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# Chapter 28 Performance and Emission Characteristics of VCR Diesel Engine Fueled with Blends of Babassu Oil Methyl Esters and Diesel

Satishchandra Ragit, Krishnendu Kundu, and Aman Sharma

## Nomenclature

CO	Carbon Monoxide
EGT	Exhaust Gas Temperature
HC	Hydrocarbons
BB	Babassu Biodiesel
BOME	Babassu oil methyl ester
BOME	BB
BOME 10	BB 10
BOME 20	BB 20
BOME 30	BB 30
BP	Brake Power
BTE	Brake thermal efficiency
SFC	Specific Fuel Consumption
NO <sub>x</sub>	Oxides of nitrogen

## 1 Introduction

Demand for the fuel, with the rising deterioration of natural conditions has increased concern for environmental problems and energy crisis. Babassu biodiesel (methyl

*Present Address:*

S. Ragit (✉)

Mechanical Engineering Department, L K C E, Jalandhar, Punjab, India

K. Kundu · A. Sharma

Bio-fuel Department, CSIR-CMERI (Centre of Excellence in Farm Machinery), Ludhiana,  
Punjab, India

e-mail: k\_kundu@cmeri.res.in

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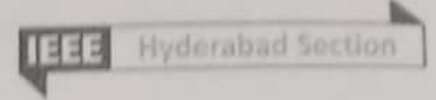
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## Abstract



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### Document Sections

- I. Introduction
- II. Literature Survey
- III. Proposed System
- IV. Experimental Result
- V. Conclusion

**Abstract:** Classification of unborn baby facial expressions is done to recognized mood of the fetus. The emotions of unborn baby facial actions is a progressive process related to b... [View more](#)

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**Abstract:** Classification of unborn baby facial expressions is done to recognized mood of the fetus. The emotions of unborn baby facial actions is a progressive process related to brain growth. From the 4D scans of unborn baby, showed that they develop expression at 24 weeks by making very simple one-dimensional emotion, such as moving their lips to complex emotions such as "pain" expressions. Proposed work created the landmark points of all images and then it is possible to compare the fetal images with landmarks. Fetal images of various expressions created by landmark points of face considering eyes, nose and lips corner points by using matlab 15. Propose work used dark channel prior algorithm for fetal image enhancement, a multi-layered feature extraction system using Local Feature Detectors and Descriptors like Harris key-points, Speed up Robust Features (SURF) and compared result by Gabor features extraction method. AI is used to classify the mood of the fetus. Also the relation between fetus age and expressions are studied, which can be used to give another index of the health indicator of a baby in womb to the doctors.

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# Facial Expression Recognition of Unborn babies by Lip Detection

Sushama Telrandhe  
Dept. of Electronics Engineering  
GNIET College of Engg.  
Nagpur, India  
sushama.telrandhe@gmail.com

Prema Daigavane  
Dept. of Electronics Engineering  
G.H. Raisoni College of Engg.  
Nagpur, India  
prema.daigavane@raisoni.net

**Abstract**— Classification of unborn baby facial expressions is done to recognize mood of the fetus. The emotions of unborn baby facial actions is a progressive process related to brain growth. From the 4D scans of unborn baby, showed that they develop expression at 24 weeks by making very simple one-dimensional emotion, such as moving their lips to complex emotions such as "pain" expressions. Proposed work created the landmark points of all images and then it is possible to compare the fetal images with landmarks. Fetal images of various expressions created by landmark points of face considering eyes, nose and lips corner points by using matlab 15. Propose work used dark channel prior algorithm for fetal image enhancement, a multi-layered feature extraction system using Local Feature Detectors and Descriptors like Harris key-points, Speed up Robust Features (SURF) and compared result by Gabor features extraction method. AI is used to classify the mood of the fetus. Also the relation between fetus age and expressions are studied, which can be used to give another index of the health indicator of a baby in womb to the doctors.

**Keywords**— Artificial neural network(AI), Dark channel prior algorithm, Fetal expression, Fetus mood, Feature selection unit (FSU), Gabor feature extraction, HOG features, Harris corner points, Speed Up Robust Features (SURF).

## I. INTRODUCTION

Unborn baby facial imagery is used in a multi-domain image processing application in medical science advancements. Researchers from different fields like gynecologists and image processing experts are needed in order to develop a sufficiently accurate expression classification system for fetus images[1]. The classification of fetus expressions is done to evaluate the continuous expression of unborn baby, and thereby observe the growth of the child. Propose system concentrate on the classification of facial expression of Unborn Babies in the womb which is depicted as one of the physiological activities of an unborn baby and can be analysed from facial expression to better define normal and abnormal baby which is depicted as one of the physiological activities of an unborn baby by adapting the coding on modern 4-D ultrasound images. The recent development of unborn baby surgery has raised the problem of baby pain and analgesia making it important to recognize facial pain even in unborn baby. However, if the ultrasound scanning results abnormality detection then it is root of worry for the pregnant women and the human fatigue is often failing the important consideration of existing data. Thus, automatic unborn baby facial appearance recognition becomes essential[2].

Researchers from different fields like gynaecologists, image processing experts and signal processing experts are needed in order to develop a sufficiently accurate classification system for unborn baby images. Digital input image is produced by 3D/4D ultrasonic scans of unborn baby.

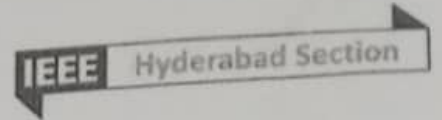
The Input is generally in JPEG format. Propose system used 3D fetal ultrasound images, collected from website. Work is designed by using MATLAB 15 and developed novel, robust, statistical Digital image processing algorithms which recognize the expression of unborn baby in the Womb. A dark channel prior dehazing algorithm is used for fetal image enhancement. Feature extraction system includes local Feature Detectors and Descriptors like Harris key-points, Speed up Robust Features (SuRF) and compare result with Gabor features. The classification is done to recognize the mood of the fetus, and thereby observe the growth of the child. Artificial neural network is accurately classify the mood of the fetus based on the extracted features.

## II. LITERATURE SURVEY

Georgia Sandbach, et. al. [1], proposed a face recognition system based on 3D motion of face image. Hassen Drira et. al. [2] present system on 3D faces by radial curves emanating from the nose point and used elastic shape model of these curves. Mohamed Daoudi et. al. [3] presented relevant features from deformations between faces using LDA. Munawar Hayat et. al. [4] presented an efficient spectral clustering based algorithm to design automatic model of facial expression. Yun Tie et al [5], presented Elastic Body Spline technology (EBS). Nesli Erdogmus et. al.[6] used Local features detectors play an important role in many applications like mapping, text recognition, image registration.

Related to unborn baby facial expression, Sitthichon Kanitthakunl et. al. [7], presented an Active Shape Model (ASM) for Antinatal assessment to diagnose fetal at high risk with window tracker technique.

Local features detectors play an important role in many applications like mapping, text recognition, image registration (J. Bauer et al., 2004), object recognition (A. Berg et al., 2005), object categorization (Dorko and Schmid, 2003), texture classification (S. Lazebnik et al., 2005), robot localization (S. Se et al., 2001), and video shot retrieval (J. Sivic et al., 2006). There are many researches that design new fast and strong detector (SIFT (D. Lowe, 2004), SURF (H. Bay et al., 2008), Fast (Guo, 2011), BRISK (Leutenegger, 2011) and descriptors SIFT (D. Lowe, 2004), SURF (H. Bay et al., 2008), BRISK (Leutenegger, 2011), Harris (C. Harris and M. Stephens, 1988), FREAK (A. Alahi et al., 2012), MinEigen, MSER, HOG)[1]. Table 1 shows the comparison of various techniques used for fetal images analysis. Table I compared some of the techniques used for fetal image analysis.



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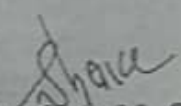
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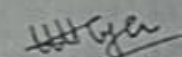
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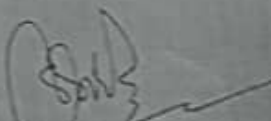
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## Mining Information Flow Based on Social Networking Services

Sneha Dongre, Prof. Vijaya Kamble

Computer Science and Engineering, Guru Nanak Institute of Engineering and Technology, Rashtra sant Tukdoji  
Maharaj Nagpur University, Nagpur, India  
[mesnehadongre26897@gmail.com](mailto:mesnehadongre26897@gmail.com), [sairamvijaya@gmail.com](mailto:sairamvijaya@gmail.com)

### ABSTRACT

A social networking service (SNS) is an online platform for creating relationships with other people who share an interest, back ground or real relationship. Social networking service users create a profile with personal information and photos and form connections with other profiles. Social networking services vary in format and the number of features. They can incorporate a range of new information and communication tools, operating on desktops and on laptops, on mobile devices such as tablet computers and smart phones. This may feature digital photo/video/sharing and diary entries online (blogging). Online community services are sometimes considered social-network services by developers and users, though in a broader sense, a social-network service usually provides an individual centered service where as online community services are groups centered. We propose a novel method to discover information diffusion processes from SNS data. The method starts pre-processing the SNS data using a user-centric algorithm of community detection based on modularity maximization with the purpose of reducing the complexity of the noisy data. After that, the Info Flow miner generates information diffusion flow models among the user communities discovered from the data. The algorithm is an extension of a traditional process discovery technique called the Flexible Heuristics miner, but the visualization ability of the generated process model is improved with a new measure called response weight, which effectively captures and represents the interactions among communities. The final constructed models allowed us to identify useful information such as how the information flows between communities and information disseminators and receptors within communities.

**Key words:** Information flow, social networking services, community detection, network modularity, Process mining

### INTRODUCTION

Social Networking service that facilitates social and special interest networking. Such services provide electronic social spaces or social network sites designed to facilitate communication, collaboration and content sharing across networks of contacts. The most famous SNSs include genuine social network sites such as MySpace, Facebook, Tagged or Friendster and various kinds of special interest sites. Usually content-sharing sites and media communities, such as YouTube or Flickr are also included in this category due to their social networking features. There are number of likes, comments and sharing of various posts. Taking Facebook and Twitter as examples, a connection on Facebook is called friendship, with both users agreeing to establish the social relationship. In contrast, the connection on Twitter is represented by a following action, in which followed users do not have to approve the relationship, and the followed users do not have to follow their followers. When a user posts or publishes content, other users can interact using comments or spread the content using different mechanisms of the SNS; for example, shares on Facebook and re-tweets on Twitter. When the sections are repeated continuously, various processes occur among the users, such as information dissemination. It created huge data at every moment which may also contain personal interaction with other users. There are two basic





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
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
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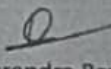
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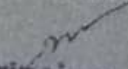
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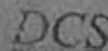
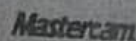
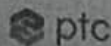
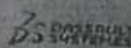
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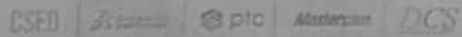
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
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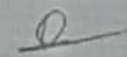
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## DRY RUN PROTECTION OF AGRICULTURE PUMP

Ms. Yamini Pawamkar<sup>1</sup>, Mr. Krunal Bombarde<sup>2</sup>, Mr. Lokesh Mankar<sup>3</sup>, Mr. Vishal Shewar<sup>4</sup>,  
Prof. Manish Agrawal<sup>6</sup>

1,2,3,4 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),  
6 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

**Abstract:** Water Level Measurement & Control forms an important part of any process in the industries as well as domestic purposes. It is generally observed that the measurement and control of liquid level is done either with the help of various continuous control strategies employing Proportional-Integral(Pi)/Proportional-Integral- Derivative(PID) Controller in many plants where as in many other applications discrete control of pump starting and stopping is done for both for industrial & domestic purposes. Here in this particular work we propose a automatic liquid level monitoring & modified control strategy in the control algorithm which helps the pump not to operate when thereis no water in the underground tank thus preventing the dry run of the pump helping in conservation of energy, preventing water wastage as well as protecting the pump from operating under dry run condition by switching the pump off. The system designed uses Arduino UNO as the Microcontroller board actuating the control action via a relay circuit to turn on or off a operating Dc pump as a prototype model.

### INTRODUCTION OF PROJECT

In this work we focusses on developing a discrete water level control system which serves for namely three purposes firstly saving water at large by preventing the overflow, energy conservation by switching off the pump in certain appropriate conditions & last but not least the objective is to also prevent the dry run of the pump enhancing the longevity of the operating pump. The automatic water pum.

### PROJECT METHODOLOGY

This work presents a scheme to monitor the the overhead tank water level as well as the underground tank water level simultaneously and then determine the decision of switching the pump on or off.

### LITERATURE SURVEY

Control systems are also classified as sequential, continuous or discrete. Hence various conventional & advanced schemes has been proposed for the control of level of the liquid in domestic and industrial applications for continuous level monitoring & control [1,2&3] where various advanced techniques like fuzzy, IMC as well as Fractional based Proportional-integral-derivative control schemes are applied on Level control loops for effective control of the liquid level in industrial applications. On the otherhand discrete control are widely applied across in domestic & industrial areas for sequential as well as discrete control of water or liquid [4,5,6&7]. Researchers have also monitored the level of liquid over the network for efficient Liquid or water level management.

### REFERENCES:

1. B. Mondal, S. Rakshit, R. Sarkar & N. Mondal "Study of PID and FLC based Water level control Using ultrasonic Level Detector" In the Proceedings of 2016 IEEE International Conference on Computer, Electrical & Communication Engineering (ICCECE)
2. U. M. Nath, C. Dey, R. K. Mudi "Fuzzy-based auto-tuned IMC-PID controller for level control process", In the Proceedings of 2017 International Conference on Computational Intelligence, Communications, and Business Analytics CICBA 2017, pp 372-381, 2017
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## DESIGN AND ANALYSIS OF BIDIRECTIONAL BATTERYCHARGER FOR ELECTRIC VEHICLE

Rakesh Bangar<sup>1</sup>, Prof. K. M. Bhartiya<sup>2</sup><sup>1</sup> (Research Scholar, CNDCT, Department of Electrical Engineering, Nagpur, India).<sup>2</sup> (IISc, Electrical Engg. Department, CNDCT Nagpur)

**Abstract.** The increase in the electric vehicle mobility has encouraged the growth of vehicle to grid technology. The vehicle to grid technology allows bidirectional power flow between the battery of electric vehicle and grid. This allows peak load shaving, load leveling, voltage regulation and improvement of power system stability. In this project we developed advanced bidirectional battery charger for Electric Vehicles (EV) supporting Grid-to-Vehicle (G2V), Vehicle-to-Grid (V2G), and Vehicle-to-Home (V2H) technologies. During the G2V operation mode batteries are charged from the power grid with sinusoidal current and unity power factor. During the V2G operation mode the energy stored in the batteries can be delivered back to the power grid contributing to the power system stability. In the V2H operation mode the energy stored in the batteries can be used to supply home loads during power outages, or to supply loads in places without connection to the power grid. Along the paper the hardware topology of the bidirectional battery charger is presented. Some considerations about the sizing of the DC-link passive filter are considered to improve the performance in the three operation modes. The adopted topology and complete simulation are validated by experimental results achieved.

**Keywords.** Bidirectional Battery Charger, Grid-to-Vehicle (G2V), Vehicle-to-Grid (V2G), Vehicle-to-Home (V2H).

### INTRODUCTION

Electric Vehicles (EVs) represent a new concept in the transport sector around the world [1]. As a result, the interest in technologies for EVs has significantly increasing from the last few years. In this context, the EVs battery charging process (Grid-to-Vehicle, G2V) must be regulated to preserve the power quality in the power grid. Nevertheless, with the proliferation of EVs a considerable amount of energy will be stored in their batteries, arising the opportunity of the energy flow in opposite direction (Vehicle-to-Grid, V2G). In the future smart grids, the interaction with the EVs will be one of the key technologies, contributing to the power grid autonomous operation. Nowadays, several projects related with smart grids are under development across the globe. Regarding this new approach, especially in homes equipped with charging points for EVs, besides the G2V and V2G operation modes the EVs can also operate as voltage source capable to feed the home loads. An example of this new approach, Nissan presented the "Leaf-to-Home" system. This is a technology that uses energy from the Nissan Leaf batteries to supply the home loads through the "EV Power Adapter" and [2]. Effectively, smart homes with energy management and efficiency solutions will be the first step to the smart grid evolution. However, solutions like the "Leaf-to-Home" only allows deliver the stored energy in the batteries back to the home in the place where the equipment is installed. In this paper a Bi-directional battery is designed that enables the V2G operation mode in the place where the EV is parked. This battery charger allows receive energy from the power grid (G2V), and deliver back to the power grid/part of the stored energy in the batteries (V2G). From the point of view of the power grid, EVs can bring benefits to auxiliary services, compensation of the renewable energy sources intermittency (providing both backup, storage and load-shift). This new approaches are more relevant when taking that private vehicles are parked on average 65-90% of their lifetime and most of the vehicles [3] are at home between 4 pm and 7 am. The concept of the bidirectional charger with V2G and G2V technologies is introduced in Fig. 1. When the EV is connected to the power grid the energy can flow to or from the EV batteries (G2V and V2G) [4]. In the absence of power grid or power outages, the EV can operate as

439

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## DESIGN AND ANALYSIS OF BIDIRECTIONAL BATTERYCHARGER FOR ELECTRIC VEHICLE

Rakesh Bangar<sup>1</sup>, Prof. R. M. Bhombe<sup>2</sup>

<sup>1</sup> (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),

<sup>2</sup>( HOD, Electrical Engg Department GNIET Nagpur)

**Abstract:** The increase in the electric vehicle mobility has encouraged the growth of vehicle to grid technology. The vehicle to grid technology allows bidirectional power flow between the battery of electric vehicle and grid. This allows peak load shaving, load levelling voltage regulation and improvement of power system stability. In this project we developed onboard bidirectional battery charger for Electric Vehicles (EVs) targeting Grid-to-Vehicle (G2V), Vehicle-to-Grid (V2G), and Vehicle-to-Home (V2H) technologies. During the G2V operation mode batteries are charged from the power grid with sinusoidal current and unitary power factor. During the V2G operation mode the energy stored in the batteries can be delivered back to the power grid contributing to the power system stability. In the V2H operation mode the energy stored in the batteries can be used to supply home loads during power outages, or to supply loads in places without connection to the power grid. Along the paper the hardware topology of the bidirectional battery charger is presented. Some considerations about the sizing of the AC side passive filter are considered to improve the performance in the three operation modes. The adopted topology and computer simulations are validated by experimental results achieved

**Keywords—** Bidirectional Battery Charger; Grid-to-Vehicle (G2V); Vehicle-to-Grid (V2G); Vehicle-to-Home (V2H).

### INTRODUCTION

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819

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## POWER FACTOR IMPROVEMENT BY COMPENSATION APPLICATION

Niharika Dinesh Temburne<sup>1</sup>, Pooja Ganesh Ramteke<sup>2</sup>, Madhuri Manoj Nirmalkar<sup>3</sup>,  
DikshantAshwin Patil<sup>4</sup>, Priyanka Lakshaman Barange<sup>5</sup>

Mrs. Diksha Khare<sup>6</sup>,

1,2,3,4,5(Research Scholar, GNIET, Department of Electrical Engineering, Nagpur University, Nagpur, India), 6(Assistant Professor GNIE3T, Department of Electrical Engineering, Nagpur University, Nagpur, India).

*Abstract*— A conventional three-phase electric arc furnace causes flicker at the point of common coupling with ac mains. This generally occurs with ac mains having a low short-circuit capacity. The flicker is caused by fluctuating reactive power consumption of the furnace. This paper describes a way, through computer simulation, of increasing the dynamic performance of the furnace and keeping reactive power consumption constant. This can be achieved with the addition of a three-phase power controller and a booster transformer to the power source and the introduction of a new control method of regulating the reactive power input. The problem of flicker can thus be minimized. This was experimentally tested on a single-phase model and the results obtained were very satisfying. Due to laboratory facilities, the three-phase testing was not performed.

*Index Terms*—Booster transformer, furnace transformer, power controller, three-phase electric arc furnace.

## INTRODUCTION

The conventional three-phase electric arc furnace causes distortions in the ac mains with a low short-circuit

Capacity. They are caused by the following three reasons [1].

