 GHz and 100 MHz bandwidth for marine radar applications[9]. A differential feeding technique for a broadband planar antenna array has been presented[10]. The two antenna beams are realized by exciting the opposite feeds of a dual-fed array antenna[11].

In the present study, a 4 × 4 antenna array is designed at 2.4 GHz and 5.8 GHz. Rectangular patch antenna is common, but in this design we have chosen hexagonal-shaped patch. In this shape a slot is cut out to introduce an additional resonant frequency of 5.8 GHz. By inserting the square open slot into the hexagonal patch, an additional band is introduced. A corporate feeding technique is preferred for this array. Power is equally distributed in the corporate feeding technique. This design gives a good amount of bandwidth for both the frequency bands. At 2.4 GHz the bandwidth is 1100 MHz, while at 5.8 GHz it is 2400 MHz. Figure 1 shows 16-element array antenna design without defected ground structure (DGS).

Design methodology

It is observed that when an omega-shaped DGS is incorporated into the ground plane, the bandwidth improves drastically. It is 1860 GHz for 2.4 GHz and 2500 GHz for 5.8 GHz centre frequency. The antenna parameters also improve to a great extent after the inclusion of DGS into the ground plane. Here the basic aim of the DGS is to improve the bandwidth and decrease cross-polarization between the patch elements. A novel omega-shaped DGS

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Design and Implementation of Microstrip Array Antenna for Weather Radar System

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Microstrip array antennae are the ultimate solution for a variety of system applications, including air traffic control and collision avoidance radar. A microstrip antenna array is used since it is easy to design and fabricate. It has small size, light weight and high gain. Microstrip antenna array design is an important area of research in radar system that can meet the subject requirement. Microstrip antennae are used in a variety of wireless applications, including radars, wireless sensor networks, cellular phones and in medical applications. The paper proposes a design of different microstrip array antennae for weather radar system. Corporate feeding technique is incorporated for the design of an array. The proposed antennae resonate at 5.8 GHz.

Keywords: Microstrip array, Radar

Introduction

Microstrip antenna array is currently one of the fastest emerging segments in the telecommunication industry and has become a promising medium in the field of telecommunication in the future. Recent growth in civilian radar-based sensors and communication systems has drawn increasing interest in utilizing antenna array technology for commercial applications (Daiki *et al.*, 2012). Enhancing antenna directivity in order to improve long-range communication has been a subject of extensive research since the time of Marconi's paper (Balanis, 2005). Microstrip antennae (also known as patch antenna) (Molz, 1964) are presently one of the high bandwidth antennae in telecommunication systems. Research has been carried out in the recent past to improve the performance and efficiency of these patch antennae. Rapid development in patch antennae started in the 1970s and by the end of the 1980s, the idea of using microstrip array antenna in wireless communication was well established (Pozar and Schaubert, 1995). The lightweight, reduced size, phase steering ability, ease of installation, low cost and possibility of integration of patch antennae

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Medium Access Control Protocols for Wireless Sensor Networks

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Abstract

In wireless networks communication between sensor nodes is performed using a sole channel i.e. air. This channel has the characteristic that only one node is able to broadcast a message at any instant of time. Therefore this prevalent transmission medium should be allocated to each one of the nodes in an honest way. For accomplishing this purpose, a medium access control protocol is used. The goal of the medium access control protocol is to control access to the common wireless medium so that the concerned demands of the underlying operation are fulfilled.

In devising MAC protocols for common access medium the main complexity comes up due to spatial allotment of the nodes. To identify the node that is able to ingress the medium instantaneously, node has to transfer certain correlating details among them. However it requires employment of the transmission channel himself. This will increase the complexity of the protocol and as a result the overhead required to control access of the nodes to the medium.

Also immediate status of other nodes cannot be identified by the node under consideration because of the spatial distribution. The intellect of the verdict by the protocol along with the overhead employed, affect the overall performance of a distributed multiple access protocol.

Android App for Industrial Automation

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Abstract - With the technology a boon to the world as it leads to advancement of industries, infrastructures etc. around the globe. In the era of the new upcoming technologies there is a need to reduce the human action for the convenience of every person. Keeping this in mind, we have chosen to design an Android App for Industrial Automation. The objective of this project is to design an android app using MIT App Inventor for operating industrial machinery. In order to achieve this we have made an app (accessible from mobile) using MIT App Inventor wherein all the Industrial Automation equipment can be easily operated and controlled using this app.The app is develop on MIT app inventor and to test this app we have designed the prototype of hardware (containing ESP module & Relay) which takes the signal from this app using the Wi-Fi network(IP Address)which is a Wi-Fi router and can work accordingly. Also you can send direct messages using the app to the desired user. The users can login in and out the app and the data filled in by the user can be stored using the Firebase software by Google.

Key Words: MIT App Inventor, ESP Module, Relay, Firebase.

[illegible]

In our daily activities, we prefer to use an app instead of browser based access. For example, it's possible to connect to a search site, type in the word "Maps," and open up the corresponding web based application to find directions. Instead, most people have a navigation app installed on their phone and then simply click on it to find their way. Apps are preferred over browser based access because they are faster to access, quicker to open, work better with low latency connections, and are faster and easier for interactions. This is because they are custom designed to perform only one task and do it well, as compared to a web based connection which must stand ready to provide access [illegible] applications spanning the [illegible]

For industrial applications, apps have an even more pronounced advantage over browser-based access because speed of interaction is generally more important in the industrial world than in the consumer [illegible]

[illegible]

HMI providing interactions with the PLC and [illegible] operator interface. For plants [illegible] machines, it often doesn't make sense for each to have its own full featured HMI because [illegible] costs, takes up space, and increases the need for spares and maintenance.

Instead, smaller machines and those not requiring constant operator interaction can be supplied with just a few pushbuttons and lights, with all other HMI functionality provided by an app running on a smartphone or tablet [1 2]. For machines requiring a full-featured and permanently mounted HMI, an app can be used to provide remote access whether this access is required locally to the plant, or many miles away.

[illegible]

[illegible] and HMI

i) Runs on any iOS or Android mobile device

[illegible]

[illegible] PLC [illegible]

iv) Downloads and uploads PLC programs

v) Includes role-based access

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Low Cost IOT Node Based Smart Irrigation System with Predictive Analysis

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Abstract -Agriculture is the foundation of our nation. As of one Gregorian calendar month 2020, the population of our country was estimated to be 1.33 billion. There is a rise of 1.26% compared to population of previous year.The population is increasing day by day thus when 25-30 years there'll be serious problem of food thus to unravel this downside development of agriculture is extremely a lot of necessary. Today, the farmers are laid low with the shortage of resources rains and scarcity of water.The main aim of this paper is to minimize manual intervention by farmer and to forestall excessive wastage of water and electricity The whole system is microcontroller based and can be operated from remote locations through wireless transmission . NodeMCU is the employed as a microcontroller.Sensors are used to take readings of soil moisture, temperature,air moisture and decision making is controlled by farmer by using microcontroller.The data received from sensors are sent to server database using wireless transmission.The water is given to the fields when temperature and moisture is reduced. The farmer gets the noufication about the field through mobile periodically using ubidots.

Key Words:sensors,microcontroller,wireless transmission,ubidots,NodeMCU

1.INTRODUCTION

IOT is irresolute the agriculture scholar and helps farmers to effect the difficultnes they faced. As there is runway assemblage in population, farming becomes richest noteworthy to reply the cry of humans. IOT applications are addressing these issues and prolong the important quality, quantity, sustainability and cost effective agriculture products. As the low-cost of our boonies is growing, we bid to move onward the our technologies to rebuttal the need of humans. According to statistics, farming uses 70 percentage of obtainable freshwater firm worldwide, and this cut down spinal column stand to be important in electric cable consumption because of population growth and increased food demand. The approximate contextul facts trappings of NodeMCU palp based counterbalance par regulations look on personal substitute types of sensors ,such as temperature humidity, denigrate moisture placed on the ton upon facts loggers to communicate the observations to the server. At a distance outlandish overture evidence the agriculturist uploads information about climatic conditions, soil conditions etc. The set and modeling of agriculture events, modeling of agriculture luck soil type, season, if attainable fertility status.

We concur with a many new computing abet which aims to reconcile in hither directions insights to an clever by capturing detecting, storing and analyzing the esteem of various events in agriculture. Ever mood spurious possesses atmospheric, soil and prosper parameters monitoring sensors, text logger and modem for statistics storage and telecast , blitzkrieg to start all blocks of the feeling pornographic and a solar panel based battery charging unit. The sensors go are available with ambience station includes temperature, humidity, soil moisture etc. The base station collects the data from sensors and transmits.

2.LITERATURE SURVEY

1.Internet of Things (IoT) for Smart Precision Agriculture and Farming in Rural Areas [1]

The problem discussed in this paper is existing techniques for smart farming are not suitable for long range coverage,low latency and high throughput. The solution to the problem was done by Introducing fog computing and WiLD network in existing wireless sensor network will cover long range with lesser delay. Crossed layer based MAC and routing solution will improve delay and throughput

2.IEEE 802.15.4 AirGround UAV Communications in Smart Farming Scenarios [2]

The problem discussed is about Precision agriculture in rural area. The solution of the problem is Vehicle that are able exchange data with ground sensors are low lost and easy to deploy. These vehicles can be used for monitoring and controlling smart farming. It can be used to achieve precision farming

3.Internet Of Things Platform for Smart Farming [7]

The devices used where Smart Farm Net, an IoT based platform that integrate IoT device such as sensors, camera, weather station etc. The problem discussed is about Slow collection of Crop performance data. The solution to the problem is Smart Farm Net automate collection of environment at soil, fertilization and irrigation data in cloud that automatedly corelate such data and filter out invalid data from the perspective of assessing crop performance faster.

4.IoT based Smart Agriculture [11]

The devices used are sensors, wifi, ZigBee modules, camera, actuators, raspberry pi.Theproblem discussed is Smart Agriculture by modernizing the current traditional methods of agriculture for development of agriculture country. The solution to problem is Smart GPS based remote controlled robot perform tasks like weeding, spraying, moisture sensing, bird and animal scaring, keeping vigilance. Smart irrigation

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Design of Electrical Bicycle Using Solar Panel

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***Abstract*:- In present scenario a Solar Hybrid Bicycle system will help to solve the major problems of fuel and pollution. There is no doubt that the emission of carbon-dioxide from an automobile exhaust is a concern for the increasing rate of global warming. The fuel prices in India and around the world is increasing day by day thus there is a tremendous need to search for an alternative to conserve these natural resources. Promoting use of hybrid vehicles can reduce CO2 emission and the fuel costs. Thus a solar bicycle is an electric vehicle which provides alternative by utilising solar energy to charge the battery and thus provide required voltage to run the motor. India is blessed with nine months of sunny climate thus concept of solar bicycle will be very useful in India. So we have built a Hybrid bicycle which combines the use of solar energy as well as the dynamo that runs through pedal to charge the battery to run the bicycle. The bicycle has the most feasible solar/electric power generation system mounted on the backside of bicycle to capture the sun rays to charge the battery during all durations. When there is no presence of sun, the bicycle work on the battery. For controlling speed of the motor, an accelerator is given which controls the supply. This technique reduces the running cost and increases the running efficiency. The speed of this Solar Hybrid Bicycle goes up to 25-30 km/hr carrying a load of a person of average weight. Thus solar hybrid bicycle can become a cheap alternative against the use of automobile and thus its manufacturing is essential.**

***Keywords:* Solar, Bicycles, hub motor.**

I. Introduction

The solar hybrid bicycle is used to reduces the use of fossil fuel and also reduce the pollution .As we know that the natural resources is reduced day by day so it is necessary to reserve that natural resources.

To overcome the use of fossil fuel we are using the solar energy to drive our bicycle. Here we are using 4 solar panels of 12 volts each and solar energy is stored using lead acid battery. Also this bicycle is charged with the help of battery charger.

But as we know that electricity is not available in some village so with storing the solar energy and use it for driving is one solution for many problems. This helps in conserving natural resources, reducing pollution and making effective use of solar energy.

During night time, this bicycle is driven by stored energy in the battery which is charged by solar panels so bicycle is continue in use .This is the idea used in this work.