- 1) The furnace behaves as an unsymmetrical consumer during operation. This lies in the geometry of the high-current path in the furnace and the difference in each arc length between the electrode and molten pool.
- 2) The arc behaves as a nonlinear ohmic resistance, resulting in harmonics being produced in the ac mains.
- 3) The arc length changes as a result of the electromagnetic force and the continuous movement of the molten pool. This produces quick changes in the reactive power consumption, thus resulting in flicker.

These disadvantages could be reduced if the furnace transformer of the conventional three-phase electric arc furnace is supplemented with a three-phase power controller and a booster transformer.

## POWER SOURCE

The main feature of the power source is the furnace transformer. It is specially designed for high-current and low-voltage output. Due to high power consumption of the furnace, they are generally connected directly to the high voltage ac mains in two ways: either through a block circuit consisting of pre-transformers and a furnace transformer or through direct connection of the furnace transformer with intermediate circuit to the high-voltage ac mains.

Fig. 1 shows the circuit diagram of the second method, which is the most favored one. It is comprised of a main transformer and a magnetically and horizontally decoupled booster transformer [2]. The booster transformer has half-rated power. The voltage of the intermediate circuit  $V_{ZW}$  is set at the level of the intermediate voltage. Switching is done with the intermediate voltage switch. Its switching power amounts to 50% of the furnace power [3]. The static var compensator meant for com-

## LOW COST DATA LOGGER AND MONITORING SYSTEM FOR A SMALL SOLAR PV ENERGY SYSTEM

Darwin Yadao Suryawanshi<sup>1</sup>, Shaffan Iqbal Sheikh<sup>2</sup>, Priya Dharmadas Tabhane<sup>3</sup>, Abrar Arif Khan<sup>4</sup>, Swapnil Manmohan Chatakwar<sup>5</sup>, Prof. Yogesh Likhar<sup>6</sup>

1,2,3,4 & 5 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),

6 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India),

**ABSTRACT** - A data logger and monitoring system are very crucial for a smooth, efficient and robust operation of PV solar energy system. Datalogger and monitoring system enables the proper operation and contributes to identifying system malfunctioning before any major breakdown. In this thesis, a low-cost, user-friendly, reliable datalogger and monitoring system has been developed mainly for a pico solar home system in a rural area of a developing country. This Aurdino microcontroller all monitoring parameter on the system displays that on a local format. The developed data logger hardware prototype uses only three sensors for temperature, voltage, and current sensing, all parameters in real time basis for an efficient monitoring which can also able to send an alert text message to maintenance personnel for any issues in battery charging.

**Keywords** : Aurdino Microcontroller, PV Solar, Voltage sensor.

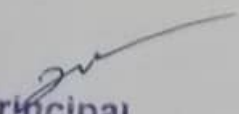
### INTRODUCTION

A Solar Home System comprises of a small solar PV Photovoltaic generator typically one PV module, a battery charge controller and a battery. This small panel of the solar home system is called pico-solar system. Pico-solar systems are smaller than traditional SHS. This system is mainly used to provide electricity to a remote user where on-grid distribution lines cannot be reached. Pico-solar system is vastly used for low power consumption appliances

i.e. lighting, mobile cell charging and turning small DC fans in rural areas. The operation principle of pico-solar systems is the same as SHS, but it has an integrated charge controller unlike a sperate charge controller unit in regular SHS. solar system has a wide range of different shapes and sizes and comes with portable design. Monitoring based design of an electronic system for the measurement and control of the physical parameters like water temperature, solar collector's fluid temperature, solar radiation level, etc. to monitor and consequently optimize thermal-solar plant functioning is presented in . The designed control unit can monitor and program the device functionality by means of a touch-screen graphical display that to check or correct operation and quickly reveal any fault, to manage and view locally the plant functioning by serial connection to PC with terminal role, and also remotely viewing and monitoring actions, by system.

### LITERATURE REVIEW

Technological advancement increased the global energy demand along with the growing world population. Government and researchers are giving more emphasis to the alternative or renewable energy sources. Solar energy is considered as the most promising and reliable source of renewable energy. To provide a reliable, consistent performance of photovoltaic (PV) system makes a demand for developing a monitoring system. There are many data acquisition and monitoring system available for the large plant which is expensive and complicated. Even there is no such data logging and control system for a small plant like pico-solar system for rural home electrification pregame. To overcome this problem, many researchers are conducting several projects to find a low cost and reliable solution for a pico-solar system. Some of the proposals are reviewed as following for finding objective and goal to develop a new low-cost data logger and control system which can operate without any internet connection in a rural area of developing country.

  
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10.1109/ACCESS.2021.3074581

- [2] S. Heydari, P. Fajri, M. Shadmand and R. Sabzehgar, "Maximizing Harvested Energy through Regenerative Braking Process in Dual-Motor All-Wheel Drive Electric Vehicles," 2020 IEEE Transportation Electrification Conference & Expo (ITEC), 2020, pp. 1246-1250, doi: 10.1109/ITEC48692.2020.9161542
- [3] M. Wang, H. Yu, G. Dong and M. Huang, "Dual-Mode Adaptive Cruise Control Strategy Based on Model Predictive Control and Neural Network for Pure Electric Vehicles," 2019 5th International Conference on Transportation Information and Safety (ICTIS), 2019, pp. 1220-1225, doi: 10.1109/ICTIS.2019.8883435.
- [4] Siddharth Mehtaa, S. Hemamalini "A Dual Control Regenerative Braking Strategy for Two-Wheeler Application" 1st International Conference on Power Engineering, Computing and CONTROL, PECCON-2017, 2-4 March 2017, VIT University, Chennai Campus
- [5] JQ. Liu, F. Qu and J. Song, "A novel dual function pneumatic valve for blending braking system and control strategies," 2017 International Conference on Mechanical, System and Control Engineering (ICMSC), 2017, pp. 255-261, doi: 10.1109/ICMSC.2017.7959482.
- [6] R. G. Chougale and C. R. Lakade, "Regenerative braking system of electric vehicle driven by brushless DC motor using fuzzy logic," 2017 IEEE International Conference on Power, Control, Signals and Instrumentation Engineering (ICPCSI), 2017, pp. 2167-2171, doi: 10.1109/ICPCSI.2017.8392101.
- [7] Xiaohong Nian, Fei Peng, and Hang Zhang, Regenerative Braking System of Electric Vehicle Driven by Brushless DC Motor, IEEE Transactions on Industrial Electronics, vol. 61, no. 10, pp. 5798-5808, OCTOBER 2014.
- [8] Jung-Song Moon, Jung-Hyo Lee, In-Yong Ha, Taek-Kie Lee, Chung-Yuen Won, An Efficient Battery Charging Algorithm based on State-of-Charge Estimation for Electric Vehicle, International Conference on Electrical Machines and systems, Beijing, China 20-23 August 2011.
- [9] Xiangpeng Yu, Tielong Shen, Gangyan Li and Kunihiko Hikiri, Regenerative Braking Torque Estimation and Control Approaches for A Hybrid Electric Truck, 2010 American Control Conference Marriot Waterfront, Baltimore, MD, USA, June 30- July 02, 2010
- [10] Hao Zhang, Guoqing Xu, Weimin Li, Meilan Zhou, Fuzzy Logic Control in Regenerative Braking System for Electric Vehicles, IEEE International Conference on Information and Automation, pp. 588-591, June 2012.

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### VOLTAGE SAG MITIGATION USING MULTILEVEL INVERTERBASED DYNAMIC VOLTAGE RESTORER

Dhiraj J Yadav<sup>1</sup>, Prof. Yogesh Likhar<sup>2</sup>, Prof. R.M. Bombe<sup>3</sup><sup>1</sup> (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),<sup>2,3</sup> (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

Abstract-The problem of voltage sags and swells and its severe impact on sensitive loads is well known. To solve this problem, custom power devices are used. One of those devices is the dynamic Voltage restorer (DVR), which is the most efficient and effective modern custom power device used in power distribution networks. Its appeal includes lower cost, smaller size, and its fast dynamic response to the disturbance. This work describes DVR principles and voltage restoration methods at the point of common coupling (PCC). Simulation results are presented to illustrate and understand the performances

## ACCIDENT PREVENTION USING MULTIPLE SENSORS

Sumit kathe<sup>1</sup>, Sneha shete<sup>2</sup>, Siddhant dongre<sup>3</sup>, Kalyani wankhede<sup>4</sup>, Nandkumar kohad<sup>5</sup>

Prof, Yogesh likhar<sup>6</sup>

1,2,3,4,5 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),

6 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India)

**Abstract-** In today's world of science and technology, the Transport system is an important part of life. Having this also gives us a sense of the most sophisticated creatures on earth. Cars play an important role in our daily lives but like all other things, there are some positives that are negative as well. Road accidents are a major threat to people's lives. Speed is an important factor in many accidents. Therefore, there is a need to control all accidents. One of the methods of accident detection was, to see the accident in person, which depended on passersby informing the relevant emergency authorities of any safety precautions to be taken but this Road had a hole in it because its efficiency was unreliable. This approach includes delays and inaccuracies due to the problem of witness speaking. This project proposes an effective management approach. First the project concerns the prevention of accidents by sending a nearby vehicle maintenance alarm to prevent a collision, and then for some reason the conflict then the next step is the acquisition of that target smart phone based on the accident detection and notification system which will track the accident with the help of implanted sensors with a small control unit and with a GPS app smartphone, GSM will send a notification to emergency services near the victim's family. Accident detection using ultrasonic sensor provides the facility to detect an accident not only in various street situations but also it might perform well under various natural conditions like rains. This system uses different sensors such as accelerometer, ultrasonic sensor, alcohol sensor, eye blink sensor, smoke sensor. GPS and GSM modules for location of accident spot.

**Keywords:** over speeding prevention, signal jumping, accident alert, overtaking assistance, wireless notification, smart system, accident prevention.

### INTRODUCTION

Everyday many lives are lost due to accidents on roads. Normally death happens due to the injury suffered by the passenger in the road accident but most of the time it also has been seen that the information of the accident, reach the emergency department very late, consequently the injured person could not sustain.

In India car use is increasing daily, for that reason accidents, car theft and air pollution are also on the rise. In India, compared to all other cities, Chennai and Delhi tend to have more road accidents. According to the data, per year 4,80,652 accidents result in 1,50,785 deaths and 1,817 deaths per month and 413 deaths per day and 55 accidents per day resulting in 17 deaths. According to one report, the highway is a major killer. On the national highway, 34.5 percent of accidental deaths occurred and on the provincial highway, 29.9% of accidental deaths occurred. The car was hijacked every 13 minutes in NEW DELHI. In the first three months of 2017, it marked a sharp 44% increase over the same period in 2016. Only about 4% of these vehicles were found. But it can be reduced by applying our suggestion. According to the Indian government report, every hour 60 accidents occur and more than 70% of them lose their lives on the spot.

847

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## ELIMINATION OF HARMONICS IN MULTILEVEL INVERTER USING ARTIFICIAL INTELLIGENCE TECHNIQUES.

Mr. Ankur Roy<sup>1</sup>, Prof. Rajendra Bhombhe<sup>2</sup>, Prof. Yogesh Likhar<sup>3</sup>

<sup>1</sup>(research scholar, Department of Electrical Engineering, Nagpur, India)

<sup>2,3</sup>(Assistant professor, Department of Electrical Engineering, Nagpur, India)

**Abstract:** Project shows the power industries demands for high level of voltage and power signal. To switch these types of signal the multilevel inverter is developed. The multilevel inverter is accomplished to manage the wide range of voltage signal. The power and voltage signal generated in the power industries should not enclose the undesired harmonics. To get rid of the unwanted harmonics from the output waveform of multilevel voltage source inverters, a variety of modulation techniques with the help of AI and optimization are reviewed in this project. Various optimization techniques to calculate the nonlinear transcendental equations in selective Harmonic Elimination are also included. Optimization of the placement and operational conditions of oil wells plays an important role in the development of the oilfields. Several automatic optimization algorithms have been used by different authors in recent years. However, different optimizers give different results depending on the nature of the problem. In the current study, a comparison between the genetic algorithm and particle swarm optimization algorithms are to be given.

**Keywords:** Multilevel inverter, Fundamental frequency, Flying capacitor, GA based controller, PSO based controller.

### INTRODUCTION:

Multilevel inverters are increasingly being used in medium and high power applications due to their many advantages such as low power dissipation on power switches, low harmonic contents and low electromagnetic interference (EMI) outputs. The elementary concept of a multilevel converter to achieve higher power is to use a series of power semiconductor switches with several lower voltage sources. The multilevel inverter synthesizes a linear sinusoidal voltage from several levels of dc voltages. Capacitors, batteries, and renewable energy voltage sources can be used as the multiple dc voltage sources. As the number of levels increases, the synthesized output waveform has more steps, which provides a staircase wave that approaches a desired waveform. Also, as steps are added to the waveform, the harmonic distortion of the output wave decreases, approaching zero as the number of voltage levels increases. A multilevel converter not only achieves high power ratings, but also enables the use of renewable energy sources. Renewable energy sources such as photovoltaic, wind, and fuel cells can be easily interfaced to a multilevel converter system for a high power application.

### METHODOLOGY

- Develop a SIMULINK model for H-bridge cascade multilevel inverter.
- Compute the mathematical inverter output voltage and harmonic voltage equations.
- Define the objective function and minimization of this function by the proposed techniques.
- Design SIMULINK model of cascade multilevel inverter.
- Checking/testing of SIMULINK model for least error tolerance with checking/testing data.
- Comparing the results by Traditional Harmonics Elimination method

### GENETIC ALGORITHM

In GA, each chromosome is used as a feasible solution for the problem, where each chromosome is developed based on single dimensional arrays with a length of  $S$ , where  $S$  is the number of angles. Initialize

813

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## INVERTER REPLACED BY HIGH POWER ENERGY SOURCE SYSTEM USING BUCK BOOST CONVERTER

Divya khobragade<sup>1</sup>, Deepali Surjagade<sup>2</sup>, kalyan Ambatwar<sup>3</sup>, Surendra kasdekar<sup>4</sup>, Saurabh Manwatakar<sup>5</sup>

Prof, Akshay Pilewan<sup>6</sup>

1,2,3,4,5 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),

6 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

**Abstract:** In our proposed project we are trying to make Inverter Replaced By High Power Energy Source System. Using Buck Boost Converter. A renewable energy systems offer economic and environmental benefits in providing clean and sustainable energy rather than conventional fossil fuels .renewable energy sources such as solar energy has received tremendous demands since it is pollution-free from any poisonous by products that can pollute the environment. DC-DC converters are widely used in renewable energy generation systems such as solar photovoltaic (PV) system, wind power system and fuel cell for correct energy conversions .the solar photovoltaic (PV) power generation system is extensively used in grid-connected and off-grid applications . Normally, these solar PV modules will be connected in series to increase the PV output voltage due to the nature of solar PV energy that can only generate low DC output voltage in the range between 12V to 20V . Thus, the power electronic interfaces or power converter such as DC-DC converter is a compulsory interface to convert the low DC output voltage from solar PV system to the required voltage rating needed by the utility grid or any suitable utilization voltage.

**Keywords:** DC-DC Converter, Photovoltaic, Renewable Energy, PV System

### INTRODUCTION

A Buck-Boost converter is a type of switched mode power supply that combines the principles of the Buck Converter and the Boost converter in a single circuit. Like other SMPS designs, it provides a regulated DC output voltage from either an AC or a DC input. The buck-boost converter is a type of DC-to-DC converter that has an output voltage magnitude that is either greater than or less than the input voltage magnitude. Buck converter produces a DC output in a range from 0V just less than the input voltage .The Boost converter will produce an output voltage ranging from the same voltage as the input, to a level much higher than the input. Battery-powered systems, where the input voltage can vary widely, starting at full charge and gradually decreasing as the battery charge is used up. At full charge, where the battery voltage may be higher than actually needed by the circuit being powered, a buck regulator would be ideal to keep the supply voltage steady. However as the charge diminishes, the input voltage falls below the level required by the circuit, and either the battery must be discarded or re-charged; at this point the ideal alternative would be the boost regulator.

### OBJECTIVES

The purpose of this project is to provide emergency dc supply service in industry level as well as domestic level. Buck-boost converter is to receive an input DC voltage and output a different level of DC voltage, either lowering or boosting the voltage as required by the application. The control unit senses the level of input voltage and takes appropriate action on the circuit based on that voltage

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## SOLAR POWERED EV CHARGER USING RFID

Ms.Shraddha Samrit<sup>1</sup>, Mr.Akshay Didawat<sup>2</sup>, Mr.Amit Parbate<sup>3</sup>, Mr.Swapnil Kolarkar<sup>4</sup>, Mr.Amol Sapate<sup>5</sup>  
Prof.Akshay Pillewan<sup>6</sup>

1,2,3,4,5(UG students ,GNIET, Department of Electrical Engineering, Nagpur, India)

6(Assistant professor, Department of Electrical Engineering, Nagpur, India)

**Abstract:** As world's resources are diminishing, govt. agencies and nongovernment organisations are pushing greener solutions through the use of renewable energy's sources. Electric vehicles are being invented and in order to run the electric vehicle the fuel required is the electricity vehicles through the Electric vehicle smart charging station which is the promising alternative and environmentally sustainable solution to meet up the energy crisis.

This project describes a EV battery charger using solar panel system based on RFID module. This design is based on Arduino microcontroller with LCD displays showing the actual time left. During the time period, a relay output is latched. This can be used at Hotels, Conference centers, Exhibition halls, service offices, Shopping malls, Airports, Train terminals. So that the EV battery users can reactivate a low battery or dead battery by simply plug in & charging for one rupee.

The system battery will charge from the solar panel. Despite solar energy being a good source of energy, there is a need to improve the methods to harness this energy.

**Keywords:** Arduino, LCD, RFID AND EM18, SOLAR PANEL

### INTRODUCTION

In many developing countries, the Grid power supply is not available for several hours on daily basis. Specially in Semi Urban & rural areas where the cell phones are essential communication device. So we use solar panel to charge battery with coin detecting mechanism, microcontroller, RFID, charging circuit and different phone sockets. The coin based charger is similar like a vending machine for charging cell phones, the user has to plug in the phone into one of the adapters and insert the coin for charging at constant current for a definite time period. Coin detecting mechanism is used to detect when user insert the coin, this will detect the coin and send a corresponding signal to signal conditioning unit which converts the incoming signal into square pulse and then given to microcontroller. The microcontroller used is ARDUINO which is a type of reprogrammable microcontroller programmed. Driver circuit consists of relay, which acts as a switch to turn ON and turn OFF. The relay output is directly given to the mobile charger pin. The solar power application to battery charging has been studied properly. Solar chargers convert light energy into DC current for a range of voltage that can be used for charging the battery. They are generally portable but can also be mounted as per required place. In this design of coin based mobile charger is a fixed solar panel of size 18 cell, 3 WP is used to charge the battery upto maximum 100 mAmp in bright sun light. Development of a coin based universal mobile battery charger based on main power and solar power is discussed and this is primarily for rural areas where the mobiles are basic needs for communication and the main power is not available all the time.

The coin-based mobile charger designed in this paper is providing a unique service to the rural public area. Where grid power is not available for partial/full daytime so we use coin based mobile charger using radio frequency identification and a source of revenue is provided. The coin based mobile battery charger can be quickly and easily installed outside any business purpose. The mobile phone market is a vast industry, and has spread into rural areas, public places and railways etc. as an essential means of communication. While the urban people use more complex mobiles with good power batteries lasting for several days, the rural people buy the mobile phones that require charging instantly. So many times battery becomes dead in the middle of conversation particularly at inconvenient times when access to a standard charger is not possible, so we use this coin-based mobile battery chargers are made to solve



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## REAL TIME FAULT DETECTION IN TRANSMISSION LINE USING IOT

Ms.Simran Ramteke<sup>1</sup>, Manoj Katre<sup>2</sup>, Sonali Chalak<sup>3</sup>, Roshni Shikardar<sup>4</sup>, Manish Lonare<sup>5</sup>  
Prof.Akshay Pilewan<sup>6</sup>

1,2,3,4,5 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),  
1 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

**Abstract :** The purpose of this project is to acquire the faults in electrical transmission line's parameter like Voltage and send these real time values over GSM network using GSM Modem/Phone at Electricity Transmitter Station. This project is also designed to protect the electrical circuitry by operating an Electromagnetic Relay. The Relay can be used to operate a Circuit Breaker to switch off the main electrical supply. User can send commands in the form of SMS messages to detect the faults in the electrical transmission line. This system also can automatically send the real time electrical parameters in the form of SMS. This system also sends SMS alerts whenever the faults occur or whenever the Voltage exceeds the predefined limits. Similarly, the main purpose of this project is to disconnect the electricity of that Transmission Line, if the faults occur.