II. Block Diagram of Electrical Bicycle using solar Panel.

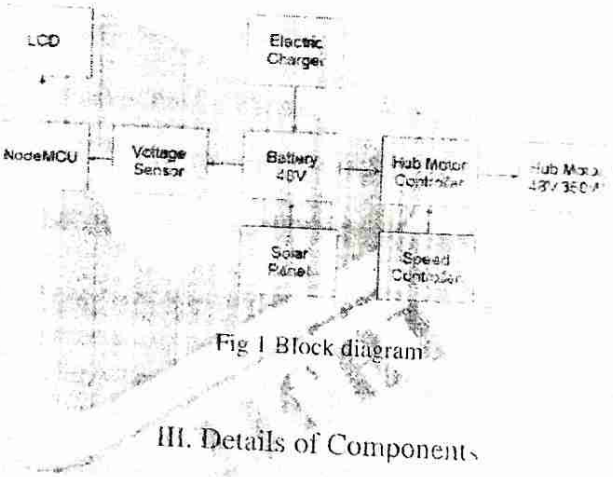

Fig 1 Block diagram

III. Details of Components

A. Hub motor

The hub motor is a conventional Dc motor. The rotor is outside the stator with the permanent magnets mounted on inside. The stator is mounted and fixed onto the axle and the hub will be made to rotate by alternating currents supplied through batteries. Hub motor generates high torque at low speed which is highly efficient and which does not need sprockets, bearings and drive chains. This means they are very reliable and have a long life. The main characteristic of Brushless DC Machines is that they may be controlled to give wide constant power speed ranges.

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Design and Implementation of Wireless Android Operated Solar Cooler

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ABSTRACT:-
Today the natural energy sources have become very important as an alternative to the conventional energy sources. The renewable energy sector is the fastest growing area for the country. Solar energy plays an important role as a and is very growing field with so many service providers and manufacturers in the country. With the impending scarcity of nonrenewable resources, people are considering using alternate sources of energy. The Sun plays an important role in day to day life for food to electricity. This Paper we review the idea of DC solar cooler and will try to implement in real time with some modifications in the machineries.

The wireless controller gives the user the sophisticated way to operate the cooler from long distance, the cooler also consist of the water indicator buzzer to indicate the water is empty from the tank.

Keywords—Solar Cooler, Bluetooth, wireless , arduino

INTRODUCTION :-

Nowadays, we have remote controls for all our electronics equipment from television sets to Air condition systems, which have made our life easy. We have made a survey in the local market that if there is any remote operated air cooler, and we found very few shopkeepers are able to provide the solution but is very costly. We then study about the solar coolers and are not so efficient to provide good air flow. Also as far as the water is concern is the main part

also to use the water in an adequate manner to save it and not to waste it. We observe that many people use to turn on the water pipe in the cooler tank and forgot to turn off the water flow and leads to wastage of water.

also the water based coolers used the water pump that continue ON till manually we switch off the pump.

For this reason we found the solution to all these problems by using Android phone we can operate the function of cooler. by using microcontroller we can program the pump to ON and OFF for the particular duration of time. also solar is the main part to operate the cooler. The DC motor available in the market is of low speed and not so efficient to provide the air flow like the AC motors. So we found the DC blower motor that use in CAR AC which operate on DC 12V and having the high flow rate of the air. We have searched various literature to get the idea of designing and fabrication of the system..

LITERATURE SURVEY:-

Author say Solar based charge controller maximum power point tracking system us use for solar operated devices. By this technique, maximum power is obtained for the process and also for battery storage. Thus there is no need to depend on other sources. MPPT technique extracts maximum power with faster dynamic response and also eliminates oscillations around the MPP under steady-state conditions and it is a suitable optimization tool for locating MPP regardless of atmospheric variations This work enhances the usage of renewable energy to perform energy saving and to reduce the pollutants created by some other resources. [1] This paper shows the circuit model of a cooling unit as Peltier unit which is powered by battery and the battery is charged by a solar panel. The buck converter as DC-DC step down converter which is portable and requires less power. It can be used anywhere to keep certain things cool especially in areas where electricity shortage is a big problem and so using this module in such areas can be highly beneficial.[2]Thermo regulator is added to control the switching action of cooler and maintaining the temperature in the room surrounding with respect to

© [illegible]

Solar Operated [illegible] ATM Using RFID [illegible] For Rural Areas

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Abstract- **Now a day's water vending machines are available and operated only on coin but our aim is to design water vending [illegible] RFID thus it's straight[illegible] access the vending machine without cash. The designed system basically has RFID as input and purified water through solenoid [illegible] project unique is it is solar operated which will be more helpful in rural area as there is problem of electricity. The main part is control system which includes C programming in Arduino ATMEGA 328 microcontroller to control [illegible] components in system. The major [illegible] mandatory [illegible] system. This project makes things [illegible], simple and time efficient at low power consumption.**

Index terms- **RFID, LCD display, ATMEGA 328 Microcontroller Vending machine, Relay**

1. INTRODUCTION

[illegible] has become [illegible] century. The rapidly rising [illegible] changing lifestyles has increased the [illegible] water [illegible] ATM is most [illegible] serve public. With innovations [illegible] field we can touch the areas of rural also to prevent the health issues arise by impure water. As we know the function of vending machines with the same technology used we [illegible] which is based on RFID [illegible]

This product is not so new [illegible] which we are using is completely [illegible] RFID cards. This system is [illegible] aim is to stop wasting of water and preventing the use of plastic. Also we are providing [illegible] treat water in rural areas, this will make [illegible] hygiene. The inputs to the microcontroller will be given as RFID tag and output in the form water. This [illegible] software parts includes the programs written in the [illegible] C. Looking at the specification [illegible] for Water Dispensing System and for [illegible] our application, microcontroller was found to be [illegible] suited. If the ID is registered and the card is recharged then a signal is given [illegible] microcontroller and accordingly water [illegible] OFF. The main motto of this system is to avoid the [illegible] wastage of water with the help of water [illegible] We know that the available water resource [illegible] initiated towards the end.

As it is RFID operated machine, the required [illegible] decided to use the Water Cooler for our project [illegible] The cooler is run on 230V AC and [illegible] RFID data and if the ID is registered then [illegible] water will provide like Aadhaar Linking Vending Machines.

2. OBJECTIVES

Coin operated water vending machines are [illegible] and occupy more space and cannot be utilized [illegible] required places. [illegible] title as "RFID Operated Portable Water Vending Machine".

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GSM Based P10 Moving Message Display

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ABSTRACT

The objective of this paper is to design and implement a system for the Wireless notice board is very the selective term for this project, as it has a broad scope as compared to just being a simple notice board. This paper supplied on the layout of an e-display that can take delivery of statistics wirelessly from any authorized person who has the get right of entry to of the web terminal which means integrating the conventional moving message shows with an Arduino in order that they may be accessed wirelessly as a utility of it (net of factors). This gadget is used for the cause of displaying alert messages or preferred statistics with none put off the usage of IOT that is extra green and reliable than the conventional manner of posting messages on notice boards.

Keywords: Power Transmission, GSM Technology, Clock generator, Wi-Fi Base Station.

I. INTRODUCTION

In beyond years, the Wi-Fi transceiver gadget has used for many locations in phrases of cell phones, the personal computer system, laptops are to be commonly used by the rich to something so it may be used. Now a day's human beings prefer Wi-Fi connection because they can engage with humans effortlessly and it requires less time. The primary goal of this mission is to develop wireless to be an aware board that shows messages sent from the consumer and to design an easy, easy to put in, consumer friendly gadget, that can receive and display, observe in a selected manner with respect to time with a view to assisting the person without difficulty hold the music notice board each day and every time he makes use of the system. Wi-Fi is the wireless technology used. All cell phones have available in Wi-Fi network, then the Wi-Fi network has been used to offer wide region network permits us to communicate with the information into text message through the LED display to move the notice board.

II. LITERATURE REVIEW

A. **Global system for mobile communication (GSM):** This technical paper gives the knowledge about what is and how GSM works. It details the history and evaluation of GSM. It shows how modules are linked within it using different types of system sand hence, provides an idea of how networking is done within a different range of areas with its various services.

B. **Wireless Digital Display Board the Use of GSM Generation [2013]:** This paper offers with a

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OVER TEMPERATURE FAULT DETECTION AND SWITCHING SYSTEM

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Abstract *- The efficiency of power systems is largely determined by the effectiveness of the inbuilt power equipment. Monitoring transmission parameters for faults and quick isolation of the system from faults helps to improve the efficiency of the power systems reliability. Current conventional method has its own limitations due to the reliance on technical team to carrying out visual inspection in order to identify any fault. Technologies such as Power line carrier communication and the use of internet based communication systems have their respective demerits. In this paper the scholars Presents the study of the use of GSM technology, to provide a reliable monitoring and fault detection system. Appropriate designed specific sensors were used to monitor the changes in transmission parameters such as voltage, current, temperature and frequency. Whenever fault occurred the data acquired were transmitted to the utility mobile phone as SMS via the GSM wireless network. The system hardware was modeled using Proteus simulation tool while Mikro-C was used for the software. With this system, power transmission fault can be detected and isolated at the shortest possibletime.*

Keywords: *Power transmission, PIC Microcontroller, GSM technology, Sensors, Efficiency, Transmission parameters.*

1 Introduction

The manner in which the use of microcontroller is shaping our lives in breath taking. Today's this versatile devise can be found in a variety of control applications. A microcontroller unit uses microprocessor as its CPU and it Incorporates memory, Timing reference, I/O peripherals etc., on same chip. In our project microcontroller is used to control the three phase induction motor. Electrical machines are widely used in industries as industrial drives because of the rugged, less costly, reliable and economical. It use to transform electrical power into mechanical power, so there are necessary need to protection of machines from faults occur. Failure of machines is the biggest problem in industries and at many other places. The faults are because of electrical and mechanical hassles. Mechanical faults caused by overload and changes of load[1]. Electrical faults are connected with power supply, electrical faults occur in motor due to over voltage, under voltage, over current, under current, temperature imbalance, single phasing, phase reversal, overheating, etc. in our project we selected some of faults from these such as over temperature imbalance.

2 Review of transmission power.

The transmission system plays significant roles in the supplying of power to the consumers uninterruptedly. Monitoring of these systems is very essential if supplying of healthy power to the consumers is to be observed. Incorporated in the transmission system is the protective system which helps in detecting the abnormal or fault signal. The protective relays in the protective system then isolate the faulted part from the entire system, ensuring minimal equipment damage and disturbance. Fault analysis is an essential concern in power system engineering in order to isolate faults quickly and ensure power supply is restored in the shortest possible time. Power demand has resulted in higher line current loads, still bearing in mind that operators are limited by the system and line capacity. Overloading the system will lead to overheating of the system insulation which ultimately result into the system failure. Programmable Logic Controller (PLC) aids the improvement in power quality, ensuring a continuous and reliable supply of power to loads.

International Journal of Scientific Research

IoT Based Smart Electricity Management System for Industry to Monitor Power Consumption of Individual Appliances

By

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Abstract – Energy is the most [illegible] all industries, domestic, [illegible] farming, restaurant and so on. Various [illegible] straightforwardly influenced with various parameters, for example, Coal, oil and diesel towards the power generation. So, for conserving the energy lots of research have been administered for the smart energy management system.

As indicated by the assessment it is found that none of the researchers have worked towards calculating the power consumption of the household, industry, commercial building, agriculture etc., individual devices.

This investigation focuses on a structure which can convey a reasonable energy/power management system conferring to the device"s specification i.e. Power wattage of a device. All [illegible] reading correctly managed by [illegible]. Apache server is created to [illegible] utilization of every gadget. This information will be transferred to the Apache server at the observing end so as to record the data and access it whenever required. Moreover, this developed system will protect the device, as when the device consume more power than specified on appliances excluding some surplus 10% power usage, then this system just cut off the power supply, to protect the appliances from getting damage.

Key Words: IoT, Apache, Smart electricity management, MySql, web Server.

1.INTRODUCTION

In current era of latest technology everyone wants more power to run their devices/gadgets. This increases the energy / power requirement, but the energy / power cannot be used for long, because of limited resources. Thus everyone should care to utilize energy/power. They must save energy/power by monitoring their devices. In the event that gadgets expends more energy/power

[illegible] ordinary everyday devices to the Internet. The devices connected via IoT conception can be observed remotely. The IoT idea gives the fundamental chances to frame an association [illegible] physical and computer world. This idea is becoming more and more important as more and more wireless devices grow rapidly in the market. Devices connected to each other via the Internet

Management System : Fuel management [illegible] planning and [illegible]

[illegible] consumption [illegible] electric bill get increases. So due to this project consumer can identify which machine is consuming extra power to take its maintenance. To find out the data on the server all data is forwarded to the monitoring end and the analysis can be done for the exact usage of energy consumption of every device and to reduce the power utilization of the device/gadget. These observing reports would assist consumers with taking the necessary activity so as to improvise the energy usage.

So this system is used to solve these problems. The [illegible]

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Implementation of Solar Operated Handy Fridge for Travel

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ABSTRACT

There isn't such a great amount of progress in the advancement in Indian towns. They don't get the offices that are accessible visit boycott regions. We are here attempting to concentrate on the necessities of the country individuals and obviously, will without a doubt add to taking care of ecological issues as well. The fundamental objective of doing this venture is to create a portable solar refrigerator and furthermore a battery charging gadget and furthermore to look for answers for an Earth-wide temperature boost issue, by thinking of answers for dispense with the discharge of CFCs. Our venture is to plan a Solar Based Refrigerator, which wipes out the discharge of CFCs, is very eco accommodating and furthermore less expensive when contrasted with the present day Refrigerators. The paper presents the creation of portable refrigerator [illegible] and thermoelectric impact. [illegible] where power isn't accessible for the [illegible]

Keywords : Thermoelectric Refrigeration (TER), Peltier Module, Solar [illegible]

I. INTRODUCTION

Cooling and refrigeration are one of the best building accomplishments created in the twentieth century. These accomplishments have been utilized in numerous fields to improve the nature of our lives and make them progressively agreeable and charming.

In the present atmosphere of developing [illegible] needs and expanding ecological concern, options in contrast to the utilization of nonrenewable vitality sources and dirty petroleum derivatives must be investigated. One such exchange is solar energy. Green vitality otherwise called recovery vitality has increased wide consideration in this day and age. Efficient power vitality can be reused, much like solar vitality, water power, wind power, biomass vitality, and earthbound warmth, temperature distinction of the ocean, ocean waves, and morning and night tides. Among these different energies, solar vitality is the most impressive asset that can be utilized to produce power. Solar-fueled refrigerators are most regularly utilized in the creating scene to help moderate neediness and [illegible]. By tackling solar [illegible] necessary immunizations at [illegible] temperature to evade waste. The versatile gadgets can be built with basic segments and are ideal for territories of the creating scene where power is untrustworthy or nonexistent.

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Low Power Solid State Air Conditioner

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Department of Electronics and Tele[illegible]

[illegible]

Abstract - This paper presents us the innovation [illegible] field of air conditioning using peltier and NODEMCU ESP8266-12E. The paper notice the review of 3 papers appropriated in the diverse respected journals. The papers referenced here for the most part center around expelling warmth and dampness from the inside of a consumed space to [illegible] the solace of tenants. Other features included are air conditioner controlled by the nodemcu device. The nodemcu device will be given signal by the android app through which it is connected. Accordingly the air conditioner will respond to it

I. *Introduction*

[illegible] Cooling (frequently [illegible] as AC [illegible] expelling warmth and dampness from the [illegible] improve the solace of inhabitants. Cooling [illegible] both household and business conditions. This procedure is most regularly used to accomplish an increasingly agreeable inside condition normally for people and different creatures, in any case; cooling is likewise used to cool and dehumidify rooms loaded up with heat delivering electronic gadgets for example, PC servers, power enhancers. Numerical type of cost-adequacy was resolved with a blend of desiccant cost and the non irregular two-fluid condition, likewise called NRTL condition. Ahmed and colleague did a thermodynamic analysis of different liquid desiccant They also tried to develop a new liquid system by mixing two or more salts to obtain the required sorption properties. Lithium chloride and calcium chloride were used in an attempt to produce a mixed solution with lower vapour literature. A new desiccant curriculum vitae sin experiencia laboral sin estudios was formed by mixing some the two air using appropriate equations. Additionally, they used simple mixing rules to investigate various thermodynamic and physical properties of mixed solutions conditioning viscosity, density and vapour pressure. Comparison with the practical data showed good result for density and vapour pressure without the interaction factor. Vapour pressure difference drives the [illegible] survey Biomedical TCL Chillers Instrumentation [illegible] modules can be utilized for both warming and cooling [illegible] class is warm cycling. There are a various applications [illegible] cycling. One significant application is DNA enhancement which comes from the biomedical field. In this application, high-throughput and solidness under a rock solid temperature cycle is required. Ferrotec's 72-Series thermoelectric modules join recently improvement thermoelectric material with extra innovation explicitly intended for warm cycling applications. The 72 arrangement conveys altogether longer operational life during warm cycling and high throughput to build efficiency

Following are the authors whose papers were studied and their abstract

I. Man Prakash Gupta, Min-Hee Sayer, Saibal Mukhopadhyay, Satish Kumar, Ultrathin Thermoelectric Devices for On-Chip Peltier Cooling IEEE Transactions on Components, Packaging and Manufacturing Technology

The effective use of thermoelectric (TE) gadgets for [illegible] cooling application requires examination and [illegible] example reconciliation of these gadgets with electrical [illegible] contact protections, and use of fitting flow heats [illegible] computational model to explore the impact of [illegible] thermoelectric cooler [illegible] problem [illegible] about the impact of [illegible] and electrical [illegible]. Our examination shows that the transient heat [illegible] the problem [illegible] temperature by [illegible] area under the [illegible] temperature drop [illegible] taken to accomplish [illegible] and temperature overshoot in the wake of killing heartbeat flow with the electrical and warm contact protections and Seebeck coefficient of the TE material. It has been seen that warm and electrical [illegible]

[illegible] the level of [illegible] TEC.

II. [illegible] REVIEW PAPER ON THERMOELECTRIC AIR-CONDITIONER USING PELTIER MODULES

In thermoelectric materials, electrical vitality can be loriginally changed over into hot weather and the same into electrical vitality. Direct transformation among electrical and warm vitality is conceivable in view of two significant thermoelectric impacts: the Seebeck impact and the Peltier impact. The Seebeck impact alludes to the presence of an electric potential over a thermoelectric material subject to a temperature inclination. The Peltier impact alludes to the ingestion of warmth into one finish of a thermoelectric material and the arrival of warmth from the far edge because of a flow [illegible]

[illegible] When a voltage or DC flow is applied to two unique conveyors, a circuit can be made that takes into consideration consistent warmth transport between the transmitters' intersections this is the guideline of thermoelectric cool. Cooling is a procedure of expelling heat from a room or different applications. Numerous methods for creating a cooling impact by [illegible]. These forced air systems are creating pressure and fume retention cool [illegible] cooling impact by utilizing refrigerants like Freon and smelling salts and so on. It gives most extreme yield be that as it may, one of the hindrance is delivering unsafe gases to the environment. The destructive gases are cluro fluro carbon and some different gases are available. These sorts of climate control systems have wide scope of uses. A forced air system is a significant home appliance system, or instrument intended to change the air temperature and moistness inside a region

III [illegible]

[illegible]

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RFID Based Smart E-Car And Bike Parking System

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Abstract

The Rapid change in technology is leading towards automation. It can see around 1 billion motorized vehicles everywhere. This creates the need for efficient parking systems. So it has designed an automated vehicle parking system (APS) is combination of electronics and mechanical system to minimize the area required for parking vehicles , which also reduces the problems of previous parking systems such as high operation cost, inefficient management of vehicles, time consuming process of issuing tokens and collecting money. Thus this system can resolve above stated problems by RFID based APS. The RFID (Radio frequency identification data) reader will be mounted on servo motor and the person on vehicle for entry and exit of vehicles, vehicles are allowed entry only when they scan a valid RFID tag at the gate. on the gate there is LCD display is placed after scanning the RFID card the slot is allotted for every bike and car which is displayed on LCD screen and also the user get message on their mobile phone. When he return that time he also scan the RFID card there is also a micro controller who update the data which slot is vacant now and transmits that data to entry gate micro controller via Bluetooth.

Keywords: RFID, LCD 16X2, GSM, SERVO.

FACE RECOGNITION WITH E-MAIL ALERT SYSTEM (USING PYTHON)

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Guided By: Mr.D.G.Gahane

Abstract: *Nowadays the number of thefts and identify fraud has become a serious issue. In order to avoid these thefts and identify fraud a face recognition system must be established. The scope of this project is to develop a security access control application based on face recognition. In order to achieve a higher accuracy and effectiveness we use OpenCV libraries and python computer language. Training and identification is done in embedded device known as Raspberry Pi, which itself is a minicomputer of credit card size and is of a very low price. Face detection is concerned with finding whether or not there are any faces in a given image and, if present, returns the image location and content of each face. Security and surveillance are the two important aspects of human being. In this paper we propose face detection and recognition system that will capable of processing images very fast while acquiring very high true positive face detection rate.*

Keywords: ***Face detection, Face recognition, Raspberry Pi, Security.***

INTRODUCTION

In this current time a lot of incident occurs like robbery, stealing unwanted entrance happens abruptly. So the security does matters in this daily life. People always remain busy in their day-to-day work also wants to ensure their safety of their beloved things. Sometimes they forget to look after their necessary things like keys, wallet, credit cards etc. Without these, they are unable to access their home or any place they want.

Traditional security system require the user a key, a security password, and RFID card, or ID card to have access to the system. However, these security system have deficiencies; for example, they can be forgotten or stolen from unauthorized people. As a result, there is a need to develop software that guarantees a higher security level is a template. One of the unique features of our brain is that it can think only in images not in words. Once you may forget to keep you Car's key but you will never forget to bring a face with you. God has given everyone a unique face. Face is the most important part of our body, so that it can reflect many emotions of a person. From a long year ago, we are using non-living thing (smart cards, plastic cards, PINS, tokens, keys) for authentication and to get grant access in restricted areas like ISRO, NASA, and DRDO etc. There are two types of biometric as physiological characteristics (face, fingerprints, finger geometry, hand geometry, palm, iris, ear and voice) and behavioural characteristics (gait, signature and keystroke dynamics). Sometimes your behavioural traits may change because of illness, fear, hunger etc. Face detection and recognition system is more cheap, simple, accurate and non-intrusive process as compare to other biometrics. The system will fall into two categories:

A. Face Detection: Algorithm finds faces in a given input such as Video or Images for faces, and then the faces are cleaned with various filters for further processing.

B. Face Recognition: Output of the Face Detection algorithm is given as input to the Face Recognition algorithm. The given input is processed and algorithm checks for a similar face in the database to determine who the person is. The difference between face detection and recognition is that in detection we just determine whether there is a face in the input image or video, but in the face determine whose face it is.

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WIRELESS GESTURE CONTROL PICK & PLACE ROBOTIC ARM

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ABSTRACRT:-

In recent year, the industry and daily routine works are found to be more attracted and implemented through automation via robots. The pick and place robots is one of the technologies in manufacturing industries which is designed to perform pick and place operation. In this paper we have presented a model to control robotic arm through human gestures using accelerometer. A three axis accelerometer is mounted on human hand in order to perform the action of robotic arm according to the action of human hand. Accelerometer is connected to the At mega 328p Microcontroller which is programmed to read analog readings from accelerometer and transmit them using RF transmitter to the receiver unit. Movements of the robotic arm are achieved through Servo Motor which are rotary actuators that do not rotate continuously like DC/AC or stepper motors, rather, they are used to position and hold some object. They are used where continuous rotation is not required so they are not used to drive wheels . The arm is also equipped with a gripper to facilitate the pick and drop facility. The whole arrangement is placed on a mobile platform with wheels to facilitate movement from one place to another which can be controlled using a wireless remote control. The pick and place operation of the robotic arm can be efficiently controlled using flex sensor. The main aim is to control the robotic arm using human gestures wirelessly with smooth movement over a range.