### INTRODUCTION :

The time complicated interlocking and operation controlling requirements usually noticed in the Transmission Line working, which lead to necessity of automation of the undergoing process. In this respect, Transmission Line automation, which is the creation of a highly reliable, self-healing power system that rapidly responds to real time events with appropriate actions, ensures to maintain uninterrupted power services to the sub-stations.

**ARCHITECTURE AND WORKING OF GSM NETWORKS :** A GSM network consists of several functional entities whose functions and interfaces are defined. The GSM network can be divided into following broad parts. The Mobile Station (MS), The Base Station Subsystem (BSS), The Network Switching Subsystem (NSS), The Operation Support Subsystem (OSS). The added components of the GSM architecture include,

### DEBUGGING TOLLS :

Embedded debugging may be performed at different levels, depending on the debugger (ICD), a hardware device that connects to the microprocessor via a JTAG or Nexus interface. A complete emulator provides a simulation of all aspects of the hardware, allowing all of it to be controlled and modified and allowing debugging on a normal PC. Unless restricted to external debugging, the programmer can typically load and run software through the tools, view the code running in the processor, and start or stop its operation. The view of the code may be as assembly code or source-code. Embedded development makes up a small fraction of total programming. There are also a large number of embedded architectures, unlike the PC world where one instruction set rules, and the UNIX world. Where there are only 3 or 4 major ones. This means that the tools are more expensive. Special hardware such as JTAG ports can overcome this issue in part. However, if you stop on a breakpoint when your system is controlling real world hardware, permanent equipment damage can occur. As a result, people doing embedded programming quickly become masters at using serial IO channels and error message style debugging.

Edited  
Book

# Recent Trends In Engineering And Science

Dr. Nitin K. Mandavgade  
Dr. (Mrs.) Snehal S. Golait  
Dr. Sandeep Kumar Chaudhary  
Nitin S. Sawarkar



# Recent Trends in Engineering and Science

Editors

**Dr. Nitin K. Mandavgade**

*Professor, Mechanical Engineering Department,  
Vidarbha Institute of Technology, Nagpur (MS)*

**Dr. (Mrs) Snehal S. Golait**

*Assistant professor, Computer Technology,  
Priyadarshani College of Engineering, Nagpur (MS)*

**Dr. Sandeep Kumar Chaudhary**

*Associate Professor, JB Institute of Technology, Dehradun,  
NH-07, Chakrata Road, Shankarpur, Dehradun, Uttarakhand(UK)*

**Mr. Nitin Sudhakar Sawarkar**

*Assistant Professor, Department of Mechanical Engineering,  
Wainganga College of Engineering and Management, Nagpur. (MS)*

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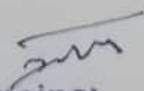


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ii

  
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## Index

Sr. No	Chapters	Pg No
1	<b>The boundary layer problem: A fourth-order adaptive collocation approach</b> <i>(Sunil Singh ,Lakhan Singh ·Sandeep Chaudhary)</i>	1
2	<b>Comparison of Ultrasound-Assisted Extraction of Estragole from Tarragon Leaves with Hydro-Distillation Method</b> <i>(Dr. Neeraj Kumar)</i>	11
3	<b>A mini review On An effect of age on Pharmacokinetics of drug</b> <i>(Archana Gautam ·Dr. Neeraj Kumar ,Harshvardhan Chauhan)</i>	20
4	<b>A Review on Natural and Synthetic Anthelmintics</b> <i>(Archana Gautam; Dr. Neeraj Kumar · Akansha Rawat , Seema Bhuhuna)</i>	23
5	<b>Review Of Recent Biological Activity Pyrazoline And Thiazolidinone Derivatives</b> <i>(Dr. Arun Kumar Maurya , Dr. Neeraj Kumar ,Sachin Kumar,Lalit Bisht)</i>	31
6	<b>Narrative review: Porosity of porous &amp; non-porous powders</b> <i>(Lalit Bish , Dr. NeerajKumar ,Dr. Arun Kumar Maurya )</i>	38
7	<b>Effect of different zinc application on various heat (Triticumaestivum L.) varieties in partially reclaimed sodic soil</b> <i>(Santosh Kumar Singh , Dr. Sugam Gupta , S. K. Sharma , Sudhir Pal , Mahesh Kumar)</i>	40
8	<b>Photochemical and Analytical Evaluation of Cordiadichotomalinn. Leaves</b> <i>(Seema Bahuguna , Dr. Sugam Gupta, Archana Gautam, Anubi Badani )</i>	52
9	<b>Pattern of floristic diversity of sub-tropical forest in Shivalik range of Doon Valley, Uttarakhand</b> <i>(Seema Verma , Dr. Sugam Gupta , Dr.S.P. Joshi , Dr.D.D. Giri)</i>	59
10	<b>Comparitive Study Between Microemulsions &amp; Nanoemulsions</b> <i>(Srishti Morris, Dr. Neeraj Kumar)</i>	73
11	<b>Different sieving methods for a variety of applications</b> <i>(Namrata Sah, Anil Kumar and Yusuf Ali)</i>	76
12	<b>A Study on Comparing the Seismic Effect on Shear wall building and Without-Shear wall Building- A Review</b> <i>(Mohd Yusuf Ali , Mr. Anil Kumar , Ms. Namrata Sah)</i>	79

13	<b>Utilization of Fiber Reinforced Polymer materials in Reinforced Structure</b> ( <i>Dr.Sanjeev Gill, Dr.Rajiv Kumar ,Mr.Anil Kumar</i> )	86
14	<b>Developing artificial intelligence methods in Structural Engineering</b> ( <i>Vikas Singh Negi, Manish Bhati and Gaurav kumar Singh</i> )	91
15	<b>Analysis of Water Pollution and SAR Index of Different Physicochemical Parameters of Yamuna River, Dehradun by using QGIS</b> ( <i>Simran Kaur, Gaurav Km. Singh</i> )	95
16	<b>Evolution of Spatial-Temporal Analysis of Earthquake in Uttarakhand by using QGIS Application</b> ( <i>Gaurav Kumar Singh, Simran Kaur , Manish Bhatti</i> )	100
17	<b>Ai-Enabled Application For Smart Transportation</b> ( <i>Mr. Manish Bhati, Mr Vikas Negi, Mr Gaurav Kumar</i> )	106
18	<b>Waterproofing Materials For Building Construction</b> ( <i>Mr. Anil Kumar, Dr. Sanjeev Gill, Mohd Yusuf Ali</i> )	114
19	<b>A Review Paper on Tensile Strength and Bending Property of Hybrid Fiber Reinforced Ferro cement</b> ( <i>Sarika , Urfee Fayaz Ganaie , Rohit Chauhan</i> )	120
20	<b>Testing Compressive Strength Of Concrete Using Various Curing Methods</b> ( <i>Ruchita Saxena, Dr.Sanjeev Gill,Dr.Rajiv Kumar</i> )	125
21	<b>Research into the effectiveness of recycled aggregate mortar was carried out experimentally.</b> ( <i>Rituraj Singh , Dr.Sanjeev Gill )</i> )	130
22	<b>In order to investigate India's road patterns, as well as concerns regarding road safety and maintenance</b> ( <i>Bhaskar Singhal ,Dr.Sanjeev Gill</i> )	135
23	<b>Review of a Comparative Study Carried Out On RCC and Steel Structures With Regard To Various Criteria's</b> ( <i>Ronit kumar, Mohammad Shuaib Ibrahim ,Dr.sanjeev Gill</i> )	140
24	<b>Corrosion Prevention In Rec Structures</b> ( <i>Mohammad Shuaib Ibrahim, Ronit kumar, Dr.sanjeev Gill</i> )	145
25	<b>The Obstacles Facing Talent Management and the Ways to Overcome Them</b> ( <i>Mohammad Imran Khan, Dr. Sanjeev Gill )</i> )	151

26	<b>Upgraded Image Retrieval Based On Consolidation Of Histograms With Texture Feature And Shape Feature</b> (Santosh Kumar Mishra)	158
27	<b>Car Mileage Prediction Using Data Science and Machine Learning Using Python</b> (Shivam Pandey, Gaurav Aggarwal, Himani Joshi, Suraj Sinha, Sushil Singh Rauthan)	169
28	<b>A Review Of Data Mining Methods For Social Media Analysis</b> (Suraj Sinha, Shivam Pandey, Santosh Kumar Mishra)	177
29	<b>TRANS-PLAY</b> (Mr. Sushil Singh Rauthan, Mr. Gaurav Aggarwal, Mr. Shivam Pandey, Mr. Sanjay Singh Panwar)	189
30	<b>Is the World's Oldest Script "Brahmi" the Best Scripting Language for Low Level Programming</b> (Jain Trang, Jain Arpit)	196
31	<b>Analysis and Design of Forward -Zeta Converter with High Power Factor</b> (Sunil Kumar)	210
32	<b>Study of Different PAPR Reduction Techniques in OFDM system</b> (Ajit Singh Rathor, Gautam Shah, Tejraj Sharma)	218
33	<b>Machine Learning Algorithms And Real World Application</b> (Asmita Sharma, Bharat Pal Singh)	225
34	<b>Data Transmission Using "LI-FI Technology"</b> (Ishan Arya, Bharat Pal Singh)	230
35	<b>Comparison between Band Notched UWB Microstrip Patch Antenna</b> (Reshu Saini)	236
36	<b>Automatic Smart Street Light</b> (Vikash kr. Mahto, Bharat pal singh, Aayush Singh)	240
37	<b>Speed Control of Buck-Boost converter Driven Dc Motor Based on Smooth Trajectory Tracking</b> (Rajendra Kumar Prajapati, Dr B.K Singh, Lakhan singh, Sapna Rauthan)	245
38	<b>Cyber-Physical Power System (CPPS) on Modeling, Simulation, and Analysis with Cyber Security Applications</b> (Kundan Chauhan, Deepak Singh Karki, Lakhan singh, sunil Singh)	251

39	<b>Power System Security with Cyber-Physical Power System Operation</b> <i>(Lakhan Singh, Sunil Singh, Rajendra Kumar)</i>	258
40	<b>Discrete Dynamic Modelling and Analysis of Open Loop Microprocessor Based Static Slip Power Recovery Control of Three Phase Slip Ring Induction Motor Drive</b> <i>(Bijay Kumar Singh, Vibhutesh Kumar Singh, Nidhi Upadhyay)</i>	264
41	<b>Design and Implementation of CFNN based SVPWM Technique for Power Quality Enhancement</b> <i>(Prem Narayan, S P Singh, B K Singh)</i>	274
42	<b>Recent Trends in IoT based VANET</b> <i>(Parveen Kumar, B.K Singh)</i>	285
43	<b>Harmony Search Algorithm and Performance on Rastigin Function</b> <i>(Ritesh Kumar Jha, Ombeer Saini, Rajendra Kumar Prajapati)</i>	295
44	<b>Production of Biodiesel</b> <i>(Punit Kumar , Ujjwal Kumar, Manik Pal Shah , Ankit Tomar)</i>	302
45	<b>Analysis of Fly Ash Polymer Composite</b> <i>(Manik Pal Shah , Punit Kumar, Ravi Shankar, Aditi Rathi)</i>	307
46	<b>Unique Design &amp; CFD Analysis Of High Volume Heat Exchanger For Dairy Application</b> <i>(Sumit Sangwan, Amit Kr. Bansal, Ujjwal Kumar, Aditi Rathi)</i>	312
47	<b>A Review on the Failure load and fracture pattern on 'U' Notched Beams of Different Metals</b> <i>(Deepak Singh Bisht , Aditi Rathi , Prabhakar Bhandari ,Jai Prakash)</i>	316
48	<b>Recent Advances in Digital Image Correlation</b> <i>(Aditi Rathi, Jitendra Kumar, Deepak Singh, Sumit Sangwan)</i>	322
49	<b>A Insect Free-Flight Simulation of Flapping</b> <i>(Jitendra Kumar, Jai Prakash, Ankit Tomar, Manik Pal Shah)</i>	327
50	<b>A Personal View of Macroscopic Equilibrium Thermodynamics</b> <i>(Ravi Shankar, Dr. Amit Bansal, Manik Pal Shah, Deepak Bisht)</i>	333
51	<b>Effect Of Sample Size On Micromagnetic Properties Of Mild Steel</b> <i>(Ankit, Ravi Shankar, Jitendra kumar ,Punit Kumar)</i>	341
52	<b>A Model Of Driven All Panel Solar Anomaly Detection For Residential Arrays : Sun-Down</b> <i>(Jai Prakash, Punit Kumar, Ankit Tomar, Jitendra Kumar)</i>	349



53	<b>Data Analysis to Provide Solution for Groundwater Management :A Review</b> (Dr.A.P.Jadhao)	353
54	<b>Black spots at Amravati City and Proposal of Mitigation Measures: A Comprehensive Review</b> (Prof.A.I.Malviya)	356
55	<b>A Study of Customer Satisfaction in Public Transportation System</b> (Prof. P.R.Wankhede)	360
56	<b>Design and Fabrication of Pedal powered Bicycle Washing Machine</b> (Prof. S. A. Pande)	365
57	<b>Mass transport study in Nasik City</b> (Prof. A.R.Bijwe)	370
58	<b>256 PSK Modulation over Various Channels for MIMO –OFDM Wireless System using Receive Beam forming: Performance Evaluation</b> (Prof. P.P. Likhitkar)	376
59	<b>Condition of High - level Causeway At Naved Darapur Road: A Study</b> (Prof. A.R.Bijwe)	382
60	<b>Study On Traffic Parameters For Heterogeneous Condition</b> (Prof. A.R.Bijwe)	391
61	<b>Planning And Designing Of Intersection By Mixed Traffic Flow Condition</b> (Prof. A.R.Bijwe)	397
62	<b>Stabilization of Black Cotton Soil by Using Fly Ash Powder</b> (Prof. A.R.Bijwe)	403
63	<b>A Brief Study Of Operation Research</b> (Prof. Harsha P. Warhade , Prof. Fouziya G. Ansari , Prof.Sadaf Gauha , Prof Satishchandra Ragit , Dr. Hemant Hajare)	412
64	<b>Advancing Sustainability: Exploring The Principles And Practices Of Green Chemistry</b> (Prof. Pranali P.Kharwade, Switi Maske, Sadaf Gauhar, Shraddha Dudhankar, Shamina Siddique)	416
65	<b>Photoluminescence properties of RE (Eu<sup>3+</sup>, Dy<sup>3+</sup>, Sm<sup>3+</sup>, Ce<sup>3+</sup>) doped BaSr<sub>2</sub>(PO<sub>4</sub>)<sub>2</sub> phosphate based phosphor</b> (Dr. Sadaf Gauhar M. Mushtaque, Dr.Hemant Hajare, Satishchandra Ragit, Shraddha Dudankar, Fouziya Ansari)	426

- 66 **Calophyllum Inophyllum biodiesel as a future transportation fuel in Compression Ignition Engine: A Review** 438  
(*Satishchandra Ragit, Shyamali Thakare, Vijay Tayde, Sadaf Gauhar, Deepa Dashottar*)
- 67 **A Comprehensive Study of "Attitudes toward Communication Skills among Students Teachers in R.T.M.N.U Engineering Colleges in Nagpur"** 447  
(*Prof. Shammina Siddique, Dr. Hemant Hajare, Shyamali Thakare, Pranali Kharwade, Fouziya Ansari*)
- 68 **Nanoparticles: Properties, Applications and Toxicities** 453  
(*Prof. Shraddha Dudhankar, Prof. Sadaf Gauhar, Dr. Hemant Hajare, Prof. Pranali Kharwade, Prof. Switi Maske*)
- 69 **Experimental Study On Power Generation From Waste Heat Using Thermoelectric Generator In Vehicles** 460  
(*Shyamali Thakare, Vijay Tayde, Pranali Kharwade, Switi Maske, Fouziya Ansari*)
- 70 **Industrial Water Treatment** 465  
(*Switi R. Maske, Pranali P Kharwade, Sadaf Gauhar, Dr. Hemant Hajare, Shammina Siddique*)
- 71 **Study of Artificial Wedged Rib on Behavior of Friction in Solar Air Heater Duct** 470  
(*Vijay Tayde, Shyamali Thakare, Satishchandra Ragit, Shraddha Dudankar, Fouziya Ansari*)
- 72 **Investigating Turbulent Flow Characteristics in Complex Geometries: A Computational Fluid Dynamics Approach** 473  
(*Prof. Fouziya Gulshan Ansari, Prof. Deepa Dashottar, Shyamali Thakare, Vijay Tayde, Dr. Hemant Hajare*)
- 73 **Multimodal Speech Emotion Recognition** 479  
(*Prof. Sandip Lanjewar*)
- 74 **Online Crime Reporting System** 486  
(*Dr. B. Timande, Prof. K. Malpe, Prof. A. Bambal, Prof. S. Patil, Prof. V. Gajbhiye*)
- 75 **Designing And Implementing Ai-Based Virtual Mouse & Keyboard Using Hand Gesture Recognition** 493  
(*Prof. A. Bambal, Dr. H. Hazare, Dr. B. Timande, Prof. S. Patil, Prof. S. Lanjewar*)
- 76 **Early Flood Detection and Monitoring System** 504  
(*Prof. R.M. Bhombe, Prof. Diksha Khare, Prof. Nikhita Khobraghade, Prof. Manish Agrawal, Prof. Swati Gajbhiye*)

77	<b>Solar PV based Scalable DC Microgrid Design and Simulation for Rural Electrification</b> (Prof. R.M.Bhombe, Prof. Diksha Khare, Prof. Nikhita Khobraghade, Prof. Manish Agrawal, Prof. Swati Gajbhiye)	509
78	<b>Industry 4.0 Is A Major Revolution Towards Industrialization</b> (Prof. R.M.Bhombe, Prof. Diksha Khare, Prof. Nikhita Khobraghade, Prof. Manish Agrawal, Prof. Swati Gajbhiye)	515
79	<b>Modelling And Simulation For Voltage Sags/Swells Mitigation Using Dynamic Voltage Restorer (DVR)</b> (Prof. R.M.Bhombe, Prof. Diksha Khare, Prof. Nikhita Khobraghade, Prof. Manish Agrawal, Prof. Swati Gajbhiye)	521
80	<b>Dual-Tree Complex Wavelet Transform Based Control Algorithm For Improvement In Power Quality In Distribution System</b> (Prof. R.M.Bhombe, Prof. Diksha Khare, Prof. Nikhita Khobraghade, Prof. Manish Agrawal, Prof. Swati Gajbhiye)	524
81	<b>Home Appliances Automation System Using Bluetooth and Voice Operated Technology</b> (Prof. D. Deshpande, Prof. S. Buradkar, Prof. S. Milmile, Dr. H. Hazare, Dr. S. Telrandhe)	528
82	<b>Automatic Floor Cleaning System</b> (Prof. S. Buradkar, Dr. S. Telrandhe, Prof. S. Milmile, Prof. D. Deshpande, Dr. H. Hazare)	534



# A Brief study of operation research

Prof. Deepa M. Dashottar<sup>1</sup>, Prof. Fouziya G. Ansari<sup>2</sup>, Prof. Sadaf Gauhar<sup>3</sup>,  
Prof Satishchandra Ragit<sup>4</sup>, Dr. Hemant Hajare<sup>5</sup>

<sup>1,2,3,4</sup> Assistant Professor, <sup>5</sup> Principal,  
Guru Nanak Institute of Engineering & Technology, Dahegaon, Kalmeshwar Road, Nagpur-441501

[ddmathsclinic@gmail.com](mailto:ddmathsclinic@gmail.com)

**ABSTRACT:** Operation research is a tool by using we can solve and formulate daily real- life problems. So that real life problems are divided into three steps, first we have to define problems after that in second step we have to prepare mathematical model and in third step we will solve that particular problem. OR includes number of techniques/methodologies that are very useful for any project management. Linear programing, nonlinear programming, Project evaluation and review technique, critical path method are very effectives methods/techniques in O.R. So all of these methods/techniques required mathematical model to describe the overall system

**Keywords:** Waste heat, waste heat Recovery, TEGs, Temperature Measurement, Voltage Measurement, Electricity etc.

## INTRODUCTION

"Operational research" is a term used by the British and Europeans, while "operations research" is used by the Americans; nonetheless, both terms are frequently abbreviated to "AND," which is the phrase we shall use. Operational Research is a rather recent field. The OR's contents and bounds have yet to be determined. When mathematical and quantitative approaches are utilized to support a choice, the OR process begins. A manager's primary responsibility is to make decisions. We make decisions in our daily lives without even realizing it. In basic situations, decisions are made only on the basis of common sense, judgment, and skill, without the use of any mathematical or other model. The instruments used in operations research come from a variety of disciplines. Operations Research uses techniques from a variety of disciplines, including mathematics, statistics, economics, psychology, and engineering, to provide a new set of knowledge for decision-making [4]. Today, O.R. has evolved into a professional subject concerned with the use of scientific methods in decision-making, particularly in the allocation of scarce resources [4]. Because systems made up of humans, machines, and procedures may lack entire knowledge, the major goal of O.R. Operations Research can be considered a science. As a result, O.R. specialists are active in three traditional aspects of science:

- Analyzing the system's performance
- Analyzing the behavior of the system by creating relevant models
- Use these models to forecast future behavior

## HISTORY OF OPERATION RESEARCH:

"Operational Research is a rather recent field. Whereas it was possible to study mathematics, physics, or engineering (for example) at university 70 years ago, it was not feasible to study Operation Research; indeed, the name O.R. did not exist at the time" [2]. Operational research began in a systematic manner only in the late 1930s, and it began in the United Kingdom. As a result, a brief history of O.R. might be interesting. Because it was evident that radar would bring a whole new set of challenges in fighter guidance and control, investigations into the effective use of such data began in late 1936 at Biggin Hill in Kent. OR began with this early development, which attempted to integrate radar data with ground-based observer data for fighter interception.