Keywords:- Flex sensor, pick and place robotics arm

INTRODUCTION:-

The ever increasing population trend of the new millennium expects new technical innovation to meet the new challenges being faced by human beings. In many fields of applications including office, military tasks, hospital operations, dangerous environment and agriculture. Besides, it might be difficult or dangerous for humans to do some specific tasks like picking up explosive chemicals, defusing bombs or in worst case scenario to pick and place the bomb somewhere for containment and for repeated pick and place action in industries. Therefore a robot can replace human to do work. Due to its flexibility and accuracy [illegible]

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Automatic Area Wise Box Sorting Machine Using Conveyor Belt

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Abstract

With the ongoing development in industrial technologies, automation [illegible] industrial situations are embracing an ever-increasing number of parts of automation to upgrade [illegible] decrease item cost. Conveyor frameworks are uncontrollably utilizing in assembling ventures. This programmed conveyor framework works by distinguishing the size of material in the conveyor utilizing LDR and microcontroller examines this information - relying on the tallness of materials, the servo engine manages the material to three [illegible] shrewd. The status of conveyor is demonstrated by 16X2 Liquid Crystal Display and LEDs. This examination [illegible] execute the programmed material isolating conveyor to improve the proficiency.

Index Terms: *Box Sorting, Conveyor Belt, Microcontroller, Servo Motor, LDR Sensor*

I. INTRODUCTION

Arranging is significant in industry, for example, the fabricating industry to improve the effectiveness of assembling forms. The fundamental assignment performed here is to sort the items fabricated in the organization [1]. This procedure is disentangled by the utilization of automation. Automation is the utilization of control frameworks like PC's or robots for de[illegible] procedure and apparatuses to supplant a person and gives mechanical help. Computerized frameworks for [illegible] progressively complex calculations which increment the expense of the plan and the force devoured. It is [illegible] manual endeavors, time expended, gives more opportunity for advertising [illegible] individuals work in perilous situations.

Automation enormously improves profitability and is profoundly adaptable. [illegible] ideal opportunity for assessment and to decrease the endeavors of the laborers in material taking care [illegible] arranging machine has the primary errand of arranging segments as indicated by the sizes. This additionally comprises of conveyor belt, which decreases the endeavors of material dealing with. Additionally, the two procedures occur at the same time viz material dealing with and investigation. An arranging machine is increasingly down to earth and practical technique for automation, which moves material starting with one point then onto the next. The structure is very basic and of adaptable use, implies just conveyor belt can be utilized for material dealing with.

This programmed material arranging conveyor framework separates the material relying upon their size. It contains a miniaturized scale controller, LDR sensor, servo engines, fluid precious stone presentation, and LEDs. The automation framework can show which size-box would get the material. The LED show will assist with understanding the status of material development. Generally, the framework assists with facilitating development and include greater perceivability.

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Treatment of complex recalcitrant wastewater using Fenton process

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ABSTRACT

Recalcitrant wastewater from a combined effluent treatment plant of heterogeneous industrial sector is very complex and often possess intense colour and fluctuating characteristics. In this work, the treatment of such complex effluent using photo-catalysis and Fenton processes is investigated. Studies on the treatment of combined wastewater are scarce. The reduction in colour and COD with photo-catalysis was 10% and 5%, respectively; and with Fenton process it was 80% and 72%, after 2 h. Fenton process appears to be more promising in comparison to photo-catalysis. Optimization of H_2O_2 & Fe^{2+} concentrations revealed that maximum reduction in colour and COD occurred at ratio of H_2O_2:Fe^{2+} (30:1).

Selection and peer-review under responsibility of the scientific committee of the International Conference on Advanced Functional Materials (Innovations in Chemical, Physical and Biological Sciences).

1. Introduction

An industrial sector in India comprising heterogeneous industries viz., chemical, bulk drugs, dye & dye intermediates & pharmaceutical industries discharges a very complex effluent. The concentrations of COD, BOD and TDS in the final treated effluent are in the range 750–900, 60–100 and 15000–16000 mg/L, respectively. Such effluents on discharge cause water pollution posing threat to environment and human [1–3]. Therefore, the final treated effluent still requires polishing step with respect to colour and COD. Though several techniques for the treatment of segregated effluents from chemical, bulk drug, dyes/dye intermediates have been investigated, such studies on combined wastewater are scarce. The removal of persistent organics [4,5] is often incomplete in Biological treatment and physicochemical methods.

Advanced oxidation processes (AOPs) provide a good alternative to conventional methods [6–8]. Advanced oxidation processes based on the catalytic generation of hydroxyl radicals from hydrogen peroxide are simple and very efficient [9–13]. Photo-catalytic oxidation (PCO) has been used to break down and destroy many types of organic pollutants into simpler components of water and CO_2. In Photo-catalytic processes a semiconductor metal oxide is used as a catalyst [14]. Several catalysts have been used, but TiO_2 in the anatase form have shown high stability, good performance and is low cost [15]. TiO_2 photo-catalytic process has received more attention because of its low cost when using sunlight as the source of irradiation.

The Fenton process is an Advanced Oxidation Process in which a variety of organic compounds can be oxidised by free hydroxyl radicals having high oxidation potential. The hydroxyl radicals are generated by the catalytic decomposition of hydrogen peroxide in the presence of Fe^{2+}. Thus, generation and use of these hydroxyl radicals during the reaction plays a major role in the treatment of waste water using AOPs. Therefore, AOPs are applied for the treatment of complex industrial wastewater [16], power plant wastewater [17], coking wastewater [18], leather industry wastewater [19], acrylic fibre manufacturing wastewater [20,21].

In the present work, the application of Fenton process and photo-catalysis for the treatment of complex wastewater from heterogeneous industries viz., chemical, bulk drugs, dye/dye intermediates and pharmaceutical industries is studied. It was observed that with Fenton process, after a period of 2 h with 50 mg/L Fe^{2+} dose, 26.4 mM H_2O_2 and pH 3, there was 80% and 72% reduction in colour and COD, respectively, whereas the reduction in COD and colour were only 10% and 5% with photo-catalytic treatment using 0.2 g TiO_2, initial pH 7.9–8.0, MPML 400 W after a period of 2 h. Thus, Fenton process appears to be more promising in comparison to photo-catalysis. In view of this, in this paper, Fenton process for the treatment of combined wastewater is reported. The effects of doses of Fe^{2+} catalyst, H_2O_2, contact time and initial pH on Fenton oxidation of combined effluent were studied.

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Synthesis, Raman spectroscopy and mechanical properties of SBR-aluminum oxide nanocomposites

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ABSTRACT

Styrene butadiene rubber is seen as one of the great vast chemical substances utilized as attachment, hence we talked about in this investigation to enhance its properties. The nano composites have been organized by way of mechanical mixing the use of two-roll mills. Aluminum oxide nanofiller suspensions have been brought to SBR elastic and the scrape and spectral studies have been overviewed. This investigation covers the have an effect on of aluminum oxide on reflex tests of SBR elastic bolstered with aluminum oxide particles. Mechanical test outcomes confirmed that enhancement in flexile strength, lengthening and tear resistance. Scrape check outcomes confirmed that the aluminum nano particles ought to decorate the scrape opposition of Styrene Butadiene rubber mould because of fantastic properties of alumina nano particles. The composites had been set up with (2 to 12 wt%) of nano aluminum oxide molecules. The effects had proven that the rigidity and curve excellent are enhanced.

Selection and peer-review under responsibility of the scientific committee of the International Conference on Advanced Functional Materials (Innovations in Chemical, Physical and Biological Sciences).

1. Introduction

The business significance of chemical compounds has been using severe purposes in the shape of compound in a number field. Materials are primarily dependent on the measurement of added substances; there are few classes of these mixtures. On the off chance that measurement of components to the chemical compound primarily based mixture is much fewer than one hundred wavelength, this class of compound named nano composites. Nano composites primarily dependent on chemical substances have been pulled in latest duration [1–4]. As of late, enthusiasm for making use of of elite polymer composite substances is accelerated for designing applications. So as to supply sheltered and monetary parts, these substances have to have notable mechanical and tribiological residences joint with enormously safety from debasement and low weight [5]. SBR is considered as possibly the first-rate elastic that is utilized in the mechanical applications. The technology of this engineered SBR used to be no longer correctly sought after in the United States or someplace else on the planet till the stockpile of frequent elastic had been abridged via hostilities workouts in the Pacific at some point of the late Thirties and in advance of time table of the Forties decay [6].

Likewise, SBR is generally utilized in cutting-edge purposes as engineered elastic. SBR has excessive filler-stacking ability, excessive safety from flex, excessive safety from inception of break, and scratch obstruction that make the SBR actually essential in more than a few constructing and mechanical purposes [7]. In complex functions, rubber is utilized as precept network. There are several appears into have examined the have cause on nano fillers and delivered materials on the rubber execution. Notwithstanding, a few inquires about highlight on thinking about the combo of rubber with distinctive elastic substances that ought to be utilized in complex and nano complex functions. Guo chipped away at the rubber nano complex by nanotubes and by nearness of methacrylic corrosive [8]. Gu and colleagues joined SBR elastic with everyday elastic to figure vital lattice for nano complex readiness [9]. They utilized organo bentonite on the SBR primarily found nanocomposites and introduced that the nano bentonite increased reflex houses of elastics. Liquefy blending has been perceived for its adaptability and excellent to make utilize of in particular for business functions. For SBR elastic primarily found nanocomplex, liquefy blending should be lone of the vital guides for putting up

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Synthesis and characterization of Eu^{3+} doped $Ca_9La(PO_4)_5(SiO_4)FCl$ fluoroapatite phosphor for white LED

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ABSTRACT

The fluoroapatite $Ca_9La(PO_4)_5(SiO_4)FCl$:1 mol% Eu phosphor was synthesized by conventional solid state reaction. In the present work keeping concentration of F, Cl, constant and $(PO_4)^{3-}$ of the material was replaced by $(MoO_4)^{3-}$. The phase purity and surface morphology was evaluated through X-ray diffraction and scanning electron microscope technique. The emission and excitation spectra were investigated using photoluminescence spectroscopy. The excitation and emission spectra indicate that prepared phosphor effectively excited by 278 nm, exhibits emission peak at 595 nm and 616 nm corresponds to yellow and red colour attributes to $^5D_0 \rightarrow {}^7F_1$ and $^5D_0 \rightarrow {}^7F_2$ transitions respectively. The above result reveals prepared phosphor is excellent red phosphor in white light emitting diode application.

Selection and Peer-review under responsibility of the scientific committee of the 11th National Conference on Solid State Chemistry and Allied Areas.

1. Introduction

Recently in comparison with conventional incandescent or fluorescent lamp white light emitting diode (w-LED) receive promising attention in the field of solid state technology due its unique characteristics includes, intense luminous efficiency, long operational stability, mercury free, eco-friendly, low power consumption reveals wide application prospects [1–3]. In general, white LEDs (w-LEDs) available in market can be manufactured by combining yellow emitting phosphor with blue InGaN chip. However this type of w-LEDs suffer limitation includes low colour rending index(CRI) and high correlated color temperature (CCT) due to deficiency of sufficient red emission [4,5]. This limitations is overcome by adopting alternative approach for the formation w-LEDs, by means of coupling of near- ultraviolet (n-UV) InGaN- based chip with tricolor (RGB) phosphor, but still has disadvantage of low efficiency due to re-absorption of blue light by red and green phosphor [6]. It leads to development of alternative red or tunable phosphor with excellent stability and suitable excitation wavelength in the n-UV region. Recently, apatite-type based phosphor received more attention as a host luminescence materials owing to their remarkable luminescent efficiency and excellent chemical and thermal stability [7–9].

The compounds belongs to apatite family will be isostructural in nature, compose of hexagonal symmetry (space group of $P6_3/m$) consisting general formula $A_{10}[PO_4]Z_2$ where A- indicates divalent cations includes Ca^{2+}, Ba^{2+}, Mg^{2+}, Pb^{2+}, Sr^{2+}, Fe^{2+}, Mn^{2+} etc Z- represent F, Cl, Br or O. With consideration of structural morphology $[PO_4]^{3-}$ can be substituted by $[SiO_4]^{4-}$, $[BO_3]^{3-}$ and $[VO_4]^{3-}$ [6,9–11]. The compounds with apatite structure reveals the capability of substitution by versatile ions and forming the changeable solid state solution apatite structure, attributes to the tunable luminescence followed by excellent luminescent properties, hence gain more interest for the synthesis novel inorganic framework with new compound belong to apatite structure.