# Advancing Sustainability: Exploring the Principles and Practices of Green Chemistry

Prof. Pranali P.Kharwade<sup>1</sup>, Switi Maske<sup>2</sup>, Sadaf Gauhar<sup>3</sup>, Shraddha Dudhankar<sup>4</sup>,  
Shamina Siddique<sup>5</sup>

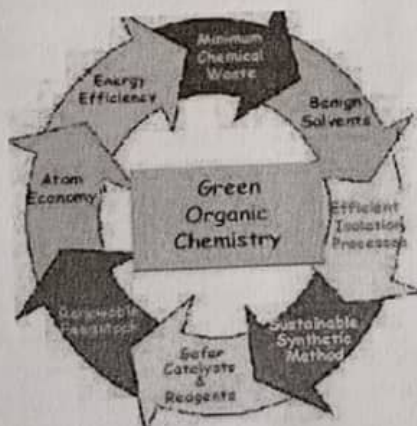
<sup>1,2,3,4,5</sup> Assistant Professor, Guru Nanak Institute of Engineering & Technology, Dahegaon, Kalmeshwar Road,  
Nagpur-441501

pranali61196@gmail.com

**ABSTRACT:** In our contemporary era, the imperative for sustainable practices is more pressing than ever. Green chemistry stands as a beacon of hope, offering innovative solutions to mitigate environmental degradation while fostering economic prosperity. This abstract delves into the principles and practices of green chemistry, elucidating its significance in promoting sustainability across various industries. From renewable feedstock to benign solvents, the principles of green chemistry guide the design of processes and products that minimize waste, toxicity, and energy consumption. Through an exploration of key concepts and case studies, this abstract aims to underscore the transformative potential of green chemistry in creating a more sustainable and harmonious future for our planet..

**KEYWORDS:** Green chemistry, sustainability, renewable feedstock, benign solvents, environmental protection, innovation, eco-friendly processes, waste minimization, toxicity reduction, energy efficiency, sustainable development, case studies, environmental impact, green technologies.

## INTRODUCTION:



In an era marked by environmental concerns and the urgent need for sustainable solutions, green chemistry emerges as a pivotal discipline at the intersection of science, industry, and environmental stewardship. Grounded in the fundamental principles of sustainability, green chemistry offers a paradigm shift in how we conceive, design, and execute chemical processes and products. This introduction sets the stage for an exploration of the principles and practices that underpin green chemistry, highlighting its significance in advancing sustainability across diverse sectors.



# Photoluminescence properties of RE ( $\text{Eu}^{3+}$ , $\text{Dy}^{3+}$ , $\text{Sm}^{3+}$ , $\text{Ce}^{3+}$ ) doped $\text{BaSr}_2(\text{PO}_4)_2$ phosphate based phosphor

Dr. Sadaf Gauhar M. Mushtaque<sup>1</sup>, Dr. Hemant Hajare<sup>2</sup>, Satishchandra Ragit<sup>3</sup>,  
Shraddha Dudankar<sup>4</sup>, Fouziya Ansari<sup>5</sup>

<sup>1,3,4,5</sup> Assistant Professor Department of Applied-Sciences & Humanities, <sup>2</sup> Professor & Principal  
Guru Nanak Institute of Engineering & Technology, Dahegaon, Kalmeshwar Road, Nagpur-441501

sadafgauhar25@gmail.com

**ABSTRACT:** This article reported photoluminescence properties of rare-earth (RE;  $\text{Eu}^{3+}$ ,  $\text{Dy}^{3+}$ ,  $\text{Sm}^{3+}$ ,  $\text{Ce}^{3+}$ ) doped  $\text{BaSr}_2(\text{PO}_4)_2$  phosphor. A series of rare-earth (RE;  $\text{Eu}^{3+}$ ,  $\text{Dy}^{3+}$ ,  $\text{Sm}^{3+}$ ,  $\text{Ce}^{3+}$ ) doped  $\text{BaSr}_2(\text{PO}_4)_2$  has been synthesized by wet chemical method. The SEM images indicated that the rare-earth doped phosphate based phosphor was well crystallized, with a homogeneous particle size distribution. Rare-earth (RE;  $\text{Eu}^{3+}$ ,  $\text{Dy}^{3+}$ ,  $\text{Sm}^{3+}$ ,  $\text{Ce}^{3+}$ ) doped  $\text{BaSr}_2(\text{PO}_4)_2$  phosphor shows the characteristics optical spectra that measured under near UV and visible range. Here PL emission spectra for  $\text{Eu}^{3+}$  is located at 590 and 613 nm,  $\text{Dy}^{3+}$  band centred at 480 and 574 nm while  $\text{Sm}^{3+}$  located at 563, 601 and 642 nm respectively &  $\text{Ce}^{3+}$  also shows at 329 nm & 343 nm. All these bands were assigned due to f-f transitions of RE ions. So, based on the properties these reported phosphor may be a promising host for display application.

**Keywords:** XRD, PL, Wet Chemical, Application

## INTRODUCTION

In the area of smart technologies, luminescence, sometimes known as 'cold light,' refers to light emitted by various energy sources at low temperatures. Among the most important issues in the twenty-first century that associated with energy conservation research. Inorganic phosphors have received a lot of interest in recent years because of their wide range of applications in lighting, electronic display, solid state lasers, biological labelling and so on [1-5]. Due to their material stability and good low voltage & high conversion efficiency, including excellent colour rendering index, high colour tolerance, high brightness, long product life, compactness, energy conservation, and environmental friendliness, w-LEDs are a good potential novel and attractive alternative light source to incandescent bulbs and fluorescent lamps. As a result, w-LEDs are viewed as novel solid-state light sources that can replace traditional light sources [6-8]. Phosphors are materials that show the luminescence phenomena. The excited electron in phosphorus releases energy as light, making it luminous. The absorption of energy from an external source, such as a photon, causes electron excitation [9-12]. In general white light can be produced by the addition of RGB and BYR color. One of the approach that utilized in development of white light is the combination of blue Ga(In)N LED chip that coupled with a yellow-emitting  $\text{Y}_3\text{Al}_5\text{O}_{12}:\text{Ce}^{3+}$  (YAG:Ce) phosphor and covering three main red, green, and blue-emitting (RGB LED chips) phosphors coupled with near-UV (NUV) chip, these are two commercial approach for producing w-LEDs. Furthermore, throughout the first technique, the lack of red emission leads in cool-white light emitting, resulting in high efficiency and cheap cost w-LEDs that are not suited for interior lighting, while in the second way, energy reabsorption between phosphors results in decreased luminescence efficiency. To address the aforementioned problem, w-LEDs made from near ultraviolet (NUV) LEDs with trichromatic phosphors have been extensively studied. As a result, high-efficiency novel phosphors activated by near ultraviolet light in warm white light are urgently needed. Many  $\text{ABPO}_4$  systems, in which A is a monovalent cation ( $\text{Li}^+$ ,  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Rb}^+$ ,  $\text{Cs}^+$ ) and B is a divalent cation ( $\text{Mg}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ba}^{2+}$ ), have been used as eminent matrices for solid-state lighting for w-LEDs by several researchers due to their



# Calophyllum Inophyllum Biodiesel as a Future Transportation Fuel in Compression Ignition Engine: A Review

Satishchandra Ragit<sup>1</sup>, Shyamali Thakare<sup>2</sup>, Vijay Tayde<sup>3</sup>, Sadaf Gauhar<sup>4</sup>, Deepa Dashottar<sup>5</sup>

1,2,3,4, Assistant Professor, Guru Nanak Institute of Engineering & Technology, Dahegaon, Kalmeshwar Road, Nagpur-441501

3 Head of the Department, First year, Guru Nanak Institute of Engineering & Technology, Dahegaon, Kalmeshwar Road, Nagpur-441501

satish\_ragit@yahoo.com; satishchandra@thapar.edu

**ABSTRACT:** This paper reviews the biodiesel production method from Calophyllum Inophyllum oil and its fuel characterization. In addition to that it also studies the performance and exhaust emission characteristics of Calophyllum Inophyllum methyl ester with diesel fuel. The increasing industrialization, modernization and motorization of the world have led to a steep rise for the demand of petroleum products, these fuels are obtained from limited reserve. These limited sources are highly concentrated in certain regions of the world. So, there are many countries not having these resources and facing a foreign exchange crisis, due to import of crude oil, Now it important to look forward for alternative source of fuel which can be produced from available materials within the country. Biodiesel it is also called as a natural fuel may be a good source or substitute for fossil fuel in future. It can be made from non-edible oil like *Jatropha curcus*, *Madhuca indica*, *Gossypium arborreum* etc. There is a better source as a raw material for biodiesel production is Calophyllum Inophyllum oil also known as hone oil. As it is an evergreen tree and grows along the coastal area. This paper is focused on the study related to collection of seeds, oil extraction then produced for biodiesel production which is used with blends with diesel as an alternative fuel in CI engine. The physic- chemical parameters showed that Calophyllum Inophyllum may works as a sustainable feedstock for biodiesel production that is equivalent to fissile fuel as per AS6751.

**Keyword** –Calophyllum Inophyllum oil, Trans-esterification, fuel properties, Engine characteristics

## INTRODUCTION

The fast depletion of world's crude oil reserves and increasing environmental concerns has created a great demand for environmentally benign renewable energy resources. Biodiesel emerged as a sustainable alternative fuel to petroleum origin diesel and its usages have been encouraged most of the countries. The concepts using vegetable oil as fuels are firstly develop by Dr. Rudolf Diesel in 1895 when the first diesel engine to run on vegetable oil. Rudolf Diesel Stated: —The use of vegetable oil for engine fuels may have been seen insignificant today. But such oil may become in source of time as important as petroleum and the coal tar products of the present timel. Biodiesel is a natural and biodegradable fuel defined as a mixture of fatty acid methyl or ethyl esters extracted from vegetable oil or animal fats and it is used in diesel engines and heating systems. Thus biodiesel be considered as mineral diesel having an advantage of reduction of greenhouse gases and it is renewable resource [1]. Vegetable oils are quite favorable alternative fuels for diesel engines. Biodiesel fuels are mono alkyl esters and generally derived from fatty ester of vegetable oil or animal fat [2]. Mostly biodiesel is prepared from oils like sunflower, palm oil, rapeseed, soybean etc. throughout the world. Depending on the weather and soil conditions, different nations looking into various vegetable oils for diesel fuel substitute; sunflower and palm oil in Malaysia, rapeseed oil in Europe and soya bean oil in USA are being considered as a substitutes for diesel fuel seed oil .As the derived oil from vegetable oil could not be used directly in diesel because of



# A Comprehensive Study of "Attitudes toward Communication Skills among Students Teachers in R.T.M.N.U Engineering Colleges in Nagpur"

Prof. Shammina Siddique<sup>1</sup>, Dr. Hemant Hajare<sup>2</sup>, Shyamali Thakare<sup>3</sup>, Pranali Kharwade<sup>4</sup>,  
Fouziya Ansari<sup>5</sup>

<sup>1,3,4,5</sup> Assistant Professor, <sup>2</sup> Professor & Principal  
Guru Nanak Institute of Engineering & Technology, Dahegaon, Kalmeshwar Road, Nagpur-441501

**Abstract:** The present study was carried out to determine the positive and negative attitudes among 289 students of class teachers using the communication skills attitude scale (CSAS) in RTMNU universities. GPA, year level of students were recorded. Overall results of study revealed that the mean of positive attitude score was 4.03. The mean of negative attitude scale score was 3.63. There were no significant differences between class teachers and childhood teachers students in their positive and negative attitudes toward communication skills. Students with grade point averages 2 and more have positive attitudes toward communication skills than students with grade point average less than 2. Senior students have high positive and less negative attitudes toward communication skills than sophomore and junior students.

## INTRODUCTION

Teachers need excellent communication skills to succeed in their profession. Listening, interpersonal, written and oral communication skills are required by teachers to facilitate understanding of teaching findings and the ability to accomplish their responsibilities effectively. Teachers are constantly gathering, sorting, analyzing and explaining information to learners. Not only do teachers need to accomplish technical tasks, they must also communicate efficiently and effectively with internal and external customers.

Development of effective communication skills is an important part of teachers' advancement potential. Teachers must possess highly developed communication skill levels to become a successful professional. The development of these skills not only enhances the teachers' potential, but will also improve the quality of teachers produced. Advanced communication skills are required in every aspect of the teaching process. Teachers must possess highly developed oral and writing skills to communicate with management, learners and co-workers effectively.

Open communication lines will minimize the potential of ill feelings during the teaching process. The next step is to carefully listen before responding to what the other person is communicating. Defensiveness needs to be avoided in the teaching process. Loss (2000) recommends utilizing positive statements, rather than accusatory statements, when communicating. Also, Rees & Garrud (2001) suggested that older, mature students have high positive attitudes toward communication skills training.

Employers maintain that graduates need training in such topics as speaking and listening (Mayes, Weldey, & Icenogle, 1997), persuasion techniques and conflict management (Reinsch & Shelby, 1997), and interpersonal communication (Golen, Catanach, & Moeckel, 1997). In a synthesis of literature on entry-level employees, Tanyel and Mitchell (1999) report a litany of communication abilities expected by employers, including written communication, oral communication, leadership communication, team skills, presentation skills, global/cultural awareness, and interpersonal communication.





# Nanoparticles: Properties, Applications and Toxicities

Prof. Shraddha Dudhankar, Prof. Sadaf Gauhar, Dr. Hemant Hajare, Prof. Pranali Kharwade, Prof. Switi Maske

Assistant Professor, Gurunanak institute of Engineering & Technology  
Dahegaon, Kalmeshwar road, Nagpur Pin- 441501

Shraddhadudhankar1995@gmail.com

**Abstract** -This review is provided a detailed overview of the synthesis, properties and applications of nanoparticles (NPs) exist in different forms. NPs are tiny materials having size ranges from 1 to 100 nm. They can be classified into different classes based on their properties, shapes or sizes. The different groups include fullerenes, metal NPs, ceramic NPs, and polymeric NPs. NPs possess unique physical and chemical properties due to their high surface area and nanoscale size. Their optical properties are reported to be dependent on the size, which imparts different colors due to absorption in the visible region. Their reactivity, toughness and other properties are also dependent on their unique size, shape and structure. Due to these characteristics, they are suitable candidates for various commercial and domestic applications, which include catalysis, imaging, medical applications, energy-based research, and environmental applications. Heavy metal NPs of lead, mercury and tin are reported to be so rigid and stable that their degradation is not easily achievable, which can lead to many environmental toxicities.

**Keywords:** Nanoparticles, Fullerenes, Optical, Plasmonic, Toxicity

## Introduction

Nanotechnology is a known field of research since last century. Since "nanotechnology" was presented by Nobel laureate Richard P. Feynman during his well famous 1959 lecture "There's Plenty of Room at the Bottom" (Feynman, 1960), there have been made various revolutionary developments in the field of nanotechnology. Nanotechnology produced materials of various types at nanoscale level. Nanoparticles (NPs) are wide class of materials that include particulate substances, which have one dimension less than 100 nm at least. Depending on the overall shape these materials can be 0D, 1D, 2D. The importance of these materials realized when researchers found that size can influence the physiochemical properties of a substance e.g. the optical properties. A 20-nm gold (Au), platinum (Pt), silver (Ag), and palladium (Pd) NPs have characteristic wine red color, yellowish gray, black and dark black colors, respectively. Fig. 1 shows an example of this illustration, in which Au NPs synthesized with different sizes. These NPs showed characteristic colors and properties with the variation of size and shape, which can be utilized in bioimaging applications. As Fig. 1 indicates, the color of the solution changes due to variation in aspect ratio, nanoshell thickness and % gold concentration. The alteration of any of the above discussed factor influences the absorption properties of the NPs and hence different absorption colors are observed.



# Experimental Study on Power Generation from Waste Heat Using Thermoelectric Generator In Vehicles

Shyamali Thakare<sup>1</sup>, Vijay Tayde<sup>2</sup>, Pranali Kharwade<sup>3</sup>, Switi Maske<sup>4</sup>, Fouziya Ansari<sup>5</sup>

<sup>1,2,3,4,5</sup> Assistant Professor, Guru Nanak Institute of Engineering & Technology, Dahegaon, Kalmeshwar Road, Nagpur-441501

shyamalithakare@gmail.com

**Abstract** - This project presents the investigation of power generation using the mixture of waste heat and thermoelectric generators. A majority of thermal energy within the industry is dissipated as waste heat to the environment. This waste heat are often utilized further for power generation. The related problems of worldwide warming and dwindling fuel supplies has led to improving the efficiency of any process being a priority. One method to enhance the efficiency is to develop methods to utilize waste heat that's usually wasted. Two promising technologies that were found to be useful for this purpose were thermoelectric generators and warmth pipes. Therefore, this project involved making a bench type, proof of concept model of power production by thermoelectric generators using heat pipes and simulated hot air.

**Keywords:** Waste heat, waste heat Recovery, TEGs, Temperature Measurement, Voltage Measurement, Electricity etc.

## INTRODUCTION

In recent years, an increasing concern of environmental problems with emissions, especially heating and therefore the limitations of energy resources has resulted in extensive research into novel technologies of generating electrical power. Thermoelectric power generators have emerged as a promising alternative green technology thanks to their distinct advantages.

Previous research shows that TEG as a waste heat harvesting method is beneficial. Due to distinct benefits of thermoelectric generators, they have become a promising alternative green technology. Thermoelectric generator direct converts waste-heat energy into electric power where it's unnecessary to think about the value of the thermal energy input. The application of this technology also can improve the general efficiency the of energy conversion systems.. A thermoelectric power generator may be a solid state device that gives direct energy conversion from thermal energy (heat) thanks to a gradient into electricity supported "Seebeck effect". The thermoelectric power cycle, with charge carriers (electrons) serving because the working fluid, follows the elemental laws of thermodynamics and intimately resembles the facility cycle of a standard engine. Thermoelectric power generators offer several distinct advantages over other technologies.