In the present work we report the synthesis of $Ca_9La(PO_4)_{5-x}(MoO_4)_x(SiO_4)FCl$:1mol% Eu^{3+} fluoroapatite type phosphor by solid state reaction method, further $[PO4]^{3-}$ of the host is replace by $[MoO4]^{3-}$ and their luminescent properties are investigated. The formation of as-prepared phosphor was further confirmed by X-ray diffraction (XRD) and scanning electron microscopy (SEM) analysis.

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Minimizing Residual Aluminum Concentration In Treated Water By Using Poly Aluminium Coagulant

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Abstract --**Coagulants are those substances which are capable of removing colloidal impurities from water, and coagulation is the process by which such removal is carried out. Alum has been traditionally used as a coagulant in water treatment for hundred of years. The alum treated water contains considerable amount of residual aluminum, its concentration should be controlled in water treatment plants, especially in plants that use aluminum based coagulants. High dose of aluminum has been proved to be a high health risk and some evidence points out that aluminum could increase the risk of Alzheimer's disease. Thus it is important to minimize the amount of residual aluminum in treated drinking water. This paper describes the performance studies of PAC and alum in minimizing residual aluminum from waters of different turbidities. It was observed that PAC acts as a good coagulant over a wide range of turbidity and produces larger and more rapidly settleable flocs than the alum. It was also observed that the minimization of residual aluminum was better with PAC than alum. The results obtained indicated that PAC could be considered as one of the best alternative coagulant to alum for coagulation which has both the advantage of lesser optimum dosage and reduced residual aluminum.**

Keywords--Coagulants, PAC, Alum, Residual aluminium

I INTRODUCTION

Aluminum coagulants are those substances which are capable of removing colloidal impurities from water and traditionally used in water treatment plants to remove turbidity and dissolved substances. It is commonly available, relatively inexpensive and has long been recognized as a successful compound for removal of color and turbidity from water supplies. In this project an attempt has been made to study the efficiency of Alum and Poly Aluminium Chloride popularly known as PAC in purification of water. The Poly Aluminium Chloride (PAC) is an effective coagulant for removal of turbidity [2],[10] , organic matter [3] fluorides, heavy metals and production of less sludge volume[9] from waters of different alkalinities. However, more recently attention has been directed to alternative coagulants in water treatment in efforts to reduce residual aluminium in finished water[8],[11] and eliminates post precipitation of aluminium residues in the distribution systems [1],because high aluminum concentrations in treated water is responsible for human health hazards.

The performance evaluation of Poly Aluminium Chloride (PAC) vis-a-vis alum as a coagulant in water treatment has been reported in this paper. The PAC investigated in this study was ECORITE PAC – 2010 a product from M/s Shriram Consolidated Limited (DSCL).

The study involved extensive Jar Test experiments on different waters of natural origin as well as those prepared under laboratory conditions. The data generated in these investigations are presented in this paper.

II. Materials & Methods

2.1. Preparation of Coagulant Solution

The working alum solution was freshly prepared by dissolving 10 gm of alum (ferric alum grade 2 ISI specification) in one litre of distilled water. For making 1% solution of ECORITE PAC –2010 the dilution of this coagulant was done with distilled water on daily basis. The neat ECORITE – PAC 2010 was dosed by using a micro syringe.

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Minimizing Residual Aluminum Concentration In Treated Water By Using Poly Aluminium Coagulant

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Abstract --**Coagulants are those substances which are capable of removing colloidal impurities from water, and coagulation is the process by which such removal is carried out. Alum has been traditionally used as a coagulant in water treatment for hundred of years. The alum treated water contains considerable amount of residual aluminum, its concentration should be controlled in water treatment plants, especially in plants that use aluminum based coagulants. High dose of aluminum has been proved to be a high health risk and some evidence points out that aluminum could increase the risk of Alzheimer's disease. Thus it is important to minimize the amount of residual aluminum in treated drinking water. This paper describes the performance studies of PAC and alum in minimizing residual aluminum from waters of different turbidities. It was observed that PAC acts as a good coagulant over a wide range of turbidity and produces larger and more rapidly settleable flocs than the alum. It was also observed that the minimization of residual aluminum was better with PAC than alum. The results obtained indicated that PAC could be considered as one of the best alternative coagulant to alum for coagulation which has both the advantage of lesser optimum dosage and reduced residual aluminum.**

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Original Article

RELATIVE DIFFERENCE IN THE PERSONALITY TRAITS OF THE CHILDREN OF WORKING MOTHERS AND HOME MAKERS

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ABSTRACT

In earlier centuries, the term "Women empowerment" was treated as almost non-existent. A woman was synonymous with a care taker, a home maker or even a baby sitter. Today when women feel the necessity to be independent financially, emotionally and socially, it turns out to be an imperative requirement to analyze the effect it holds on the upbringing of their children. True that women empowerment endows and privileges women to take life-determining decisions in their personal journey to liberty. But how far their children become victims of this new development is the contention here. In my study I propose to dwell on the psychological impact the children of working mothers and home makers anchorage, during their growing up years. Do the children of working mothers get a more gratifying life than the children of non working mothers and are they capable of facing the challenges of life at par with the children of non working mothers? A sample of 80 children (40 of working mothers and 40 of non working mothers) was carried out for 5 personality traits viz. openness, neuroticism, conscientiousness, extroversion, and agreeableness. Statistical analysis was performed on the collected data and t value was found for 1% and 5% level of significance. The present study also oversees adjustment pattern and emotional maturity of such children.

KEYWORDS: Openness, Neuroticism, Conscientiousness, Extroversion, Agreeableness, Adjustment pattern, Adjustment, honesty, Progression & Self confidence

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INTRODUCTION

The empowerment and self-reliance of women and any transformation of their political, social, economic and physical & mental status of wellbeing is a highly constituent end in itself. In addition, apart from playing their roles as home makers, women also play the roles of industrialists, bankers, company secretaries, IT analysts and many more roles in work sector. Women have gradually become socially and financially self-sufficient notwithstanding the emotional trauma they undergo in the balancing act of parenting, home making and working.

Human personality is so complex a phenomenon that it can be interpreted in many ways. In general Personality of a person is understood through the evolution a set of behaviors and cognitions. A layman's comprehension of human personality is restricted to a person possessing good or bad behavioral patterns or characteristics. But the psychologists have different stories to tell. According to them a person's traits, eventually, assumes many shades of meaning depending on the social environment, family culture, availability of both the parents etc. There are many elements that play determining roles in carving a person. One such is the point of discussion here. The working women and home makers play very distinctive roles in the upbringing of their children. There are factors that affect this upbringing depending on the status of their mothers while parenting.

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Andrew Motion: a poet laureate with a poetic difference ; Protests and counter protests

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Abstract

When Andrew Motion was selected and conferred the title of 'Poet Laureate' in 1999 there was a flurry of protests. Poet Laureates are normally chosen for a lifetime and it may be a reflection of the controversial nature of Motion's social equations that he was appointed a laureate for a span of ten years only, according to some of the then leading newspapers. But as a matter of fact we realize as time went by that he accepted the Laureateship only for a period of ten years unlike other Laureates. Motion is the first poet laureate not to be buried as one.

Motion's appointment to the laureate may not have been the cause of any valuable poems, but it has been a catalyst for some.The poet laureateship brings with it even worse treacheries: the very act of putting one's creative impulse in the service of royalty is at one level a difficult task. This paper aims to position Motion's own thoughts on his creativity and Laureateship. It also attempts to focus on the plagiarism charges Motion faced as a prolific writer.

Key words: Laureateship, creative impulse, protests, New Historicism

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A Review of Research on English Teaching Methodology and Technical Communication

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Abstract:

This paper elucidates the complete review of the twenty papers based on the different methods of teaching English and Technical Communication. English being the global language shows the great importance to learn it for every citizen residing in any country. The paper also presents the different techniques used for teaching English to school children. The paper also generates the objectives and summarizes the twenty review papers. The main motto of writing this review paper is to synthesize the difficulty of learning English language to the school and the engineering students. Some of the other techniques can be called as recent techniques has also been introduced which aid the students to learn an apt communication with proper intonation, gesture, posture, body language and pronunciation. Nonetheless, the paper signifies the comparison of methodology used in different research papers. It will also state the future research plan for teaching the foreign language.

Keywords: *ICT Tools, Grammar Translation Method, Drama Technique, Assessment technique using LSRW skills and Music Techniqu.*

1. INTRODUCTION

When we hear the word English, many things come to our mind, like why we need to learn it? What is its importance? What is its role in an individual's life? Here my aim is to introduce the different problems faced by the students amidst of learning English. The main aim of writing this review paper is to bring the awareness about different methodology of teaching English language. The recent and new ways of teaching the second language (L2) is by using the ICT Tools in classrooms, videos, CDs mainly to make the students focus on the latest and new material which are available to get them accessed easily .Nowadays, it has been seen the various

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19-20 IJ

Computational Analysis of Inverter Harmonics on the Performance of Three Phase Induction Motor .

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Abstract

For variable speed drive using fast switching power modulator has been widely used in industry for various applications. But degrading power factor and incursion current harmonics are the major problems. Thus computational analysis of motor performance is required to select the proper harmonics reduction techniques for smooth operation . In this research paper a throw analysis is done on the performance of induction motor on every aspect. For smooth operation of AC motor drive, multilevel inverters are preferred over a conventional two level inverter, with increasing the level of inverter output is nearly sinusoidal and, desired output voltage with reduces harmonic distortions is obtain . The main objective of this paper is to analysis and compare the effect of harmonics on Induction Motor by feeding conventional two level and multilevel inverter with respect to different mechanical parameters.

Keywords: *Computational analysis: multilevel inverter , Harmonic analysis, Total Harmonic Distortion ,mechnical parameter.*

Introduction

For voltage source inverter (VSI) fed ac drives system, self commutated fast switching devices like insulated gate bipolar transistor (IGBT) are preferred over a other devices .which offer compact design, negligible gate power, low on state voltage drop, switching losses are less and control is easy. The maximum rating of low voltage (LV), pulse width modulation (PWM) VSI drives is limited by practical current rating.

The diode clamped multilevel structure is more suitable than other topology, for high and medium voltage ac drives which are directly connected to utility power system (direct to drive topology) [02] [04]. This topology requires only one power supply (with front end active converter and inverter at drive end) therefore; it is very sutable for industrial adjustable speed drive (ASD). In this research paper , diode clamped multilevel inverter (DCMLI) is to be explore to reduce /eliminate lower order harmonics of stator current by selecting appropriate switching states based on the level of inverter. The variation of speed , torque etc is also reduced by varying switching frequency of gate pulse in different phases. A same SPWM technique is developed and implemented for two level, three-level and five level inverter. Multilevel DCMLI is designed for three-phase 3.7 kW, 415 V,50 Hz induction motor. The simulation results for different topologies was compared to validate theoretical and simulated values for different parameters of induction motor

Causes of Harmonics in Inverter output:

Any industry has various loads which inject current harmonics of different order in the power supply such as static converters (such as electric furnace, induction heating devices and switching power supply). Mainly power modulator such as switching sources and converters are most important sources of harmonic generation. Converters usually generate harmonics from n^{th} level in AC side

$$n = kn_p \pm 1$$

Where k - is a constant and
n_p is the number of gate pulses.

In industry prime mover / motor (Specially Induction motor) have been designed to work on pure sinusoidal supply , but in real the power is non-sinusoidal that reduces the efficiency and life time of

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Comparison of Maximum Power Point Tracking —Perturb and Observe and Fuzzy Logic Controllers for Single Phase Photovoltaic Systems

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art of the Lecture Notes in Electrical Engineering book series (LNEE, volume 545)

Abstract

ffective utilization of irradiation's falling on the solar photovoltaic panel, several maximum ower point (MPPT) techniques are used. The comparative analysis of perturb and observe (P&O) nd fuzzy logic methods for MPPT is presented in this paper. The modeling technique employing

Article

Performance of Grid-Connected Variable Speed WECS Using PMSG under MTPA Control with Common Synchronizing Circuit

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Dhanashree K. Porate

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PEDEPS 2019

Dr. Sanjay Bodkhe	Dr. Vinay Barhate	Dr. Rajesh Pande
Conference Chair	General Chair and HoD, Electrical Engg.	Honorary Chair and Principal

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Research Article

Modified instantaneous symmetrical component algorithm-based control for operating electric spring in active power filter mode

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Abstract: Recently, a new technology called as electric spring (ES) is used for suppressing the voltage fluctuation and stabilising the smart grid. To address the harmonic issue in case of non-linear critical load and for achieving voltage regulation in presence of disturbance source, this paper suggests ES-1 topology and proposes modified instantaneous symmetrical component algorithm (ISCA). The reference currents extracted using proposed ISCA with hysteresis current control (HCC) operates ES in active power filter (APF) mode. This improved algorithm can mitigate the harmonics in the source currents effectively, facilitate to set the source-side power factor (PF) to the desired value (unity) and simultaneously perform the task of critical load voltage regulation using single multifunctional control. A detailed comparison between existing ES control schemes and the proposed ISCA approach highlights the benefits of proposed control in terms of its multifunctional capabilities. The ES-1 utilises three-phase inverter with DC-link capacitor that compensates unbalance non-critical load and non-linear critical load. To demonstrate the effectiveness of proposed method to operate ES in APF mode, the results using MATLAB simulations are presented and compared with those few obtained for similar existing control schemes. The proposed control is also validated using experimental studies.