They are extremely reliable (typically exceed 100,000 hours of steady-state operation) and silent operational since they need no mechanical moving parts and need considerably less maintenance;

- They are simple, compact and safe;
- They have very small size and virtually weightless;
- They're capable of operating at elevated temperatures;
- They're fitted to small-scale and remote applications
- Typical of rural power supply, where there is limited or no electricity;
- They are environmentally friendly;
- They are not position-dependent; and



# Industrial Water Treatment

Switi R. Maske<sup>1</sup>, Pranali P Kharwade<sup>2</sup>, Sadaf Gauhar<sup>3</sup>, Dr. Hemant Hajare<sup>4</sup>,  
Shammina Siddque<sup>5</sup>

<sup>1,2,3,5</sup> Department of Applied-Sciences & Humanities, <sup>4</sup> Professor & Principal  
, Guru Nanak Institute of Engineering & Technology, Dahegaon, Kalmeshwar Road, Nagpur-441501

**ABSTRACT:** Industrial water treatment is a critical aspect of modern industrial processes, ensuring the quality and reliability of water used in various applications. This paper provides an overview of industrial water treatment, including its objectives, methods, and technologies. The objectives encompass the removal of contaminants, water conditioning, microbial control, and compliance with regulations. Various physical, chemical, and biological treatment methods are discussed, such as filtration, chemical treatment, ion exchange, disinfection, and reverse osmosis. Each method's principles, applications, advantages, and limitations are examined to highlight their role in achieving water quality goals. Furthermore, the importance of effective industrial water treatment in maintaining operational efficiency, ensuring product quality, and promoting environmental sustainability is emphasized. This paper serves as a comprehensive resource for understanding the fundamentals and complexities of industrial water treatment, aiding professionals in selecting appropriate treatment strategies to meet their specific needs.

**Key word:** Industrial Water Treatment, Water Quality, Advanced Technologies, Decentralized Systems, Green Chemistry, Water-Energy Nexus, Emerging Contaminants

## INTRODUCTION:

In today's industrial landscape, the efficient utilization of water resources is paramount for sustainable operations and economic viability. Water serves as a fundamental component across various industrial sectors, playing crucial roles in processes ranging from manufacturing and energy production to food and beverage processing. However, the quality and availability of water are increasingly challenged by factors such as population growth, urbanization, climate change, and pollution. Industrial water treatment emerges as a pivotal solution to address these challenges, offering a pathway towards optimizing water usage, minimizing environmental impact, and ensuring regulatory compliance. This paper delves into the realm of industrial water treatment, aiming to explore its significance, methodologies, and the latest advancements in technology.

This paper will comprehensively explore the diverse methodologies employed in industrial water treatment. From traditional techniques like filtration and chemical treatment to cutting-edge innovations such as membrane technology and advanced oxidation processes, each method offers unique advantages and applications. By examining the principles, capabilities, and limitations of these treatment technologies, this paper aims to provide valuable insights into their selection, implementation, and optimization within industrial contexts. Furthermore, the importance of effective industrial water treatment extends beyond operational considerations. It serves as a cornerstone for enhancing resource efficiency, reducing operational costs, and fostering corporate responsibility towards environmental stewardship. As industries increasingly face pressures to minimize water consumption, maximize reuse opportunities, and mitigate environmental risks, the role of innovative water treatment technologies becomes ever more pivotal. In essence, this paper endeavors to shed light on the transformative potential of industrial water treatment in driving sustainable industrial practices. By elucidating the latest advancements, best practices, and emerging trends in water treatment, it aims to empower industry stakeholders with the knowledge and tools necessary to navigate the complex landscape of water management and propel their organizations towards greater efficiency and resilience in the face of evolving challenges.



# Study of Artificial Wedged RIB on Fabrication in Solar Air Heater Duct

Vijay Tayde<sup>1</sup>, Shyamali Thakare<sup>2</sup>, Satishchandra Ragit<sup>3</sup>, Shraddha Dudankar<sup>4</sup>,  
Fouziya Ansari<sup>5</sup>

<sup>1,2,3,4,5</sup> Assistant Professor, Guru Nanak Institute of Engineering & Technology, Dahegaon, Kalmeshwar Road, Nagpur-441501

**ABSTRACT:** The application of artificial roughness in the duct of a conventional solar air heater has been shown as an efficient method of enhancement of thermal efficiency of solar air heater. However the use of artificial roughness results in higher frictional losses leading to larger power requirement for the air flow through the duct. This paper covers the study of behavior of friction factor with the range of solar air heater useful in india. The concept of artificial roughness and the corresponding correlations have been obtain from the literature available in journals and conferences. The range of parameters for this study was decided on the basis of practical considerations of the system and operating conditions]. These are as follows:

Reynolds number,  $Re$  - 2000 - 30000  
Relative roughness height,  $e/Dh$  - 0.01 - 0.05  
Relative roughness pitch,  $p/e$  - 5 - 12  
Wedge angle,  $F$  -  $1^\circ$ - $15^\circ$

Results shows that the presence of wedge shaped transverse integral ribs on the upper broad wall of rectangular duct enhances the maximum friction factor value in order of 5.3 respectively as compared to that of the smooth duct under similar operating conditions over the range investigated. The results are in line with the literature, hence this paper is useful to determine the behavior of friction within the range of solar air heater flow parameter.

**Keywords:** Friction Factor, Solar Air Heater, Artificial Roughness, Relative Roughness Pitch & Relative Roughness Height. Broad Area- Thermal Engineering. Sub-Area-Fluid friction.

## INTRODUCTION

Energy in various forms has played an increasingly important role in worldwide progress and industrialization. The great potential of the solar energy has made scientist to look for technologies to tap this vast inexhaustible energy resource. A tiny fraction of the solar radiation incident on the earth can satisfy the world' s total energy needs. Thus, it might seem surprising that man has been so late in harnessing the solar energy. Solar energy is collected by solar collectors. Solar air heater is the one of the most common solar collector useful in heating of buildings, crop drying and many other low temperature applications [2,4]. The thermal efficiency of a solar air heater has been found to be low because of low convective heat transfer coefficient between the absorber plate and the flowing is low. It can be increased by application of artificial roughness on the absorbing plate of solar air heater. The application of artificial roughness in the duct of a conventional solar air heater has been shown as an efficient method of enhancement of thermal efficiency of solar air heater. However the use of artificial roughness results in higher frictional losses leading to larger power requirement for the air flow through the duct. A roughness element can be described by a number of geometrical parameters such as, [1,3,5,6].  
Relative roughness height ( $e/D$ ) defined as the ratio of roughness height to hydraulic diameter of duct.



# Investigating Turbulent Flow Characteristics in Complex Geometries: A Computational Fluid Dynamics Approach

Prof. Fouziya Gulshan Ansari<sup>1</sup>, Prof. Deepa Dashottar<sup>2</sup>, Shyamali Thakare<sup>3</sup>, Vijay Tayde<sup>4</sup>,  
Dr. Hemant Hajare<sup>5</sup>

<sup>1,2,3,4</sup> Assistant Professor, Guru Nanak Institute of Engineering & Technology, Dahegaon, Kalmeshwar Road,  
Nagpur-441501

fouziyagulshan@gmail.com

**ABSTRACT:** For a variety of engineering applications, including industrial operations, environmental modelling, and aeronautical design, an understanding of turbulent flow behaviour in complicated geometries is crucial. The present work utilises computational fluid dynamics (CFD) methods to examine the finer aspects of turbulent flow in intricate geometries. The main goal is to clarify the flow phenomena, such as pressure distribution, vorticity dynamics, and turbulence intensity, which are essential for maximising system performance and averting possible problems. We investigate the turbulent flow properties in a variety of geometric configurations, from uneven surfaces to complex internal flow passageways, using rigorous numerical simulations. In order to capture the intricate interactions between turbulent eddies and the geometric boundaries, advanced turbulence models, such as Reynolds-Averaged Navier-Stokes (RANS) models and Large Eddy Simulation (LES) models, are used to analyse the turbulent flow phenomena. Additionally, a thorough investigation is conducted into the effects of many parameters, including geometric roughness, Reynolds number, and flow regimes, on the behaviour of turbulent flows. The study's insights improve our basic knowledge of turbulent flow physics and offer helpful recommendations for designing and adjusting operating parameters in real-world engineering applications. All things considered, this research advances computational methods for modelling turbulent flows in intricate geometries and speeds up the creation of reliable and effective engineering solutions for a variety of industries.

**Keywords:** Turbulent Flow, Computational Fluid Dynamics (CFD), Complex Geometries, Turbulence Modeling, Large Eddy Simulation (LES), Reynolds-Averaged Navier-Stokes (RANS), Flow Characteristics, Geometric Influences, Design Optimization, Engineering Applications

## INTRODUCTION

Fluid dynamics, especially the study of turbulent flow, is widely used in many scientific and engineering domains since it is present in both natural and artificial systems. Over a broad variety of length and time scales, turbulent flows are characterised by erratic changes in velocity, pressure, and other flow parameters. Comprehending and forecasting turbulent flow characteristics is crucial, particularly in intricate configurations, in order to maximise system efficiency, augment security, and curtail energy usage.

The behavior of turbulent flows in simple geometries has been widely studied and understood. However, many practical design applications involve complex geometries, such as irregular surfaces, complex interior corridors, and configurations with geometric roughness elements. In such cases, the interaction of turbulent eddies and geometric features introduces additional complexity, making accurate prediction of flow behavior difficult.

Computational fluid dynamics (CFD) has emerged as a powerful tool for studying turbulence and complex structures. CFD allows you to simulate and analyze flow conditions with great accuracy and efficiency by numerically solving the governing equations of fluid motion. Turbulence modeling techniques, such as large-eddy simulation (LES) and



# Multimodal Speech Emotion Recognition

Prof. Sandip Lanjewar

Assistant Professor, Guru Nanak Institute of Engineering & Technology, Dahegaon, Nagpur-441501

**Abstract:** *Speech Emotion Recognition is a task of speech processing and computational paralinguistics that aims to recognize and categorize the emotions expressed in spoken language. These deep learning methods and their layer-wise architectures are briefly elaborated based on the classification of various natural emotion such as happiness, joy, sadness, neutral, surprise, boredom, disgust, fear, and anger. These methods offer easy model training as well as the efficiency of shared weights. Limitations of deep learning techniques include their large layer-wise internal architecture, less efficiency for temporally-varying input data and over-learning during memorization of layerwise information.*

## INTRODUCTION

Speech Emotion Recognition is a task of speech processing and computational paralinguistics that aims to recognize and categorize the emotions expressed in spoken language. The goal is to determine the emotional state of a speaker, such as happiness, anger, sadness, or frustration, from their speech patterns, such as prosody, pitch, and rhythm. Speech Emotion Recognition, abbreviated as SER, is the act of attempting to recognize human emotion and affective states from speech. This is capitalizing on the fact that voice often reflects underlying emotion through tone and pitch. This is also the phenomenon that animals like dogs and horses employ to be able to understand human emotion. The objectives are

1. Emotion recognition is the part of speech recognition which is gaining more popularity and need for it increases enormously. Although there are methods to recognize emotion using machine learning techniques, this project attempts to use deep learning to recognize the emotions from data.
2. SER(Speech Emotion Recognition) is used in call center for classifying calls according to emotions and can be used as the performance parameter for conversational analysis thus identifying the unsatisfied customer, customer satisfaction and so on.. for helping companies improving their services
3. It can also be used in-car board system based on information of the mental state of the driver can be provided to the system to initiate his/her safety preventing accidents to happen

## PROBLEM DEFINITION

The problem definition of speech emotion recognition typically involves the following components:

**Input Data:** The input data is typically audio recordings of spoken language, which may be in the form of spoken words, sentences, or longer utterances. These audio recordings can be in various formats, such as raw audio signals or feature representations (e.g., Mel-frequency cepstral coefficients, spectrograms).

**Emotion Categories:** Emotions are typically categorized into a set of discrete emotional states, such as happiness, sadness, anger, fear, disgust, surprise, and neutrality. The number and definition of emotion categories may vary depending on the specific application and dataset.

**Feature Extraction:** Features are extracted from the input audio data to represent relevant information for emotion recognition. These features can capture acoustic characteristics like pitch, intensity, duration, and spectral content. Machine learning models often operate on these features for classification.

**Model Building:** Machine learning models or deep learning models (e.g., recurrent neural networks, convolutional neural networks, or hybrid models) are trained on the extracted features and labeled data to learn patterns and relationships between audio features and emotions.



# Online Crime Reporting System

Dr. Balram Timande, Dr. Kalpana Malpe, Prof. Abhishek Bambal, Prof. Snehal Patil, Prof. Veena Gajbhiye

*Assistant Professor, Guru Nanak Institute of Engineering & Technology, Dahegaon, Nagpur-441501*

**ABSTRACT:** *The Crime Reporting System is an application that covers complete case management system and this project will help in managing all activities of the police station. It can be used to report crimes and manage all the activities in a police station using computers by tracking all the details of complaints. Currently most tasks are done manually, but by computerizing all the activities inside a police station the working systems can be managed easily and effectively. The modules involved in this project are: Login for user and admin, complaint registration, view complaint status, criminal register management, case history details management, latest news regarding crime in the city. Safety tips for individuals, especially for women and also for vendors. The idea draws its provocation from the vexation of going to the police station and particular belief of the weak investigative capabilities of the authorities to resolve petty crime and the limited spreading of crime information to the community. The design specifically looks into the crime discovery and prevention. This study aims to give an overview of the investigative process and, in doing so, identify effective and effective approaches to the exploration and discovery of the volume of crimes. An online crime reporting system which is easily accessible to the public and the police department. This system registers the complaints from people through online with the help of automation of police station records, including complaints, Admin, User and Police Station Management System. It will also helpful to police department in catching law breaks. Public can give any complaint at any time.*

## INTRODUCTION

Online Crime Reporting System is developed on HTML, PHP and SQL database This project's primary goal is to make all crime management options freely accessible to everyone. This approach begins with every person who wishes to submit a complaint online, making it much easier for the police department and social workers to understand the issues in society without requiring people to frequently visit the police station. This system's major goals are to store criminal information in a centralized database and offer ways for people to submit complaints online. This project offers a variety of capabilities to manage all the data more effectively. The shortcomings of manual systems have been addressed by the development of this system. To decrease and eliminate bottlenecks in the current system, the project is supported.

### Project Overview

The main objective of an online crime reporting system is to provide a secure, efficient, and accessible way for citizens to report criminal activities, which can help law enforcement agencies to respond quickly and prevent crime. The system typically requires users to provide their personal information, such as name, address, and contact details, along with a detailed description of the incident being reported.

Some of the features that an online crime reporting system may include are:

1. Easy to use interface for reporting incidents
2. Secure storage and transmission of user data
3. Automatic notification to law enforcement agencies
4. Real-time status updates on reported cases
5. Accessible from any device with an internet connection



# Designing and Implementing Ai-Based Virtual Mouse & Keyboard Using Hand Gesture Recognition

Prof. Abhishek Bambal, Dr. Hemant Hazare, Dr. Balram Timande, Prof. Snehal Patil,  
Prof. Sandip Lanjewar

*Assistant Professor, Guru Nanak Institute of Engineering & Technology Dahegaon, Nagpur-441501*

**Abstract:** Computer Vision is used to design a Virtual mouse and keyboard using Hand Gesture Recognition. The camera of the computer will read the different gestures performed by a person's hand and according to the movement of the gestures the mouse or the cursor of the system will move, even perform right and left clicks, double click, etc. Similarly, the keyboard functions may be used like one or two-finger gestures for typing texts or numbers. Both will act as Virtual mouse and keyboard with no wire or external devices. By applying vision technology, the virtual mouse & keyboard can reduce the workspace required.

## Problem Statement

The following describes the general problems that the physical mouse and keyboard may suffer:

- Physical mouse and keyboard are subjected to mechanical wear and tear.
- They require special hardware and surface to operate.
- All wired and wireless mouse & keyboard have their lifespan.
- Physical mouse is not easily adaptable to different environments and its performance varies depending on the environment.

## ❖ Application & Uses

- It can be used to reduce the spread of the pandemic since the proposed mouse & keyboard system can be used virtually using hand gestures without using the traditional physical mouse & keyboard.
- It can be used to help patients who don't have control of their limbs.
- It can be useful in places like operation theatres where low noise is essential.
- It can be used to control robots and automation systems without the usage of devices.
- It can be used to design 3-D models, architectural designs, automated buildings, etc.

## ❖ Advantages

- By applying Computer Vision technology, the virtual mouse & keyboard can reduce the workspace required.
- No mechanical wear and tear as no wires or external devices are required.
- Longer life span & Cost-effective.
- Mouse pad no longer required.





# Early Flood Detection and Monitoring System

Prof. R.M.Bhombe\*, Prof. Diksha Khare\*, Prof. Nikhita Khobraghade\*, Prof.  
Manish Agrawal, Prof. Swati Gajbhiye

\*Assistant professor, Department of Electrical Engineering, GNIET, Nagpur, India – 440051  
Guru Nanak Institute of Engineering and Technology, Nagpur

**Abstract:** The technical and scientific advancements in the current industrial age have revolutionized our lives and provided us with plenty of comforts and conveniences. However, this industrial progress has come at a hefty cost of global warming and environmental disasters. The increasing carbon footprints and greenhouse gas emissions have severely disturbed the natural cycle of rains and floods. Hence, now we are facing the dangers of unwarned floods more than ever before. Flooding is typically brought on by an increased quantity of water during a water system, sort of a lake, river overflowing. On occasion a dam fractures, abruptly releasing a huge quantity of water. The outcome is that a number of the water travels into soil, and 'flooding' the region. In order to detect and reduce damages caused by floods in a timely manner, technology plays a crucial role. With the help of technology, we can reduce natural disasters caused by floods. In this system we make use of a Arduino Uno interfaced with different sensors, named as Ultrasonic sensor for measuring water levels, The reading of sensor are used to predict flood and alert respective authorities with help of IOT and sound instant alarm in nearby villages to instantly transmit information about possible floods. These sensors provide information over the IOT using Wi-Fi module. On detection of conditions of flooding the system predicts the quantity of your time it might take to arrive a specific area and alerts the villages/areas that would be affected by it. Keywords: Floods, Alerting System, IOT FI

**Keywords:** Regional Diversity, Mural art, Contampory Indian art

## INTRODUCTION

In India, the rainy seasons occur each year from June to October. Early rainfall is usually in June with full commencement in July, and stops in the months of October each year, with a few showers in November. Flooding is a natural phenomenon which attracts global interest. It results in tremendous environmental destruction and loss of lives. Flooding is a result of substantial rainfalls, structural failure and a large number of human factors. Floods rely on precipitation amounts and rates, topology, geology, land use, and antecedent moisture condition. In India 1,503 people and 7,842 cattle died, 27,5045 houses were damaged and 20.75 lakh hectares of crops were affected in the country due to heavy floods and rains during the current rainy season. In order to detect floods and alert the people in remote areas in a timely manner, technology plays a crucial role. With the help of technology, we can reduce natural damages caused by floods. An IoT early flood detection and alerting system using the Arduino project is proposed as a solution to this problem. The project consists of sensors which Detect water level, flow level, The project also consists of an Arduino controller, a Wi-Fi module, an LCD screen, a buzzer, and an IOT remote server based platform. The five different sensors measure the various environmental and weather-related parameters and monitor them constantly. The water level is always under observation by a float sensor, which work by opening and closing circuits as water level rise and fall. It normally rests in the closed position, meaning the circuit is incomplete and no electricity is passing through the wires yet. Once the water level drops below a predetermined point, the circuit complete itself and sends electricity through the completed circuit to trigger an alarm. The flow sensor on the system keeps eye on the flow of water. water flow sensor



# Solar PV based Scalable DC Microgrid Design and Simulation for Rural Electrification

Prof. R.M.Bhombe\*, Prof. Nikhita Khobraghade\*, Prof. Manish Agrawal\*,  
Prof. Swati Gajbhiye\*, Prof. Diksha Khare

\*Assistant professor, Department of Electrical Engineering, GNIET, Nagpur, India – 440051  
Guru Nanak Institute of Engineering and Technology, Nagpur

**ABSTRACT:** Solar photovoltaic (PV) direct current (DC) microgrids have gained significant popularity during the last decade for low cost and sustainable rural electrification. Various system architectures have been practically deployed, however, their assessment concerning system sizing, losses, and operational efficiency is not readily available in the literature. Therefore, in this research work, a mathematical framework for the comparative analysis of various architectures of solar photovoltaic-based DC microgrids for rural applications is presented. The compared architectures mainly include (a) central generation and central storage architecture, (b) central generation and distributed storage architecture, (c) distributed generation and central storage architecture, and (d) distributed generation and distributed storage architecture. Each architecture is evaluated for losses, including distribution losses and power electronic conversion losses, for typical power delivery from source end to the load end in the custom village settings. Newton-Raphson method modified for DC power flow was used for distribution loss analysis, while power electronic converter loss modeling along with the Matlab curve-fitting tool was used for the evaluation of power electronic losses. Based upon the loss analysis, a framework for DC microgrid components (PV and battery) sizing was presented and also applied to the various architectures under consideration. The case study results show that distributed generation and distributed storage architecture with typical usage diversity of 40% is the most feasible architecture from both system sizing and operational cost perspectives and is 13% more efficient from central generation and central storage architecture for a typical village of 40 houses. The presented framework and the analysis results will be useful in selecting an optimal DC microgrid architecture for future rural electrification implementations.