1 Introduction

The renewable energy contribution in overall power generation is promptly increasing, both in developed and developing countries. However, intermittent nature of renewable energy sources (RES) gives rise to stability issues and mismatch problem between power generation and load demand of future smart grid. Besides these issues, the presence of three-phase unbalanced non-critical load and non-linear critical loads like medical equipment create a problem of load unbalancing and harmonic, respectively. They give rise to different current-based power quality (PQ) issues like source current harmonics, considerable neutral current, poor power factor (PF), and reactive power compensation [1, 2].

In general, conventional methods such as three-phase to two-phase transformers, rotating equipment modern technologies like custom power devices, namely, dynamic voltage restorer (DVR), distribution static compensator (DSTATCOM), and unified PQ conditioners (UPQC), are used to address above problems. These devices successfully perform the task of load compensation but they are expensive and have complex control. Among these devices, DSTATCOM is one of the shunt compensators and highly preferable because of its multitasking capabilities [3]. It can effectively perform the task of load compensation as well as harmonic mitigation when operated in APF mode. However, it can support only reactive power and additional energy storage may be needed to support active power in the grid. The use of energy storage devices and complex control to simultaneously mitigate different issues increases the overall rating, cost, and complexity [4]. Recently, electric spring (ES) is proposed by team of researchers from Hong Kong [5], and active research has been conducted worldwide continuously. The ES has a capability to regulate the mains voltage to obtain stability even in the presence of the intermittent RES. The ES is connected in series with non-critical load, forms a smart load and puts in parallel with a critical load. The task of providing voltage support and primary frequency control can be performed by first generation of ES (ES-1) [5, 6]. In the literature, different configuration, various capabilities, controls, and applications of ES in smart grid are proposed and analysed [5–18]. The basic three ES configurations i.e. original version of ES with DC storage capacitor (ES-1), the second generation of ES with an active energy storage like battery (ES-2) and ES with back-to-back converter configuration (ES-B2B) are proposed and explored [7, 10, 12]. These topologies allow exchanging reactive power, active power, or both with grid to support voltage and frequency stability. The control schemes play a key role in order to perform a special function using ES. The various control schemes have been proposed in the literature for harmonic mitigation, load balancing, PF correction, neutral current compensation etc. using ES-1 and ES-2. The control scheme of ES-1 implemented for only grid-voltage regulation has been proposed in [10]. An extensive control for reactive power compensation is suggested in [11]. The presence of more proportion-integral (PI) controller increases the tuning complexities. The phase-angle control (δ control) approach presented in [12] can regulate PF angle. However, in this control, the angle computation is completely load-dependent thus impractical to use under dynamically changing load conditions. To exclusively alleviate the harmonic issue, voltage source inverter (VSI) is replaced by current source inverter (CSI) and direct voltage control by direct current control based on d–q–0 transformation [13]. This scheme works effectively but it requires a large reactor for CSI. Additionally, it is an extension of conventional further exhibiting limitations of d–q control and d–q–0 transformation. To stabilise critical load voltage and for reactive power compensation, decomposed voltage control strategy is proposed in [14, 16]. In this scheme, the presence of α and β component allows to control real and reactive power. However, its inability to compensate harmonics from source and load side limits its operational capabilities. A basic instantaneous PQ theory-based control [15] is also proposed for minimisation of unbalance and oscillating power. Though this control satisfies all the criteria and conditions for fast demand response, it exhibits limitations in achieving desired compensation when both source and load are

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Efficient Energy Attentive and Fault Recognition Mechanism in Distributed Wireless Sensor Networks: A Review

R. Talmale, Niruparna Bhat Mundukur, N. Thakare • Published in ISDA 6 December 2018 • Computer Science

A recent modernization in wireless sensor networks (WSNs) has played a remarkable role to track and control the physical world. This technology is exhilarating with countless potential for many enormous applications like biomedical, industry, defence and so on. Despite of their benefits, design of energy attentive and fault recognition steering protocol is a key challenge. Plenty of research works has been proposed in past by many researchers based on multipath, query and location aware sensor... Expand

Topics from this paper

- Multipath propagation
- Location awareness
- Scalability

One Citation

Characterization of Wireless Data Transmission over Wi-Fi in a Biomechanical Information Processing System

M. Callejas-Cuervo, M. Vélez-Guerrero, A. Alarcón-Aldana · Computer Science · Revista Facultad de Ingeniería · 2019

TLDR The results showed that the transmission of biomechanical information through Wi-Fi using the TCP protocol is efficient and robust, both indoors and outdoors, even in environments of radio frequency interference. Expand

References

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BANDWIDTH ENHANCEMENT & ANALYSIS OF MICROSTRIP ANTENNA WITH DGS FOR S AND X BAND APPLICATIONS

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***Abstract*— Wideband antennas with dual band characteristics are mostly preferred in antenna communication. This letter presents a novel design of Microstrip patch antenna with dual band characteristic. The proposed design reports a dual band response with resonating frequencies of 5.8 GHz and 9.3 GHz having remarkable bandwidth about 1100 MHz and 1430 MHz respectively. It has been observed that 3 dB bandwidth intensifies after incorporating Defective Ground Structure and notches into the patch. This antenna covers both S band & X band. The return loss observed for this antenna is -32.7 dB at 5.8 GHz and -25.03 dB at 9.3 GHz. VSWR has been investigated and found to be 1. CST Microswave studio software is used for the designed and simulation of E Shape patch antenna with and without parasitic patches. This antenna can be used in Radar system at S and X band. The antenna simultaneously operates at two distinct bands.**

***Keywords*— Parasitic patches, slots, DGS, RADAR, CST**

1. INTRODUCTION

In recent scenario microstrip antennas are the popular antennas in the field of telecommunication [1]. Research has been perpetrated in the recent past to enhance the performance & efficiency of these antennas. Due to extensive development in late 90's, the idea of using Microstrip array antenna in wireless communication was well established. Advantages of Microstrip antennas are reduced size, light weight, phase steering ability, ease of installation, low cost and these make the antenna the best choice of researchers & manufacturers [2]. As discussed in [3] conventionally the radiation pattern is wide & hence proportionately the directivity is moderate. This typical problem can be control by expanding the element size. In this manner the directivity can be increased. But this is not the proper solution.

The technique to expand the antenna instead of changing the area or size of the discrete elements is very popular now a days. In this the radiating component or elements are assemble in a geometrical fashion and it is popular by the name of an array. Microstrip Antennas are widely used in radar and airborne application due to its various leading characteristics light weight, low cost and low profile. These antennas are easy to manufacture using printed technology. Wideband antennas are preferred in many applications. Mostly ultra wideband antennas are commonly designed and preferred for wideband application. In this paper our focused is on the improvement of bandwidth of an antenna with the help of DGS. Recently DGS plays crucial role in the field of Microstrip patch antenna design. This paper has used DGS structure for the enhancement of bandwidth. It is very crucial to increase bandwidth of an antenna. By using DGS

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Series Feed Microstrip Antenna Array for RADAR Systems

Kanchan H Wagh* and Shashank S Shriramwar**

Phased Array Antennas (PAA) are the ideal solution for a variety of system applications, including air traffic control and collision avoidance radar for WLAN and cellular communication. A microstrip antenna array is used as it is easy to design and fabricate. It has small size, lightweight and efficient and high gain. Antenna array designs are important areas of research in active phased array RADAR that can meet the subject requirement. Microstrip antennas are used in a variety of wireless applications including radars, cellular phones, wireless sensor networks and in medical applications. The paper reviews different configurations of microstrip antenna array for phased array radar.

Keywords: Microstrip array, RADAR, Phased array radar, Beam steering

Introduction

Phased Array Antenna (PAA) is a multiple antenna system, in which the radiation pattern can be reinforced in a desired direction and suppressed in an undesired direction. The direction of phased array radiation can be electronically steered, avoiding the need for any mechanical rotation. These unique capabilities have been found in phased arrays with a broad range of applications since the advent of this technology. Phased arrays have been traditionally used in military applications for several decades. Recent growth in civilian radar-based sensors and communication systems has drawn increasing interest in utilizing phased array technology for commercial applications (Daiki et al , 2012). Enhancing antenna directivity in order to improve long-range communication has been subject of extensive research since the time of Marconi's paper, "Directive Antenna" (Balanis, 2005). The first demonstration of directive wireless communication which can be considered as the origin of phased array technology was shown by Karl Ferdinand Braun. He won the Nobel Prize for demonstrating enhanced transmission of radio waves in one direction (Ehmouda et al., 2009). Microstrip antennas (also known as patch antennas, Molz,

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A Review Paper on Low Power Address Generators for Memory Testing

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***Abstract*— In VLSI Industry Power and Overall delay were the major factors in the design concern. In the manufacturing of Integrated Chips enormous of failures will occur due to the production error and design error. In System on Chip (SOC), memory is more likely to be affected by manufacturing faults. Built-in-self-test is the efficient method for testing of embedded memories as it saves testing time. Major testing element is a linear feedback shift register (LFSR) which act as an address generator. Switching activity in the LFSR is the main cause of the increase in power during the test. So, in this paper, there is a review of implementations of different types of low power address generators with respect to the switching activity.**

Keywords— LFSR, BIST, SOC, VLSI, TPG

1. INTRODUCTION

In VLSI, the cost, performance, area, testing, and reliability are the most important parameters to be considered at the time of designing. The demand for embedded system portable computing devices and communication system is increasing day by day. The main important challenge is testing of System-on-Chip. The important testing challenge is memory testing. The testing of embedded memory has an important role in the process of testing of System-on-Chip (SOC) for detecting faults and improving overall yield and quality. The modern memory designs should have higher storage capacity with the lower area and should have the fastest access speed. The requirement for storing the data is very important these days, so there is a strong demand for RAM with lower power consumption with higher performance. In the near future, 90% of space will be occupied by memory in SOC, and due to very large scale integration and complex structures, the memory is affected by defects. Therefore the important testing challenge is memory testing. In VLSI circuits, the power requirement in test mode is more as compared to normal mode. Memory testing again dissipates more power. Generally, a system consumes more power in test mode than in normal mode [5].

Modern memory designs aim at high capacity at lower area and fast access speed. This leads to a situation where we have very less charge stored per memory cell (because of low capacitance), and cells are extremely close to each other.

Therefore multiple faults will be present in any memory IC's. Therefore the yield of a memory chip is 0%. With reference to the growing complexity of VLSI designs, require testing issues to be considered early in the design process so that the design can be modified to simplify the testing process. In the manufacturing department, these fault models are grouped into different clusters depending upon the fault type. The fault present in IC's was classified into three different types, namely Permanent Fault, Temporary Fault, and Delay Fault. The permanent Fault will affect for a Long time in the IC, and we can't eliminate this Fault easily unless recreation of ICs.and temporary fault will appear and disappear at a short period of time due to the time-varying IC property. Finally, the delay Fault depends upon the operating speed of the ICs. Testing and debugging of the Circuits was a more important and complex task in the very large scale integration industry. A lot of methodologies practically used to test the circuits at the manufacturing stages. The two

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RBFN Based IPFC for Enhancement of Power System Security

S.N. Dhurvey, V. K. Chandrakar, P.P. Ashtankar, P.R.Rothe

Abstract: *Where the information is perverted by extreme noise level, causes complicated relationship between information and its yield. In that case, ANN is well known to solve this dilemma by giving fine result. Now, for specification and fine tuning of parameter, role of RBFN comes into picture. For optimizing the adoptability of the computational operation, Radial basis function (RBF) networks [10] is suggested which reduces execution time by providing more flexibility to identify the dynamic changes. For checking strength of 10-machine system, while designing, two signals: variation in V & variation in Vdc are correlated. Competency of PI controller with RBFN has been analyzed under varying system conditions. Influence of additional suppression controller: POD is designed to get promising results. Recommended intelligent controllers are having proficiency of scrutinizing unique features of IPFC. Feasibility of different controllers subject to a three phase fault are studied and investigated on time domain basis in MATLAB software to verify the effectiveness of each controller.*

Index Terms: RBFN

I. INTRODUCTION

Nowadays, several researchers presented an endeavor on many nonlinear Voltage Source Convertor for advancement of power transfer capability. In the last decade, FACTS devices could facilitate secure operation of systems which have to be otherwise upgraded in order to relieve load on congested transmission lines or to optimize the system resources. From classification of FACTS controller, among these, the series-shunt controller has proved the most popular. In the midst of other VSC gadget, series-series controller is popular device by making overall compensating system more effective. FACTS devices like IPFC are regulated automatically. They can be placed anywhere in substations. Alteration of operation modes can be carried out casually. There is a perception for a high voltage power transfer network throughout the world to generate electrical energy eco-friendly and make available electrical energy according to the need. FACTS device like IPFC is the key to make this vision live [12]-[15].

So literature survey [4-15] has been focused on the application of AI technique with nonlinear dynamic model of IPFC as well as linearized model of IPFC. Ref [4] adopted fusion of both intelligent techniques for IPFC and TCSC device. Basic attributes of IPFC are figured out in [6] and proposed scheme to realize power flow control.

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Deep rooted fact is that work out of PI controller becomes worse when system conditions are deviated with nonlinear FACTS devices. Therefore, RBFN has dominance over the typical controllers.

[9] have interpreted combined FLC series, shunt controllers by updating of performance of small and large systems in healthy and unhealthy situation. Radial Basis Function Network [RBFN] is the substitute to the conventional PI controllers. [10]-[11] have figured out impact of combined RBFNN based devices for betterment of transient stability of small and large systems in both healthy and unhealthy situations. VSC based FACTS devices are identified as the nonlinear devices. However they have not included the linear or nonlinear model of IPFC with RBFN for transient stability and damping stability studies.

From the inspection of research work, the main intention of this paper is to plan IPFC controller for advancement in long term strength.

II. SYSTEM MODEL

IPFC provides transportation of active power, making overall compensating system more effective as displayed in Figure 1. The nonlinear equations [2],[3] are -

$$E_{qi} = E'_{qi} + \left(x_{di} - x'_{di}\right) I_{di}$$

(1) $$P_{ei} = G_{ii} E'^{2}_{qi} + E'_{qi} \sum_{\substack{j=1 \\ j \neq i}}^{n} E'_{qj} y_{ij} \sin\left(\delta_i - \delta_j - \alpha_{ij}\right)$$

(2)

$$x_{i2} = \omega_i$$

(3)

$$x_{i3} = E'_{qi} A = \Pi r^2 \qquad (4)$$

Considering VSC as a synchronous voltage source inserting sinusoidal voltage. This voltage is having controllable magnitude and angle as V_m. V_n and V_r at the buses p, q and r respectively can be written as $V_m \angle \theta_m$ (m=p,q *and*). This voltage is outlined as (m=p, q and r).

Complex series inserted voltage source is symbolize as Vse_{in} $Vse_{in} = Vse_{in} \angle \theta se_{in}$ (n=q,r) and Zse_{in} (n=q,r) are represented as insertion transformer impedance.

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Design of Vision based Intelligent Lane Detection and Tracking under Different Conditions

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Abstract

This work gives a detailed account of putting into effect of a intelligent based Kalman filter and hough transform algorithm to detect and track a lane. In this model the camera is put on the vehicle(car) by recorded the real time video. The video is taken by camera will go to the different image processing steps which includes Intensity image, In Image processing steps RGB to Gray conversion is important in this paper because our challenging task is to detect and track lane under different light ,different weather and different lane conditions. In every conditions the parameters of RGB and Gray image are varied and due to this the performance of detection and tracking of lanes are poor. Hence we design a intelligent system by using fuzzy. First Find out the parameters of RGB and Intensity image of all the scenarios and apply to the fuzzy system for better performance of detection and track of lane. After that changing size, Interested region Edge detection , Hough transform and Kalman filter algorithm used to detect and track Lane Lane detection and lane tracking techniques various mathematical tools which are used to detect and track lanes clearly. So many lane detection and lane tracking algorithms used their such as Hough transform, Ransac , Particle filter The most commonly algorithms used are Hough transform and Kalman filter algorithm. In this work of making observations we give our [illegible] MATLAB SIMULINK model for Hough transform and kalman filter algorithm which are used to detect and track lane.

In this work of making observations work as first started to make a real time video of Lane taken by camera in different light, weather and road conditions is processed by using image processing algorithms , Edge detection, Lane detection, Lane tracking to detect and track Lane. In this work of making observations we give out with MATLAB SIMULINK design to do for image processing steps and Sobel edge detection algorithm, Hough transform and kalman filter algorithm.

Key words

Intensity, RGB Method, Sobel Algorithm, Hough [illegible] Filter

Introduction

Lane detection and lane Tracking is important [illegible] of the LDWS because most of the traffic accidents were caused due to the vehicle move towards the [illegible] left side or right side unintentionally and also the negligence of the driver. The purpose of Lane detection and lane tracking is to reduce the number of traffic accidents and to improve the safety. The Hough transform is used in image processing for extracting the features of an image. It finds the imperfect instances of objects within a group of shapes by a voting procedure. This procedure is done in parameter space, where object candidates are obtained as local maxima in an accumulator space that is explicitly constructed by the algorithm for computing the Hough transform. Kalman Filter is used for estimation and prediction of steps.

In Edge detection method have a different algorithm which are used to find out the dot in an video at which the contrast of image varies clearly. Sobel algorithm is used to make sure the value of data to be treated and may therefore filtering the information that is [illegible] further image algorithms. The aim of edge detection algorithms is to that any noise present in an image, it be distorted easily and improving the SNR ratio. Hence Sobel algorithm is used to give correct edge detection with fine and smooth image also the second aim of edge detection are used to making purpose [illegible] image at which the image contrast changes sharply. In this algorithm first step is able to find out the edges of each portion which are present in the videos and to make sure the value of data to be treated, yet it gives [illegible] data about the structure of image in the scene. For designing a computer Vision based system it is necessary to detect a correct edges , to detect correct lane and to track a lane clearly. Various approaches are [illegible] Particle detection and edge detection [illegible] algorithms in Edge detection methods [illegible] with an error. More number of edge detection Kernels available, [illegible] edge detection [illegible] different parameters included in

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Design of Vision based Edge Detection under Different Conditions

Manoj K. Demde, Prashant Sharma

Abstract: This work gives a detailed account of putting into effect of a Sobel algorithm to detect an Edge. In this model the camera is put on the vehicle(car) by recorded the real time video. The video is taken by camera will go to the different image processing steps which includes Intensity image, changing size, Interested region and Edge detection algorithm used to detect edges. Edge detection techniques various mathematical tools which are used to making outpoints in an image at which the image contrast changes sharply.So many Edge detection algorithms used there such as search-based and zero-crossing based.. The most commonly search based algorithms used are Sobel and canny's edge detection algorithm. In this work of making observations we give out with MATLAB SIMULINK model for Sobel algorithm which are used to detect edge.

In this work of making observations work as first started to make a constructive video using Prescan software and a real time video of Lane taken by camera in dissimilar light, weather and road conditions is processed by using image processing algorithms . and Edge detection to detect edges. In this work of making observations we give out with MATLAB SIMULINK design to be for image processing steps and edge detection algorithm.

Index Terms: Resize, Black and white Image.. Intensity, BI method, Sobel algorithm

I. INTRODUCTION

Edge detection method have a different algorithm which are used to find out the dot in an video [illegible] of image varies clearly. sobel apply an video to make less the value of data to be treated and may therefore filtering the information that is used for further [illegible] algorithms. In a black and white image identified a different values of neighborhood which are separates to each other and for a noisy image contains a high frequency components due to which the output results are glare and [illegible]. The aim of edge detection algorithm is [illegible] present in the image can be distorted easily and improving the SNR ratio. Hence Sobel algorithm is used to [illegible] edge detection [illegible] and smooth image [illegible] of Edge detection are used to making outpoints in an image at which the image contrast changes sharply. In this algorithm first step is able to find out the edges of each portion which are present in the videos and to make less the value of data to be treated, yet it gets important data about the structure of image in the scene. For designing a computer Vision based system it is necessary to detect a correct edges. Various approaches are available for edge detection in a real time videos. ,those are to reduce the error ,increase the object, Fuzzy and NN etc.. In Edge detection methods detection the convolution of image with an kernel. More number of edge detection Kernls available. which are used to design different structures. Different parameters includes in the choosing of an edge detection operator include Gradient Magnitude, Angle of line, softenening the image and Threshold. Kernels can work for Parallel, upright, or crosswise edges. It is not possible to to change in intensity of all edges.. Due to poor focus on objects the results with boundaries is that there is a slow varies in brightness. The kernel is destabilizing to sensitive to such a slow change in those cases. . In that case the detection of wrong edge localization, absent of correct edge, more computational time ,noise problem etc. As an outcome of that, the end is to do the sobel edge algorithm and get at the details of the operation of the system in different Light, Weather, and Road conditions. And this system is further used in detection of Line marking to get well the safety and doing work well on the road and also to get reduce the number of vehicle accidents. The persons making observations are getting greater, stronger, more complete camera-based systems to get well vehicle safety. LDWS uses a camera to computer viewing output the length at intervals the car and Line marking and, if the vehicle changes in the direction of the way between lines markers, the system gives suggestion to ready driver for keeping vehicle back into its way between lines. [1,2,3]

II. SYSTEM MODELING AND METHOD

Fig. 1. Edge Detection System

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Prashant Sharma, Department [illegible] College [illegible]

RBFN Based IPFC for Enhancement of Power System Security

S.N. Dhurvey, V. K. Chandrakar, P.P. Ashtankar, R.R. Bathe

Abstract: Where the information is perverted by extreme noise level, causes complicated relationship between information and its yield. In that case, ANN is well known to solve this dilemma by giving fine result. Now, for specification and fine tuning of parameter, role of RBFN comes into picture. For optimizing the adoptability of the computational operation, Radial basis function (RBF) networks [10] is suggested which reduces execution time by providing more flexibility to identify ... checking strength of 10-machine system ... signals: variation in V & variation in ... are correlated. Competency of PI controller with RBFN has been analyzed under varying system conditions. Influence of additional suppression controller: POD is designed to get promising results. Recommended intelligent controllers are having proficiency of scrutinizing unique features of IPFC. Feasibility of different controllers subject to a three phase fault are studied and investigated on time domain basis in MATLAB software to verify the effectiveness of each controller.

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Design & Development of Four Way Hack Saw

V. M. Sonde, P. P. Shirpurkar, P. P. Ashtankar, V. S. Ghutke

Abstract: ***Cutting of material is one of the important machining parameters for development of different fabricated model like shaft, bolts and screws etc. for a mass production the material need to cut in a multiple way or manner at a same time and this is to be perform on a power hack saw or multiple way hack saw machine which consume less time. This paper propose the design considerations and development of four way hacksaw machine which is able to cut four pieces of same or different material simultaneously with a ve... motor is used as a source of po... rotary motion of motor shaft into reciprocating motion is obtained by using eccentric cam. This machine can perform cutting operation on four different components by four ways at a time on different material simultaneousiy and therefore this machine becomes very useful in industry because of its efficiency, reliability and compatibility. This machine overcomes traditional hack saw machine which cuts material single work piece at particular time interval and also fulfils today's need of mass production.***

Index Terms: ***Four ways hack saw, eccentric cam, motor, Mass production***

I. INTRODUCTION

There are many electrically powered hacksaw machines of different configurations which are available for the use in machine shop. These machines can cut pieces of different material precisely at very fast ... material at a time which ... dissimilar material at a same time. Now in industry, it is essential to cut metal bars with very high rate to achieve mass production requirements with the short time [3]. So it is essential to go for a new modern technology and design which gives us a mass production with less time and less energy input. It is quite impossible to depend upon conventional hacksaw machine. In this four way hacksaw machine the four metal ... simultaneously to achieve high production for maximum benefit in manufacturing industries.[4]It can be used in a small workshops and industries as it is very economical and its smaller size and high efficiency. The setup of four ways hack saw machine is very simple in design and it operates with mechanism of eccentric cam disc arrangement. The disc is attached with motor. rotary motion of motor shaft which is converted into ... reciprocating motion ... of high speed ... placing the work piece to be cut. A low power motor is required for its operation. Length of crank and connecting rod is designed using proper requirement. Motion of hack saw is guided by guiding rods placed over the hack saw frame. The vertically downward motion is occurred due to self-weight of frame. so it can be called as gravity feed hack ...