**Keywords:** DC microgrids; DC power systems; loss analysis; Newton-Raphson; rural electrification

## INTRODUCTION

**R**eliable access to electricity is one of the basic indicators for the quality of life and the economic standing of any community [1,2]. The availability of electricity directly affects living standards, education facilities, modes of transportation, industrial growth, and agriculture productivity [3,4]. Around 800 million people worldwide have no access to electricity, and a major part (approximately 83%) of this population belongs to rural areas [3,5]. The inhabitants of these underprivileged regions are still using fossil fuels, kerosene oil, and other raw materials to justify their basic energy needs, e.g., lighting, cooking, and heating [3,6]. Although these resources are partially fulfilling the very basic needs of the rural communities, however, these resources are not much environment friendly and also Processes 2022, 8, 1417; doi:10.3390/pr8111417 www.mdpi.com/journal/processes Processes 2022, 8, 1417 2 of 23 have adverse impacts on health [3]. Therefore, electricity access to rural communities is the need of the hour to attain the associated socioeconomic benefits. One possible way to electrify these unelectrified villages is through the expansion of the national electricity grid and associated generation, transmission, and distribution infrastructure. However, it involves a huge cost, and developing countries with limited resource availability cannot afford such large scale expansions [3]. Alternately, distributed generation (DG) based microgrids have evolved as a reliable, affordable, and cost-effective solution for generation near to the load centers [7–9]. Direct current (DC) microgrids, in comparison to alternating current (AC)



# Industry 4.0 Is a Major Revolution towards Industrialization

Prof. R.M.Bhombe , Prof. Nikhita Khobraghade, Prof. Manish Agrawal,  
Prof. Swati Gajbhiye , Prof. Diksha Khare

Assistant professor, Department of Electrical Engineering, GNIET, Nagpur, India – 440051  
Guru Nanak Institute of Engineering and Technology, Nagpur

**ABSTRACT:** Industry 4.0 is a major revolution towards industrialization. In recent days modern environment industries are facing rapid flourishing for performance capabilities and their requirements for corporate clients and industrial sector. Internet of Things (IoT) is an innovative and rapidly growing field for automation and evaluation in networks, data sensing, data mining, and controlling. These systems have a great tendency to monitor and control different process used in industries. IoT systems have been implemented and have applications in different industries due to their cost-effectiveness and flexibility In this project we are developing a prototype which includes real-time controlling of DC motor through a wireless network. With the help of this system, data can be saved and monitored and then transmitted to cloud storage. This system contains Node MCU which has ESP-8266 Wi-Fi module which sends information to an IoT API service that behaves like a cloud for various devices. The proposed system is designed to control DC motor mechanism

**Keywords-** Webserver, IOT, industry 4.0

## INTRODUCTION

DC motor plays very important role in different industries. In this project, we are discussing about a system which provides protection to the DC motor as well as helps in control and monitor various parameters. We have used Node MCU 8266 wi-fi and web server also with the help of some transducers we can easily achieve our goal to protect and control the motor as well as to monitor various parameters. We have provided various controls through internet to avoid faults in DC motor. The Industry 4.0 concept comes from Germany is not surprising, since Germany has one of the most competitive manufacturing industries in the world and is even a global leader in the sector of manufacturing equipment. Industry 4.0 is a strategic initiative of the German government that traditionally heavily supports development of the industrial sector. In this sense, Industry 4.0 can be seen also as an action towards sustaining Germany's position as one of the most influential countries in machinery and automotive manufacturing. The basic concept was first presented at the Hannover fair in the year 2011. Since its introduction, Industry 4.0 is in Germany a common discussion topic in research, academic and industry communities at many different occasions. The main idea is to exploit the potentials of new technologies and concepts such as: availability and use of the internet and IoT

- integration of technical processes and business processes in the companies,
- Digital mapping and virtualization of the real world
- 'Smart' factory including 'smart' means of industrial production and 'smart' products.
- Besides being the natural consequence of digitalization and new technologies, the introduction of Industry 4.0 is also connected with the fact that many up to now exploited possibilities for increasing the profit in the industrial manufacturing are almost exhausted and new possibilities have to be found.

Namely the production costs were lowered with introduction of just-in-time production, by adopting the concepts of lean production and especially by outsourcing production to countries with lower work costs. When it comes to the decreasing costs of industrial production, Industry 4.0 is a promising solution.



# Modeling and Simulation for Voltage Sags/Swells Mitigation Using Dynamic Voltage Restorer (DVR)

Prof. R.M.Bhombe\*, Prof. Diksha Khare \*\*, Prof. Swati Gajbhiye\*\*,  
Prof. Nikhita Khobraghade\*\*\*Prof.Manish Agrawal.

\*Assistant professor, Department of Electrical Engineering, GNIET, Nagpur, India – 440051  
Guru Nanak Institute of Engineering and Technology, Nagpur

**ABSTRACT-** This paper describes the problem of voltage sags and swells and its severe impact on non linear loads or sensitive loads. The dynamic voltage restorer (DVR) has become popular as a cost effective solution for the protection of sensitive loads from voltage sags and swells. The control of the compensation voltages in DVR based on dqo algorithm is discussed. It first analyzes the power circuit of a DVR system in order to come up with appropriate control limitations and control targets for the compensation voltage control. The proposed control scheme is simple to design. Simulation results carried out by Matlab/Simulink verify the performance of the proposed method.

## INTRODUCTION

The most common power quality problems are voltage disturbances in industrial distribution systems. The voltage-sensitive loads in hospitals factories, and buildings are damaged due to these disturbances, it results economic data losses. Voltage swell is defined as a increase in rms supply voltage for short duration ranging from 1.1 p.u. to 1.8 p.u. of nominal supply. The voltage sags and swells are the main voltage disturbances that can be due to disturbances in the transmission system, adjacent feeder faults and fuse or breaker operation. The main reasons for voltage swells are switching large capacitors or the removal of large loads. A momentary decrease in rms ac voltage at the power frequency of duration from 0.5 cycles to few second called sag. Switching operation related with temporary disconnection of supply, the flow of inrush current, like starting of large motor or the flow of fault current which are the main causes of sag. A series connected custom power device to mitigate voltage sag as well as swell, dynamic voltage restorer is used. Inject the voltage of required magnitude, phase angle and frequency in series with the distribution feeder to maintain the desired amplitude and waveform even when voltage is distorted or unbalance, is the basic function of dynamic voltage restorer. Basically DVR is the power electronics device. Only 10% voltage sag remain in circuit for 5- 10 cycles gives damage in critical load. Due to symmetrical and unsymmetrical fault, voltage sag arises in system. Harmonics in supply voltage can be caused due to uncompensated non linear load. For mitigation of problem caused due to poor quality of power supply, DVR is used their primary application is to compensate for voltage sags and swells. A very simple and practical method for voltage swell and sag detection is by calculating RMS voltage for one or half cycle. DVR topologies does not match with control algorithms many of them are work either by taking instantaneous voltage at the point of common coupling which eliminates the use of dc link in the system

## LITERATURE SURVEY

Voltage sag and swell normally described by characterization of magnitude and duration, but phase jump also important in identifying sag, swell phenomenon and also in finding solution over it. Voltage swell and sag occurs mainly due to power system fault such as 3 phase to ground, single phase to ground, phase to phase and two phase to ground fault are characterized by symmetrical component analysis and their effect on magnitude variation and phase angle jump. A practical and simple method of voltage sag detection, by calculating RMS voltage over [5]. Solution of sag occurrence in power system is to install ac voltage –voltage converter which is developed primarily for voltage sag correction. This



# Dual-Tree Complex Wavelet Transform Based Control Algorithm for Improvement In Power Quality In Distribution System

Prof. R.M.Bhombe, Prof. Diksha Kharel, Prof. Nikhita Khobraghade,  
Prof. Swati Gajbhiye, Prof. Maish Agrawal

Assistant professor, Department of Electrical Engineering, GNIET, Nagpur, India – 440051  
Guru Nanak Institute of Engineering and Technology, Nagpur

*Abstract-* Dual Tree-Complex Wavelet Transform (DT-CWT) based control algorithm for a distribution static compensator (DSTATCOM) to improve the power quality (PQ) in a distribution system. PQ disturbances like harmonics and starting as well as ending of unbalancing in all phase load currents are also assessed simultaneously. The proposed algorithm has decomposed the load current into a number of decomposition levels to extract fundamental quadrature component and active power component present in the load current. The distorted load current of each phase is decomposed into various frequency levels with this technique to extract respective line frequency component. For the Generation of Switching pulses, the sensed supply currents are subtracted from the reference supply currents to calculate the errors. These errors are fed to hysteresis current controller for the generation of the switching pulses (S1 to S6) for the IGBTs of the VSC. The deviations of respective sensed load currents from these estimated reference components are used to generate the reference currents for the control of voltage source converter (VSC) used as DSTATCOM. Simulated performance of DSTATCOM is presented at varying load conditions. The proposed control algorithm is also validated experimentally on a laboratory prototype of DSTATCOM. The total harmonic distortion (THD) of supply current is obtained below 5% with unity power factor under different load conditions which is satisfactory as per IEEE-519 standard.

## INTRODUCTION

Both electric utilities and end users of electric power are becoming increasingly concerned about the quality of electric power. The term power quality has become one of the most prolific buzzwords in the power industry since the late 1980s. Power quality is ultimately a consumer-driven issue, and the end user's point of reference takes precedence. Any power problem manifested in voltage, current, or frequency deviations that result in failure or mis operation of customer equipment. Since power quality problems often involve interactions between the supply system and the customer facility and equipment, regulators should make sure that distribution companies have incentives to work with customers and help customers solve these problems. The power quality is determined by the performance and productivity of end-user equipment. If the electric power is inadequate for those needs, then the "quality" is lacking. AC power systems are designed to operate at a sinusoidal voltage of a given frequency [typically 50 or 60 hertz (Hz)] and magnitude. Any significant deviation in the waveform magnitude, frequency, or purity is a potential power quality problem. Of course, there is always a close relationship between voltage and current in any practical power system. Because of sensitive customer loads, there is a need to define the quality of electricity provided in a common and succinct manner that can be evaluated by the electricity supplier as well as by consumers or equipment suppliers. Although the generators may provide a near-perfect sine-wave voltage, the current passing through the impedance of the system can cause a variety of disturbances to the system. The ultimate reason that we are interested in power quality is economic value. There are economic impacts on utilities, their customers, and suppliers of load equipment. The quality of power can have a direct economic impact on many industrial consumers. This usually means electronically controlled, energy-efficient equipment



# Home Appliances Automation System Using Bluetooth and Voice-Operated Technology

Dr.S.Telrandhe<sup>1</sup>, Prof.S.Bhuradkar<sup>2</sup>, Prof.D.Deshpande<sup>3</sup> Prof.S.Milmile<sup>4</sup>, Dr.H.Hazare<sup>5</sup>

Guru Nanak Institute of Engineering & Technology, Nagpur

**Abstract:** Nowadays we are expected to achieve a lot more in a limited amount of time. Thus, our project aims to help by using a Home Automation System that can be controlled via human voice. We will be using Android software for voice recognition. The software will recognize the voice command given at the microphone and will generate according to data. Today's homes require sophisticated control in its different gadgets, basically electronic appliances [1]. This has revolutionized the area of home automation with respect to an increased level of affordability and simplicity through the integration of home appliances with smartphone and tablet connectivity. Smartphones are already feature-perfect and can communicate to any other devices in an ad hoc network with a connectivity option like Bluetooth [2]. Mobile application development has seen a major outbreak with the advent of mobile phones. Utilizing the opportunity to automate tasks for a smart home, mobile phone commonly found in normal households can be joined in a temporary network inside a home with the electronic equipment. Android, by Google Inc. provides the platform for the development of mobile applications for Android devices [3]. The home automation system is a mobile application developed using Android targeting its vast market which will be beneficial for the masses. According to the International Data Corporation (IDC) Worldwide Quarterly Mobile Phone Tracker, Android maintained its leadership position in global market share [4]. Bluetooth is a short-range wireless communication technology that comes in handy as the solution while communicating over an ad hoc network environment like the home environment for connecting the home appliances with mobile phones [5]. Bluetooth works over 2.4 GHz frequency range up to the range of 100 m with 1 Mbps speed, providing a safe and efficient solution for controlling home automation..

**Keywords—** Liquid Crystal Display (LCD), Operating System (OS), Single Pole Double Throw (SPDT), Personal Computer (PC), American Standard Code for Information Interchange

## INTRODUCTION

The present life system of human beings is becoming fast and accurate. Society, now a days is moving at blazing speeds. To cope up with the twenty-first century i.e., with the speeds and accuracy, people seem to take the path of the electronic automation. From adding two numbers to solving complex calculations, from opening a door to launching a rocket, everywhere you find the dominance of electronic controllers. With the increase in the positivism the balance has to maintain. Natural as well as human abnormalities leading to a disaster can be stopped or at least taken care of before there is much damage. This project is aimed to fulfill, not fully though, the requirements of a user. This project is a fine combination of analogy and digital electronics. As a part of our fourth-year circular activity, we are making the project whose title is "Android based Rolling Display using Matrix LEDs". This module can be implemented in the conference halls also for colleges. A display unit will show the predefined messages This project can be used for Advertising or for providing information at various places like shops, government offices, hospitals, railway stations. The Rolling display is prepared using 8 x 8 Matrix LEDs which means LEDs are arranged in a pattern consisting of 8 columns and 8 rows. A matrix of 8 x 8 LEDs contributes to a single character. Here we have used 6 characters which means 6 matrices. The



# Automatic Floor Cleaning System

Prof.S.Bhuradkar<sup>1</sup>, Dr.S.Telrandhe<sup>2</sup>, Prof.S.Milmile<sup>3</sup> Prof.D.Deshpande<sup>4</sup>, Dr.H.Hazare<sup>5</sup>

Guru Nanak Institute of Engineering & Technology, Nagpur

**Abstract:** This project focuses on the development of an Automatic Floor Cleaning System using robotic technology. The system aims to provide efficient cleaning for both dry and wet surfaces through automatic maintenance and floor mapping. Utilizing spinning brushes and sensors for obstacle detection, the robot navigates autonomously, ensuring comprehensive coverage and effective cleaning. The project explores the integration of various components such as moisture cotton mop, swiping brushes, and vacuum cleaners, along with technologies like Bluetooth communication and ultrasonic sensors. The system offers both manual and autonomous operation modes, scheduling capabilities, and efficient energy consumption. By leveraging advancements in robotics and sensor technology, the Automatic Floor Cleaning System presents a cost-effective and user-friendly solution for maintaining clean spaces.

**Keywords:** Automatic Floor Cleaning System, Robotics, IoT, Sensor Technology, Bluetooth Communication, Ultrasonic Sensors, Energy Efficiency, Autonomous Operation, Wet and Dry Cleaning, Smart Cleaning Solutions.

## INTRODUCTION:

The introduction highlights the significance of robots in various fields, emphasizing their increasing intelligence. The project focuses on robotic cleaners with expertise in tasks such as floor mapping and dry vacuuming for both dry and wet surfaces. The goal is to create a cost-efficient, lightweight, and low-maintenance robotic system capable of automatic maintenance, floor mapping, and wet cleaning. The system utilizes spinning brushes underneath to accumulate dirt and debris during movement.

### BASIC IDEA:

The basic idea involves robots cleaning edges and hard-to-reach areas using algorithms for navigation. Sensors detect obstacles, and the robot's bumper prevents collisions by adjusting its path.

### HISTORY:

Robots, equipped with their computational logic, are becoming increasingly intelligent, with humans incorporating them into their daily lives. These devices utilize various components such as pneumatic devices, actuators, sensors, mechanical control devices, and microcontrollers to function efficiently. Mechanical control devices regulate material flow, while actuators control specific mechanisms within the device. Sensors gather environmental data and transmit it to the microcontroller, which then determines the machine's actions.

- Aim of the project: Design and develop a floor cleaning system for both wet and dry surfaces.
- Components of the cleaning machine: Moisture cotton mop, swiping brushes, wipers, and vacuum cleaners.
- Features of the Smart Floor Cleaning Robot: Autonomous and manual operation, scheduling, and bagless dirt container with auto-dirt disposal.
- Technology integration: Utilization of RF modules for wireless communication within a 50m range.
- Operational modes: Automatic mode with obstacle detection and lane changes, manual mode controlled by keypad.
- Path-following mechanism: Zigzag path for efficient cleaning coverage.
- Additional convenience: Automatic water sprayer attached for mopping without repeated cloth attachment.