II. LITERATURE REVIEW

O.Cakir et. al. (2007)[1] This research paper explain about the machining operation with high temperature in cutting tool results due to friction between work piece ... tool and cutting tool chip interface. Some effects of this generated heat are higher surface roughness, shorter tool life and lower dimensional sensitiveness of the work material ... production. There are different methods of protecting cutting tool from heat generation during machining operation. One of the alternative is to select the cutting ... easy suitable for machining ... alloy, titanium alloy etc. apply the cutting ... work piece while machining is another approach ... pressure cooling effects and ... eliminated fully or partially. Use of cutting fluid gives advantages like easy chip flow, longer tool life and highest machining quality in machining process. It ... select the cutting fluid by considering ... that to get optimum result in machining ... parameters to be considered are as cutting tool ... work piece material and method of ... based on mechanical properties and stated that to obtain better operation, appropriate blade must be selected. To obtain fine cutting of work piece selection of ... of blade is very important. [2]There ... saw blades in the market which are based on the material classification namely alloy steel blade, high speed ... for hack saw. This study gives guidelines about selection of material for our model in present situation the hydraulically ... electrically operated hack ... machines are available ... require more ... to operate ...

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Review on Road Safety in Hilly Area using WSN and IoT

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[2]Professor, Department of Electronics (Communication)Engineering, Priyadarshini college of Engineering, Nagpur, India

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Abstract - *The rapid increase of vehicular traffic and congestion on the hilly area began hampering the safe and efficient movement of traffic. In this paper we will be designing a system with some innovative idea ,like minimizing accident, landslide, bridge break, sharp turn mainly in hilly area and showing direction to driver. These parameter are reliable for safety driving in hilly area. Road safety system is the innovative concept which makes driving in hilly area convenient for driver. The circuit will be designed in such manner that driver will informed about the natural calamities before arrival of the spot .Some of author has discussed about landslide tracker. But landslide is not the only reason for the safety measures many other circumstances are too, we will be working on that issues also. The road safety system is the combination of all features which are been studied n applied by researcher and there will be many more other additional features developed by us in this paper*

Key Words: GPS module, GSM module, water sensor, landslide detector, sharp turn parameters, accident detector.

1. INTRODUCTION

The thought of developing this paper comes to do some good things towards society. Day by day the accidents in hilly are increasing and leads to loss of many lives. The reason may be many such as no proper knowledge about roads in hilly area while travelling about any natural calamities etc. Roads accident due to sharp turn are very common in hilly area day by day its increasing and landslide or river flow may occur suddenly it may cause loss of lives. In order to put an end to this misery we have developed the road safety system for driver travelling in hilly area .It is basically fitted with the GPS module based system in order to track location in hilly area. The paper is also implemented with all the sensor which will send the information to module connected with the vehicle wirelessly.

2. LITERATURE SURVEY

"Drive safety field based on driver–vehicle–road interaction" by Jianqiang Wang, Member, IEEE, and Yang Li ... TRANSPORTATION SYSTEMS.

... complex. Consequently, existing methods that evaluate driving safety perform inadequately because they only consider limited factors and their interactions. As such, it is difficult for kinematics-based and dynamics-based vehicle driving safety assistant systems to adapt to increasingly complex traffic environments. In this paper, we propose a new concept, i.e., the driving safety field. The concept makes use of field theory to represent risk factors owing to drivers, vehicles, road conditions, and other traffic factors [2].

"Smart vehicle with everything" 2016 2nd International Conference on Contemporary Computing and Informatics (ic3i).

In this paper the number of vehicles is increasing day-by-day, the question of how to obtain information about the Vehicles is becoming more and more difficult. In such an situation Intelligent Transportation Systems (ITSs) has emerged as a solution that is an advantage from the unique features and capabilities of Wireless Sensor Networks (WSNs) and Internet of Things (IOT). WSNs are composed of tiny devices that work in manner to sense the parameters of the vehicles. It can also solve situations like intimating ambulance after occurrence of accident and track the location of the vehicle using GPS sensors. This paper presents an efficient architecture that will increase the safety of road ... using the concepts of WSN and IOT. We have proposed a cost system to prevent road accidents and to send ... of vehicles during road travel and also to transfer ... the cloud. [1]

Wireless machine-to-machine communication for intelligent transportation systems": Internet of Vehicles and ... Grid Ntefeng Ruth Mololsane, Reza Malekian, ... a Capeska Bogatinoska MIPRO 2017, May 22- ... 2017, Opatija, Croatia

... machine to machine communication in intelligent transportation is a technology that aims to interconnect various components such as sensors, vehicles, ... and wireless networks. The significance ... solve problems such as road congestion, road ... fuel consumption. This paper ... how machine-to-machine (M2M) ... can be used in intelligent transportation ... improve road safety and efficiency, where ... networks (VANETs) play a major role ...

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Performance Evaluation of Thematic Mutual Fund Schemes Using Capital Asset Pricing Model (CAPM)

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ABSTRACT

In Today's era, as earning money is important so as the Investments since just earning money is not enough. As we are working hard to earn the money, our money should also work hard for us, this is why we invest. Money lying idle in our bank account is an opportunity lost. We should invest that money smartly to get good returns out of it. For a novice Investors, it is being advised to adopt a particular investment strategy and diversify their portfolio, as through Diversification overall investment risk can be reduced.

Various investment options have been provided by Indian capital market to the investors, to help them to invest in various sectors and organizations and to ensure the profitable return. Among various financial products, Growth and developments of various mutual funds products in the Indian capital market has proved to be one of the most catalytic instruments in generating momentous investment growth in the capital market. Many AMC's Floated lots of schemes for the investors to invest their surplus savings. In this context, close evaluation of mutual funds has become essential. Hence, picking out profitable mutual funds for investment is a very important issue. This study, basically, deals with the Thematic based Infrastructure Mutual fund schemes in India

This study mainly focused on the performance of selected Infrastructure equity mutual fund schemes in terms of risk- return relationship. The main objective of this research work is to analyze financial performance of selected Infrastructure mutual fund schemes through the statistical parameters such as (Average annualised Return, beta, standard deviation, Capital Asset Pricing Model). The findings of this research study will be help full to investors for their future investment decisions.

Keywords: Mutual funds, Infrastructure mutual fund schemes, investors

1. INTRODUCTION

Mutual fund is a mechanism for pooling the resources by issuing units to the investors and investing funds in securities in accordance with objectives as disclosed in offer document. Investors need to know how risky individual assets are and what their contribution to the total risk of a portfolio would be.

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Chemical routes to materials

Preparation of porous agro-waste-derived carbon from onion peel for supercapacitor application

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ABSTRACT

Agro-waste-derived porous carbon has received more attention as electrode material for high-performance supercapacitor application due to its diversity and reproducibility. Herein, hierarchical porous carbon was successfully synthesized from most abundant biomass onion peel via double crucible method and it was explored as renewable carbon source for low-cost energy storage device. The supercapacitor electrode exhibits high specific capacitance of 127 Fg^{-1} at the current density of 0.75 Ag^{-1} with capacitance retention of 109% after 2000 cycles in three-electrode system. More importantly, its symmetric supercapacitor device exhibits energy density of 13.61 Wh kg^{-1} at the power density of 200.8 W kg^{-1} with remarkable electrochemical stability revealing capacitance retention above 100% over 14000 cycles. Our study demonstrates that onion peel-derived carbon is suitable for future low-cost energy storage device.

Introduction

Energy from sustainable and renewable source is a crucial need of twenty-first century which intends to reduce dependence on fossil fuels and address environmental concerns. As a result, there has been much attention on generation of clean and green energy from eminent natural sources such as solar, wind, tidal as well as development of electrical or hybrid electrical vehicles with low CO_2 emission. Most crucial requirement is to develop an efficient energy storage system which utilizes fragmentary energy generated from these renewable energy source and release during period of high demand. Presently, dominant energy storage devices are batteries (lithium-ion and advance secondary battery) and conventional capacitors, but both have their shortcoming; hence, there is a serious need to advent new eco-friendly energy storage devices which overcome the flaw in the existing energy storage technologies [1, 2]. In general, supercapacitor (SC) also known as ultracapacitor fills the energy gap between conventional capacitor and battery [3]. Depending upon charge storage mechanism, SC is classified into electric double-layer capacitor (EDLC) and pseudo-capacitor, where capacitance is due to pure electrostatic charge accumulation and fast reversible Faradic redox reaction, respectively, at electrode/electrolyte

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Carbon Quantum Dots/Polyaniline Nanocomposite (S-CQD/PANI) for High Capacitive Asymmetric Supercapacitor Device

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A sucrose derived carbon quantum dots/polyaniline (S-CQD/PANI) nanocomposite was synthesized as electrode materials by electrodeposition method to achieve excellent electrocapacitive performance for supercapacitor application. The morphology reveals that CQD were distributed uniformly over the surface of PANI. The highest specific capacitance obtained to be 1512.4 Fg^{-1} at current density 1 Ag^{-1} for S-CQD/PANI-25 composite in three electrode system with 1 M H_2SO_4 aqueous electrolyte within the potential range of −0.2 to 0.8 V. In addition asymmetric supercapacitor device was fabricated reveals highest specific capacitance of 295 Fg^{-1} at 1 Ag^{-1} with excellent stability over 1000 cycle at 3 Ag^{-1}. Remarkably, the device delivers energy density of 40.86 $Whkg^{-1}$ at power density 2000 Wkg^{-1}.

Keywords: Carbon Quantum Dots, Asymmetric Supercapacitor, Polyaniline, Sucrose, Electrodeposition Method.

1. INTRODUCTION

The energy crisis, continuous deterioration of fossil fuel and severe environmental pollution issue stimulates the attention toward renewable energy sources like solar, wind, tidal and even hydro power energy. However, these are intermittent sources of energy and hence need not be necessarily available at the time of high demand which promotes the research toward the development of eco-friendly, low cost reliable energy conversion and storage device [1–4]. Supercapacitor also called as ultracapacitor received more attention over the past decade as an energy storage device due to its unique features such as long life cycle, cost effective, fast charge–discharge and high power density [5, 6]. Therefore, intensive attention made for the synthesis of efficient and effective electrodes for high performance supercapacitor applications [7, 8]. Generally, supercapacitor broadly categories into electric double layer supercapacitors (EDLCs) and Pseudocapacitors [9]. EDLC supercapacitor mostly contain carbon based electrode materials reveals excellent cyclic stability, but exhibits less specific capacitance depending upon co-relation between electrolyte ions and electrode surface [10]. However, pseudocapacitors shows high specific capacitance since it contain transition metal oxide and conducting polymer as a electrode but exhibits poor cyclic stability [11, 12]. Therefore to overcome these flaws continuous effort had been made to develop composite electrode consisting carbon based materials and conducting polymer composites which exhibits excellent energy and power density with remarkable cyclability [13–17].

Among the various conducting polymers, Polyaniline (PANI) historically called as aniline black receive more attention due to its unique characteristics including, low cost, facile synthesis, fast redox rate, and excellent specific capacitance [18–23]. However, major drawback of PANI is cyclic stability which hinder its utility for high performance supercapacitor application [20]. The critical effort had been made for development and improvement of electrochemical performance of PANI composite hybrid materials [13, 24–27]. Jang et al. reported CNF/PANI hybrid composite exhibits maximum capacitance of 264 Fg^{-1} at 5 mVs^{-1} by single step vapor deposition polymerization technique [28]. Wu et al. reported CCN/PANI nanofiber

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