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
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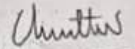
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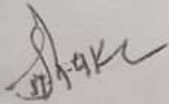
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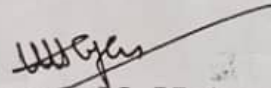
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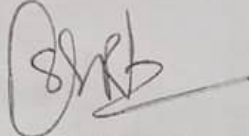
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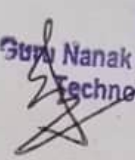
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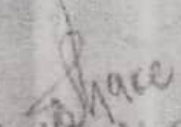
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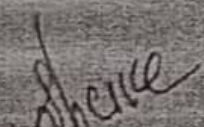
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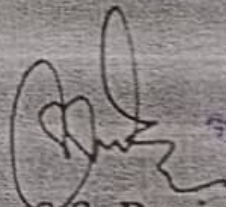
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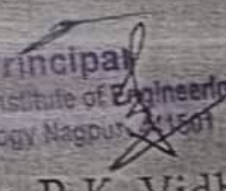
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
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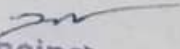
  
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**Dr. Sophia Ansari**  
 Conference Chair  
 Aspire 2022

*Chhuan Chanthan*  
**Dr. Chhuan Chanthan**  
 Rector  
 IIC University of Technology, Cambodia



*Principal*  
**Guru Nanak Institute of Engineering &  
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# ICSCI 2022

NAGPUR  
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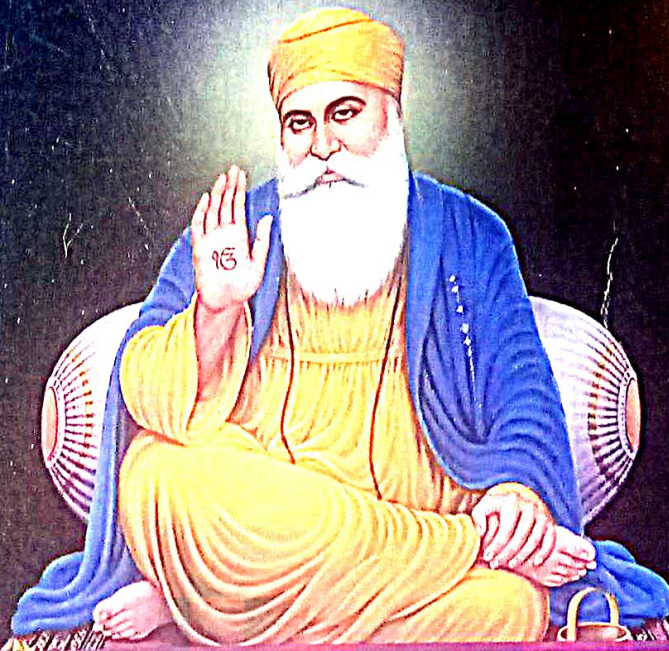
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## INDEX

Sr. No.	Topic Name	Paper Id	Page No.
1.	Representation Of Sepino Archeological Site Using Airborne Remote Sensing	ICSCI2022_0929	1-6
2.	Investment In Cryptocurrencies : An Analysis Of Cryptocurrencies, Gold, Stocks And Bonds	ICSCI2022_1164	7-12
3.	Representation Of Anthropic Hazard In Southern Italy Using Airborne Remote Sensing	ICSCI2022_1307	13-17
4.	Representation, Mapping And Monitoring Of Flooded Areas And Landslides Using Airborne Remote Sensing	ICSCI2022_1446	18-23
5.	Studies Of Tractor And Crop Parameters Combinations For	ICSCI2022_6388	24-34
6.	Drag Reduction Of Ahmed Body Using Surface Dimples: A Computational Approach	ICSCI2022_7072	35-40
7.	Role Of Epigenetics In Computation Of Myopia	ICSCI2022_7218	41-44
8.	Flood Frequency Analysis Of Jhelum River	CE01_ICSCI 2022/2431	45-49
9.	Flexural Behavior Of High Strength Concrete Using Recycled Carbon Fibers	CE02_ICSCI 2022/6812	50-54
10.	Flow Transition Due To Width Contraction	CE03_ICSCI 2022/7098	55-59
11.	Study Of Blackspots On Highways And Innovative Ways To Reduce Accidents	CE04_ICSCI 2022/8665	60-65
12.	Comparative Analysis Of An Rc Framed Building Under Seismic Conditions.	CE05_ICSCI 2022/9839	66-71
13.	Remote Sensing And Gis Based Landslide Susceptibility Zonation Mapping Using Weight Of Evidence Method In Kasauli	CE06_ICSCI 2022/0620	72-77
14.	Landslide Susceptibility Mapping Using Certainty Factor Approach In Solan, Hp, India	CE07_ICSCI 2022/3062	78-86
15.	A Method Of Energy Harvesting From Machine Foundation	CE08_ICSCI 2022/6276	87-95
16.	Analysis Of Behaviour Of Piled-Raft Foundation In Sandy Soil	CE09_ICSCI 2022/7580	96-102
17.	Landslide Susceptibility Zonation Mapping In Kandaghat Tehsil, District Solan, Hp	CE10_ICSCI 2022/8682	103-108
18.	Effectiveness Of Special Shear Walls And Dual System For Multistoried Building	CE11_ICSCI 2022/2605	109-112
19.	Effectiveness Of Special Shear Walls And Dual System For Different Shapes Of Building	CE12_ICSCI 2022/9025	113-113
20.	Modeling Of Bituminous Concrete Job Mix Formula Design Using Path Variate Analysis And Interval Method	CE13_ICSCI 2022/9286	114-118
21.	Analysis And Design Of An Industrial Shed With Codal Comparison By Is 875(Part-Iii):	CE14_ICSCI 2022/3213	119-124



	2015 And Is 875(Part-ii): 1987		
22.	Resistance Coefficients For Mitre Bends Of All Angles: A Universal Equation	CE15_ICSCI 2022/5565	125-130
23.	Review On Recent Advanced Oxidation Processes For Water And Wastewater Treatment	CE16_ICSCI 2022/6853	131-135
24.	Experimental Investigation With Natural Minerals & Foaming Agent To Make Special Sustainable Building Construction Material	CE17_ICSCI 2022/7231	136-139
25.	Assessment Of Concrete Paver Block With The Addition Of Plastic, Flyash & Rice Husk Ash	CE18_ICSCI 2022/9961	140-147
26.	Investigations Into Dynamic Analysis Of Multi-Storied Pre-Engineered Building With Variation In Bracing Parameter	CE19_ICSCI 2022/7376	148-154
27.	Seismic Analysis Of Regular & Vertical Geometric Irregular Rcc Framed Building	CE20_ICSCI 2022/3899	155-160
28.	Seismic Analysis Of Irregular Reinforced Concrete Structure With Different Bracing System	CE21_ICSCI 2022/3978	161-164
29.	Partial Replacement Of Cement With Rice Husk Ash In Cement Concrete	CE22_ICSCI 2022/6283	165-168
30.	Developing Practical Framework For Sustainable Development	CE23_ICSCI 2022/1154	169-179
31.	Environmental Audit: A Paradigm Shift Towards Sustainable Development	CE24_ICSCI 2022/1925	182-189
32.	Simulation Model For High Motor Vehicles For Heterogeneous Traffic	CE25_ICSCI 2022/3080	190-194
33.	Use Of Plastic Waste Material In Flexible Pavements	CE26_ICSCI 2022/2976	195-200
34.	Comparison Of Clay Brick And Cow Dung Brick	CE27_ICSCI 2022/2763	201-207
35.	Deterioration Of Reinforced Concrete Sewers Caused By Sulphide Attack	CE28_ICSCI 2022/3445	208-212
36.	Analysis Of Cable Stayed & Suspension Hybrid Bridge For Different Configuration Of Cables	CE29_ICSCI 2022/2001	213-217
37.	Soil Interaction Analyses With Fixed Base & Flexible Base Condition	CE30_ICSCI 2022/1445	218-221
38.	Congregation Of Trash By Using Critical Path Method	CE31_ICSCI 2022/3022	221-221
39.	Green Bricks For Sustainable Buildings	CE32_ICSCI 2022/1233	222-227
40.	Workability Of The Self-Compacting Concrete With Hybrid Fibres	CE33_ICSCI 2022/4032	228-233
41.	Green Audit - A Step Towards Environmental	CE34_ICSCI 2022/2056	234-235
42.	Comparison Of Pile Bearing Capacity Using A Hybrid Genetic Algorithm Based On Ann" Manuscript	CE35_ICSCI 2022/7950	236-238
43.	Analysis Of Dynamic And Assessment Of Multispan Bridge	CE36_ICSCI 2022/8820	239-240
44.	Static And Dyanmic Analysis Of Grid And Flat Slab In Rcc Structure By Using	CE37_ICSCI 2022/2582	241-242

	Staad.Pro		
45.	Study & Analysis Of Self Supported Steel Chimney According To Indian Standard	CE38_ICSCI 2022/5824	243-244
46.	An Experimental Study On Effective Utilization Of Glass Powder In Concrete	CE39_ICSCI 2022/2523	245-247
47.	Literature Review On Analysis Of The Effect Of Different Material Used In Foot Bridge By Using Ansys	CE40_ICSCI 2022/2334	248-249
48.	To Improve The Concrete Properties By Using Epoxy Materials With Different Water Cement Ratio	CE41_ICSCI 2022/0935	250-251
49.	Application Of Fibre Reinforced Self Compacting Concrete As Wall Panels	CE42_ICSCI 2022/7350	252-254
50.	Response Spectrum And Pushover Analysis Of T Beam Bridges By Using Sap-2000	CE43_ICSCI 2022/6944	255-256
51.	Fibre Reinforced Self Compacting Concrete And Its Stress Strain Behaviour	CE44_ICSCI 2022/6842	257-259
52.	Comparative Analysis Of Different Steel Truss Type Railway Bridge Considering Railway Loadings	CE45_ICSCI 2022/6364	260-261
53.	Seismic Design Of Combined Middle Head And Overhead Water Tank	CE46_ICSCI 2022/7023	262-263
54.	Analysis Of Seismic Loading By Using Response Spectrum Method And Analysis Of Wind Loading On G+11 Building	CE47_ICSCI 2022/6249	264-265
55.	Identification Of Concrete Defects In Building And Their Maintenance	CE48_ICSCI 2022/9725	266-267
56.	Analysis Of Ultra High Performance Concrete Properties Applications And Future Scope	CE49_ICSCI 2022/9983	268-269
57.	Fly Ash Cenospheres As Reinforcement In Different Polymer Composites – A Comparative Study Of Physical And Mechanical Properties	CE50_ICSCI 2022/2885	270-271
58.	An Experimental Study Of The Concrete Using Polymer And Metakaolin As Additives	CE51_ICSCI 2022/8369	272-273
59.	Analysis Of Web Opening Effects In The I Section Under Flexure	CE52_ICSCI 2022/6271	274-275
60.	Investigate The Zone Of Plastic And Crack The Reason In Cylinder Bridge Using Finite Element Method	CE53_ICSCI 2022/2808	276-277
61.	Literature Review On Compare Estimation Of Pre-Engineering Building (Peb) With Normal Steel Building	CE54_ICSCI 2022/2701	278-279
62.	Design & Analysis Of Earthquake Resistant G+13 Storey Building Using Staadpro	CE55_ICSCI 2022/2435	280-281
63.	Destruction Of Structure & Reuses Of Demolished Material	CE56_ICSCI 2022/7273	282-286
64.	Comparative Study Of Direct Design Method And E-Tab 18 With And Without Interior Beam	CE57_ICSCI 2022/3184	284-285
65.	Comparative Study On Flexural Behavior Of Light Weight Aggregate Rc Beam	CE58_ICSCI 2022/0808	286-287

66.	Analysis & Design Of (G+5) Residential Building Using Staad.Pro & Autocad " Manuscript	CE59_ICSCI 2022/0937	288-289
67.	Study Of Behavior Of Rcc Building With And Without Bracing By Using Staad. Pro.	CE60_ICSCI 2022/1377	290-290
68.	Analysis Of Seismic Demand In Different Structural Members	CE61_ICSCI 2022/8608	291-291
69.	Effects Of Fire On Building Structure And Its Specification.	CE62_ICSCI 2022/1944	292-292
70.	Special Aspects Of Steel Bridges Structures	CE63_ICSCI 2022/7270	293-294
71.	Soil Improvement Techniques Of Mitigation Of Seismic - Hazards	CE64_ICSCI 2022/8470	295-296
72.	The Effect Of Traffic And Road Characteristics On Road Safety.	CE65_ICSCI 2022/7809	297-298
73.	Quality Of Materials On A Road Safety Marking Of Highway	CE66_ICSCI 2022/1839	299-300
74.	Impacts Of Civil Engineering Infrastructure In The Sustainability Of Environmrnt	CE67_ICSCI 2022/1378	301-301
75.	Analysis And Design Of Foot Bridge.	CE68_ICSCI 2022/2902	302-302
76.	Incorporating Road Saftey Into Pavement Management	CE69_ICSCI 2022/5347	303-305
77.	Earthquake Resistant Building Techniques	CE70_ICSCI 2022/4459	306-307
78.	Pollution Is A Curse To Environment	CE71_ICSCI 2022/8059	308-309
79.	Seismic Analysis Of Regular And Vertical Geometric Irregular Rcc Frame Building.	CE72_ICSCI 2022/3899	310-311
80.	Seismic Analysis Of Steel Building	CE73_ICSCI 2022/4928	312-313
81.	Analysis And Design Of (G+5) Residential Building	CE74_ICSCI 2022/9093	314-315
82.	Comparative Analysis Between Speed And Acceleration Trajectories Of Different Types Of Vehicles	CE75_ICSCI 2022/5561	316-317
83.	Analysis Of Deceleration Behavior Of Light Motor Vehicle (Lmv)	CE76_ICSCI 2022/7133	318-319
84.	Review On Acceleration Behaviour Of Light Motor Vehicle ( Lmv)	CE77_ICSCI 2022/3459	320-321
85.	Analysis Of Deceleration Behavior Of Heavy Motor Vehicle (Hmv)-	CE78_ICSCI 2022/7697	322-323
86.	Analysis Of Acceleration Of Heavy Motor Vehicles (Hmv)	CE79_ICSCI 2022/2930	324-325
87.	Review On Generation Of Pyrolysed Oil	CE80_ICSCI 2022/1435	326-327
88.	Low Cost Filtration For Grey Water With Constructed Wetland	CE81_ICSCI 2022/0123	328-329
89.	Replacement Of Concrete Road Safety Barrier By Scrap Tyres Barrier	CE82_ICSCI 2022/3487	330-331
90.	Reuse Of Solid Waste Generated By Thermal Power Plant	CE83_ICSCI 2022/5380	332-333
91.	Identification & Minimization Of Waste In Building Construction	CE84_ICSCI 2022/1999	334-335
92.	Development Of Low Cost Durable Precast Compound Wall	CE85_ICSCI 2022/6367	336-337
93.	Effect Of Metakaoline,Silica Fume And Blast Furnance Slage On Compressive Strenght Of Concrete	CE86_ICSCI 2022/6894	338-339

94.	Studies & Analysis On Major Elements Of An Elevated Metro Bridge (Maha Metro Nagpur)	CE87_ICSCI 2022/5553	340-341
95.	Soil Stabilization By Using Waste Fibre	CE88_ICSCI 2022/6645	342-343
96.	Water Tank Design	CE89_ICSCI 2022/0779	344-345
97.	Evaluation Of Performance Of A Ci Engine Fueled With Biodiesel Produced From Unused Algae	ME02_ICSCI2022_3498	346-351
98.	Experimental Investigation Of Exhaust Emission Characteristics On Vcr Diesel Engine Fueled With Selected Blends Of Sal (Shorea Robusta) Oil Methyl Ester And Diesel	ME03_ICSCI2022_8705	352-356
99.	Performance Characteristics Of Sal (Shorea Robusta) Oil Methyl Ester And Its Respective Blends With Diesel Fuel Tested In Vcr Diesel Engine	ME04_ICSCI2022_6073	357-362
100.	6204 Bearing Faults Detection By Tribological Behaviour And Fft Analysis	ME05_ICSCI2022_5485	363-366
101.	Analysis And Performance Evaluation Of Rectangular Fin Heat Sink	ME06_ICSCI2022_0671	367-370
102.	Performance And Emission Characteristics Of Grape Seed Oil Methyl Ester On Vcr Diesel Engine: A Comprehensive Review	ME07_ICSCI2022_4086	371-374
103.	Designing And Fabrication Non-Conventional Energy: A Review On Literature	ME08_ICSCI2022_1119	375-378
104.	Fea Of Connecting Rod	ME09_ICSCI2022_2524	379-382
105.	Design Of Solar Powered Cooling System Integrated With Pcm	ME10_ICSCI2022_3981	383-386
106.	Design And Fabrication Of Manually Operated Floor Cleaning Machine	ME11_ICSCI2022_0746	387-390
107.	A Review on eco-Friendly Refrigerants	ME12_ICSCI2022_9015	391-394
108.	Application Of Condenser Waste Heat Of Simple Vapor Compression Refrigeration System For Heating The Feed Water: A Review	ME13_ICSCI2022_1498	395-397
109.	Performance Analysis Of Biofuel – Ethanol Blends In Diesel Engine	ME14_ICSCI2022_3245	398-402
110.	Design And Fabrication Of Electric Scooter	ME15_ICSCI2022_2875	403-405
111.	Customer Relationship Management In Manufacturing Firm	ME16_ICSCI2022_8376	406-409
112.	A Review On Time And Motion Techniques Through Capacity Utilization	ME17_ICSCI2022_6047	410-412
113.	Cfd Analysis On Performance Of Heat Transfer In Shell And Tube Heat Exchanger Using Nano Fluids	ME18_ICSCI2022_8931	413-415
114.	Formulated The Alternate Strategies (Solar Energy) For Conversion Of Municipal Waste Plastic Into Fuels	ME19_ICSCI2022_4631	416-419
115.	Experimental Aspects Of Heat Transfer Enhancement By Forced Convection From Various Flow Surfaces	ME20_ICSCI2022_7510	420-421
116.	Design And Fabrication Of Wheel Movable	ME21_ICSCI2022_2909	422-423

	Hydraulic Ladder With Adjustable Height		
117.	Methyl Ester Of Jojobaoil (Simmondsia Chinensis) And Its Selected Blends As Diesel Substitute: A Study On Performance And Exhaust Emissions In Ver Diesel Engine	ME22_ICSCI2022_8947	424-427
118.	Optimization Of Sal (Shorca Robusta) Oil Methyl Ester Using Taguchi's Technique	ME23_ICSCI2022_8034	428-431
119.	Experimental Analysis Of Automatic Multipurpose Spraying Machine Using Solar Energy	ME24_ICSCI2022_3579	432-434
120.	Design And Development Of Solar Operated Spraying Machine Using, Solar Energy	ME25_ICSCI2022_3401	435-437
121.	Experimental Investigation Of Capsule Basin Solar Still Integrated With Parabolic Reflector	ME26_ICSCI2022_9464	438-440
122.	An Innovative Model To Evaluate Automatic Water Leak And Pipe Burst Detection System	ME27_ICSCI2022_3030	441-445
123.	Crop Prediction And Efficient Use Of Fertilizers Using Machine Learning	CSE01_ICSCI 2022_2259	446-450
124.	Android Based Advanced Attendance Vigilance System Using Wireless Network With Fusion Of Bio-Metric Fingerprint Authentication	CSE02_ICSCI 2022_5435	451-453
125.	Urinary Incontinence Using Machine Learning	CSE03_ICSCI 2022_5800	454-460
126.	Utaut Model's Integration To Understand Acceptance In Internet Banking Service	CSE04_ICSCI 2022_7717	461-467
127.	Obscene Image Detection On Social Media And Internet Through Svm And Cnn	CSE05_ICSCI 2022_2206	468-476
128.	Evidence Integrity Assurance Mechanism (Eiam) Plug-In For Software Framework Of Mobile Forensic Tools To Extract And Decode The Mobile Artifacts	CSE06_ICSCI 2022_9939	477-483
129.	Review Paper On Implementation Of Credibility Assessment Algorithm On The Basis Of Various Categories For Improving Accuracy In Web-Based Question Answering System.	CSE07_ICSCI 2022_9846	484-487
130.	Review Paper On Implementation On Skin Disease On Detection Model Based On Various Parameter Using Machine Learning Technique	CSE08_ICSCI 2022_9089	488-490
131.	Deep Ontology Learning For Knowledge Extraction	CSE09_ICSCI 2022_3887	491-498
132.	Quiz And Learning App Using Android	CSE10_ICSCI 2022_1825	499-502
133.	Ai Based Method To Find A Missing Person	CSE11_ICSCI 2022_4123	503-507
134.	An Empirical Study Into Supervised Machine Learning Techniques For Software Fault Prediction	CSE12_ICSCI 2022_4268	508-517
135.	Plant Disease Detection Using Multi-	CSE13_ICSCI 2022_7387	518-523

	Layered Neural Networks		
136.	Gafa: A Dimensionality Reduction Framework For Software Fault Prediction	CSE14_ICSCI2022_8456	524-534
137.	Hybrid Jaya Algorithm For Workflow Scheduling In Cloud	CSE15_ICSCI 2022_5324	535-540
138.	Multiple Safety Equipments Detection At Active Construction Sites Using Effective Deep Learning Techniques	CSE16_ICSCI 2022_8347	541-547
139.	A Survey On Lpg Level And Leakage Detection System Using Iot	CSE17_ICSCI 2022_3454	548-552
140.	Digital Health-Care System For Smart Ipd Booking	CSE18_ICSCI 2022_0291	553-559
141.	Analysis Of Time Series Stock Prediction Parameters And Their Impact On Effective Selection Of Stock	CSE19_ICSCI 2022_5350	560-569
142.	Rfm Analysis For Customer Segmentation Using Machine Learning: A Survey Of A Decade Of Research	CSE20_ICSCI 2022_4695	570-576
143.	Review On Web Based Property Management System	CSE21_ICSCI 2022_3552	577-580
144.	360 Image Virtual Tour	CSE22_ICSCI 2022_8642	581-585
145.	Internship And Placement Management System	CSE23_ICSCI 2022_4336	586-590
146.	Review Paper On Implementation On Skin Disease On Detection Model Based On Various Parameter Using Machine Learning Technique	CSE24_ICSCI 2022_9846	591-594
147.	Review Paper On Implementation Of Credibility Assessment Algorithm On The Basis Of Various Categories For Improving Accuracy In Web-Based Question Answering System.	CSE25_ICSCI 2022_9089	595-599
148.	Improve Dleague Championship Algorithm (Ilca) For Load Balancing In Cloud Computing	CSE26_ICSCI 2022_0484	600-607
149.	Cross Domain Analyzer To Acquire Proficiency From Reviews In Bigdata	CSE27_ICSCI2022_9427	608-613
150.	Struggles, Potentials And Research Angles For Blockchain In 6g	CSE28_ICSCI2022_7465	614-619
151.	Artificial Intelligence Based Stress Detection Using Biological Signals	CSE29_ICSCI 2022_0191	620-622
152.	Fake News Detection	CSE30_ICSCI 2022_3810	623-625
153.	Improving Quality Of Video In Multiclient Network	CSE31_ICSCI 2022_1686	626-627
154.	A Survey On Machine Learning Techniques Used In Social Media Data Analysis	CSE32_ICSCI 2022_5581	628-633
155.	Cross Domain Analyzer To Acquire Proficiency From Reviews In Bigdata	CSE33_ICSCI2022_9427	634-641
156.	Impact Of E-Visitor On Traditional Travel Authentication And Tourism Web Base	CSE34_ICSCI 2022/3246	642-642
157.	Twitter Sentiment Analysis	CSE35_ICSCI 2022_6130	643-643

158.	Covid – 19 Tracker	CSE36_ICSCI 2022_3255	644-644
159.	Financial Activity Tracking System	CSE37_ICSCI 2022_7444	645-650
160.	IoT Based Complete Home Automation With Timer And Scheduling Feature And Fire Detection Alert On IoT Application	CSE38_ICSCI 2022_4993	651-657
161.	Implementation Of Machine Learning Techniques For Prediction Of Covid-19	CSE39_ICSCI 2022_4358	658-661
162.	A Face Recognition Using IoT For Security In Smart Recognition Places	CSE40_ICSCI 2022_2062	662-665
163.	Face Mask Detection In Covid-19 Environment	CSE41_ICSCI 2022_3484	666-670
164.	An Analytical Forecasting Model For Stock Market Index Prediction System Based On Technical Indicator	CSE42_ICSCI2022_4679	671-676
165.	Elimination Of Harmonics In Multilevel Inverter Using Artificial Intelligence Techniques.	CSE43_ICSCI 2022_7738	677-681
166.	Health His	CSE44_ICSCI 2022_2294	682-687
167.	IoT Based Water Power Saver For Lavatory	CSE45_ICSCI 2022_9556	688-695
168.	Design And Development Of Efficient Energy Management System For A Smart Grid	EE01_ICSCI 2022_1161	696-702
169.	Analysis For Partial Shading Condition Of Pv Panel Using A Novel Switching Technique	EE02_ICSCI 2022_4930	702-705
170.	Enhancement Of Power System Performance Using Series Facts Controller	EE03_ICSCI 2022_5518	706-714
171.	Application Of Switching In Shaded Pv Panels Incorporating Circuit Breaker	EE04_ICSCI 2022_9969	715-718
172.	Assessment Of Various Partial Shading Conditions , During Varying Irradiances	EE05_ICSCI 2022_0684	719-723
173.	Analysis Of Brain Magnetic Resonance Imaging (Mri)	EE06_ICSCI 2022_5245	723-728
174.	Mathematical Modelling And Analysis Of Hvac System Of Modern Buildings Using Renewables For Optimization Of Energy Consumptions In Indian Scenario	EE07_ICSCI 2022_7155	729-735
175.	A Review On Photocatalysis Technology With Tio 2 As Catalyst For Water, Wastewater And Air Quality Treatment	EE08_ICSCI 2022_7691	736-744
176.	Electricity Generation Using Train Wheel	EE09_ICSCI 2022_5346	745-747
177.	Bidirectional Dc- Dc Converter For Controlling Pmdc Motor Drives	EE10_ICSCI 2022_1963	748-751
178.	Waste Heat Recovery From Refrigeration Plant	EE11_ICSCI 2022_6485	752-756
179.	Future Based Self Learning Hybrid Model Of Automatic Manless Smart City With Implementation Of Remote Access Using Automation.	EE12_ICSCI2022_1264	757-759
180.	Modellingandsimulationofpvarrayformaximum Loaddemandgridinterconnection	EE13_ICSCI 2022_2584	760-763
181.	“Detection Of Fault In Induction Motor By Motor Current Signature Analysis (Mcsa)”	EE14_ICSCI 2022_1085	764-766
182.	A Dual Control Regenerative Braking	EE15_ICSCI 2022_1586	767-772

	Strategy For Two-Wheeler Applications		
183.	Voltage Sag Mitigation Using Multilevel Inverter Based Dynamic Voltage Restorer	EE16_ICSCI 2022_5596	772-776
184.	Comparative Analysis Different Topologies Of Grid-Tied Transformer Less Inverters	EE17_ICSCI 2022_7950	776-783
185.	Study Of Maximum Power Tracking Technique And Their Application	EE18_ICSCI 2022_6869	784-788
186.	Shunt Compensation For Power Quality Improvement Using A Statcom Controller: Modelling And Simulation	EE19_ICSCI 2022_8579	789-797
187.	Microcontroller Based Conversion Of Solar Pv Module Dc Voltage To Ac Using Octocoupler Driving The Gate Current Of 3 Phase Inverter	EE20_ICSCI 2022_8473	797-799
188.	Study Of The Susceptance Control Of Industrial Static Var Compensator And Improve Power Factor	EE21_ICSCI 2022_0313	800-802
189.	Solar Powered Smart Irrigation System Using Raspberry Pi	EE22_ICSCI 2022_3285	803-809
190.	Tracking The Maximum Power Point Of Pv Array By Sliding Mode Control Method"	EE23_ICSCI 2022_4567	809-812
191.	"Elimination Of Harmonics In Multilevel Inverter Using Artificial Intelligence Techniques.	EE24_ICSCI 2022_7738	813-815
192.	Automatic Gate Opening System Of Coal Crusher Mill Of Thermal Power Plant	EE25_ICSCI 2022/6925	816-818
193.	Design And Analysis Of Bidirectional Battery Charger Of Electric Vehicle.	EE26_ICSCI 2022_6169	819-824
194.	Automation In Electrical Industry Using Iot	EE27_ICSCI 2022_0344	825-827
195.	Exhaust Air Energy Recovery System For Electrical Power Generation	EE28_ICSCI 2022_1724	828-831
196.	Low Cost Data Logger And Monitoring System For A Small	EE29_ICSCI 2022_6237	832-834
197.	Running Three Phase Induction Motor Using Single Phase Supply	EE30_ICSCI 2022_8043	835-838
198.	Power Factor Improvement By Compensation Application	EE31_ICSCI 2022_1087	839-842
199.	Inverter Replaced By High Power Energy Source System Using Buck Boost Converter	EE32_ICSCI 2022_7665	843-846
200.	Accident Prevention Using Multiple Sensors	EE33_ICSCI 2022_7607	847-857
201.	"Solar Powered Ev Charger Using Rfid"	EE34_ICSCI 2022_7737	858-864
202.	Cloud Monitoring System For Industrial Motor	EE35_ICSCI 2022_6234	865-869
203.	Real Time Fault Detection In Transmission Line Using Iot	EE36_ICSCI 2022_2346	870-874
204.	Mobile Application Based Homed Appliance Control System	EE37_ICSCI 2022_1341	875-884
205.	Dry Run Protection Of Agriculture Pump"	EE38_ICSCI 2022_2165	885-886
206.	Impacts Of Covid-19 Pandemic On Life Insurance Buisness In India	MBA01_ICSCI2022_0487	887-891
207.	Review On Existing Food Management Systems	MBA02_ICSCI2022_0841	892-897



208.	Credit Risk Management In The Performance Of Banks In India	MBA03_ICSCI2022_1036	898-903
209.	New Dimensions Of Fifth Generation Indian Banking Sector Reforms	MBA04_ICSCI2022_1627	904-909
210.	A Study On Measuring The Service Quality Of Nagpur City Movie Theatre With Special Reference To Pvr	ME05_ICSCI2022_1813	910-915
211.	Wildlife Navigation Alley Structure	MBA06_ICSCI2022_2122	916-921
212.	A Review Study On Technology And E-Learning An Emerging Market	MBA07_ICSCI2022_6007	922-927
213.	Impact Of Technologies On The Insurance Sector	MBA08_ICSCI2022_2567	928-933
214.	Exploring The Role Of Artificial Intelligence In Changing Business Dimension	MBA09_ICSCI2022_4884	934-938
215.	Incorporating Road Safety Into Pavement Management	MBA010_ICSCI2022_5347	939-944
216.	Analysis Of Time Series Stock Prediction Parameters And Their Impact On Effective Selection Of Stock	MBA011_ICSCI2022_5350	945-951
217.	Performance Appraisal Of Mudra Scheme : A Milestone Endeavour Of Financial Inclusion	MBA012_ICSCI2022_5828	952-956
218.	Causes Of Conflicts In The Organizational Settings	MBA01_ICSCI2022_6909	957-962
219.	Investing In An Ipo	MBA14_ICSCI2022_9997	963-971
220.	Comparative Analysis And Study Of Conventional Concrete And Pervious Concrete	ASH01_ICSCI2022_5194	972-980
221.	Use Of Chain Rule, Activation Functions, Perceptrons In Backpropagation Algorithms Of Machine Learning & Deep Learning.	ASH02_ICSCI2022_0110	981-988
222.	Basic Aspects Of Radiation Chemistry	ASH03_ICSCI 2022_1017	989-1001
223.	The Theory Of Fractional Calculus	ASH04_ICSCI2022_7075	1002-1003
224.	Pollution Is A Curse To Environment	ASH05_ICSCI2022_8059	1004-1011
225.	Novel Applications Of Time Dilation Theory	ASH06_ICSCI2022_9149	1012-1013
226.	Growing Corona Viruses: Genome Composition, Duplicate, And Pathogenesis	ASH07_ICSCI_2022_6436	1014-1017
227.	Mechanism Of Ferroelectric Domain Formation In K <sub>1-x</sub> Nb <sub>x</sub> O <sub>3</sub> Single Crystal	ASH00_ICSCI2022_6641	1018-1020
228.	Design And Development Of Efficient Energy Management System For A Smart Grid	ETC01_ICSCI2022_1161	1021-1024
229.	Analysis For Partial Shading Condition Of Pv Panel Using Anovel Switching Technique	ETC02_ICSCI2022_4930	1025-1028
230.	A Review On Wireless Power Transmission And Its Applications	ETC03_ICSCI2022_6790	1028-1030
231.	Acircular Patchantennafor Uwbapplication	ETC04_ICSCI2022_5890	1031-1035
232.	Mri Imaging For Brain Tumordetection	ETC05_ICSCI2022_9857	1035-1038
233.	Forest Change Detection Using Remote Sensing	ETC06_ICSCI2022_0805	1039-1041
234.	Next Generation Healthcare System Using		

International Conference on Scientific Computing in Innovation

	Iotmodule		
235.	Identifying Brain Diseasesusing Image Processing	ETC08_ICSCI2022_7896	1055-1056
236.	Dynamic Spectrum Allocation For Cognitive Cellular Network	ETC09_ICSCI2022_0245	1057-1061
237.	Air Pollution Prediction Using Deep Learning A Review	ETC10_ICSCI2022_6911	1062-1063
238.	Smart Farming Using Iot	ETC11_ICSCI2022_4351	1063-1065
239.	Android Based Matrix Led Rolling Display Using Bluetooth Technology	ETC12_ICSCI2022_1169	1066-1067
240.	Smart Farming Using Moisture Sensor &Motions Sensors	ETC13_ICSCI2022_1507	1068-1070
241.	Sensor-Based Gas Leakage Detector System	ETC14_ICSCI2022_4896	1071-1073
242.	Iot Smart Home Automation	ETC15_ICSCI2022_5640	1073-1077
243.	Iot Based Dc Motor Controlling &Monitoring System	ETC16_ICSCI2022_2022	1077-1079
244.	Pregnancy Tracker Application For People Living In Remote Areas	ETC17_ICSCI2022_7378	1079-1081
245.	Iot Based Smart Irrigation System	ETC18_ICSCI2022_7677	1082-1084
246.	Intelligent Collision Warning And Electro-Pneumatic Braking System	ETC19_ICSCI2022_8264	1084-1086
247.	Identifying Brain Diseasesusing Image Processing	ETC20_ICSCI2022_7896	1086-1088
248.	Drone Uav Based Automatic Feature Extraction For Greenness Index Of The City	ETC21_ICSCI2022_8490	1089-1095
249.	Comprehensive And Systematic Synopsis Ofmanets And The Routing Protocols	ETC22_ICSCI2022_8973	1096-1098
250.	Automated Inspection System For Assembled Printed Circuit Board Usingmachine Vision	ETC23_ICSCI2022_9479	1099-1100
251.	Text Extraction Based On Tax Comments	ETC24_ICSCI2022_9522	1100-1101
252.	Iot Based Water Power Saver For Lavatory	ETC25_ICSCI2022_9556	1102-1103
253.	Vehicle Over Speeding Detector	ETC26_ICSCI2022_9668	1103-1104
254.	Deep Learning Approach For Detecting Multiple Respiratory Diseases From Chest X-Ray Analysis:A Survey	ETC27_ICSCI2022_9753	1104-1106
255.	Implementation Of Smart Controller Forhydrogen Generator	ETC28_ICSCI2022_9777	1106-1107

CE23\_ICSCI 2022\_1154

# DEVELOPING PRACTICAL FRAMEWORK FOR SUSTAINABLE DEVELOPMENT

Dr. N.S. Raman<sup>1</sup>, Dr. H.V. Hajare<sup>2</sup>

Dean (Research & Development), Guru Nanak Institutions (GNI), Nagpur  
Principal, Guru Nanak Institute of Engineering and Technology, Nagpur

## ABSTRACT

A systematic framework of indicators for sustainability is presented in this paper. In approach, there is an emphasis on societal activities that affect nature and on the internal societal resource use. In this way the indicators gives a warning signal to an unsustainable use of resources early in the chain from causes in societal activities to environmental effects. The aim is that socio-ecological indicators shall serve as a tool in planning and decision-making processes at various levels in society. The formulation of the indicators takes into account four principles of sustainability, which lead to four complementary sets of indicators.

Keywords: Indicators; Sustainability, socio-ecological

## 1.0 INTRODUCTION

The publication of the Brundtland report 'Our Common Future' (WCED, 1987) and the Rio Declaration (United Nations, 1992a) lies the challenge of sustainable development on the agenda for planners, decision makers and politicians at all administrative and institutional levels of the global society. Since then, much effort has been made to define and operationalise the concept of sustainability.

- There are two aspects that are important in the construction of indicators:
- i. There are, in many cases, long time delays between a specific activity and the corresponding environmental damage. This means that indicators based on the environmental state may give a warning too late, and in many cases only indicate whether past societal activities were sustainable or not.
  - ii. The complexity of the ecosystems makes it impossible to predict all possible effects of a certain societal activity. Some damages are well-known, but others have not yet been identified. Most of the sustainability indicators suggested so far is formulated with respect to known effects in the environment. We suggest that indicators of sustainability should be formulated with respect to general principles or conditions of sustainability.

## 2.0 INDICATORS FOR SUSTAINABILITY

There are both monetary and physical approaches to indicating sustainability. In this paper we focus on physical indicators. Such indicators can be divided into three (main) groups:

- i. societal activity indicators (that indicate activities occurring within society-the use of extracted minerals, the production of toxic chemicals, recycling of material),
- ii. environmental pressure indicators (that indicate human activities that will directly influence the state of the environment-e.g., emission rates of toxic substances) and
- iii. Indicators of the state of the environment or environmental quality indicators (that indicate the state of the environment-e.g., the concentration of heavy metals in soils and pH levels in lakes).

It should be noted that most indicators for sustainability developed and used so far belong either to the group of environmental pressure indicators or to the state of the environment indicators, this is shown in Table 1

## 3.0 PRINCIPLES OF SUSTAINABILITY

In our formulation of indicators for sustainability we use a framework of principles that should be fulfilled in a sustainable society (17). The principles are presented below.

Table 1: The Focus Indicators for Sustainability

Reference	Indicated Area	Societal Activities	Environmental Pressure	State of the Environment
Adriaanse (1993)	The Netherlands			
Alfsen and Saebø (1993)	Norway	X	X	
Ayres (1995)	Mainly USA	X	X	X

## Comparative analysis Different Topologies of Grid-tied Transformer less Inverters

Amit Kumar Thakur , Rajendra Bhombe , Yogesh Likhar  
 Students of Department of Electrical Engineering GNIT, Nagpur  
 Assistant Professor & Head of Department of Electrical Engineering GNIT, Nagpur Assistant Professor  
 Department of Electrical Engineering GNIT, Nagpur.

### ABSTRACT

Transformer-less inverters are widely used in grid-tied photovoltaic (PV) generation systems, due to the benefits of achieving high efficiency and low cost. Various transformer-less inverter topologies have been proposed to meet the safety requirement of leakage currents. In this paper, a family of H6 transformer-less inverter topologies with low leakage currents is proposed, and the intrinsic relationship between H5 topology, highly efficient and reliable inverter concept (HERIC) topology, and the proposed H6 topology has been discussed as well. One of the proposed H6 inverter topologies is taken as an example for detail analysis with operation modes and modulation strategy. The power losses and power device costs are compared among the H5, the HERIC, and the proposed H6 topologies. A universal prototype is built for these three topologies mentioned for evaluating their performances in terms of power efficiency and leakage currents characteristics. Experimental results show that the proposed H6 topology and the HERIC achieve similar performance in leakage currents, which is slightly worse than that of the H5 topology, but it features higher efficiency than that of H5 topology.

**Index Terms**— Photovoltaic (PV), highly efficient and reliable inverter concept (HERIC).

### INTRODUCTION

The applications of distributed photovoltaic (PV) generation systems in both commercial and residential structures have rapidly increased during recent years. Although the price of PV panel has been declined largely, the overall cost of both the investment and generation of PV grid-tied system are still too high, comparing with other renewable energy sources. Therefore, the grid-tied inverters need to be carefully designed for achieving the purposes of high efficiency, low cost, small size, and low weight, especially in the low-power single-phase systems (less than 5kW). From the safety point of Transformer-less inverters are widely used in grid-tied photovoltaic (PV) generation systems, due to the benefits of achieving high efficiency and low cost. Various transformer-less inverter topologies have been proposed to meet the safety requirement of leakage currents, such as specified in the VDE-4105 standard. In this paper, a family of H6 transformer less inverter topologies with low leakage currents is proposed, and the intrinsic relationship between H5 topology, HERIC topology and proposed H6 topology has been discussed as well. One of the proposed H6 inverter topologies is taken as an example for detail analysis with operation modes and modulation strategy. The power losses and power device costs are compared among the H5, the HERIC and the proposed H6 topologies. A universal prototype is built for these three topologies mentioned for evaluating their performances in terms of power efficiency and leakage currents characteristics. Experimental results show that the proposed H6 topology and the HERIC achieve similar performance in leakage currents, which is slightly worse than that of the H5 topology, but it features higher efficiency than that of H5 topology

Table 1. Comparison of operating devices in these three topologies

	H5	HERIC	H6
Total device number	5	6	6
Isolated power supply for devices	4	3	4
Switching device number	2	2	2
Conducting device number	$v_a > 0$	3	2
	$v_a < 0$	3	2
Diodes number with freewheeling	2	2	2
Diodes number with reverse recovery	1	1	1
Gate drive number	2	2	2

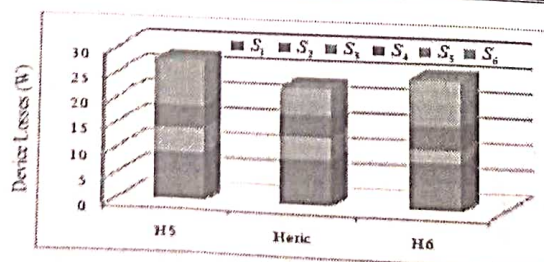


Fig. 1. Device losses distribution for these three topologies with 1 KW power rating

CSE29\_ICSCI 2022/29

## ARTIFICIAL INTELLIGENCE BASED STRESS DETECTION USING BIOLOGICAL SIGNALS

Prof. Ayaz Khan Department of Computer Science  
Guruananak College of Engg & Technology

**Abstract** - Present focused on stress detection. This work defines the concept of stress, analyzes suitable biological signals for stress detection, presents a database of biological signals that were used for stress detection and mentions methods of automatic stress detection. Subsequently, a stress detection program was implemented in programming environment. A freely available database of non-EEG signals was used for the implementation of the program. Models classifying stress were created using 4 machine learning methods for binary classification and 3 machine learning methods for classifying 4 mental states. The successes of classification tasks are summarized

**Keyword:** Stress, stress detection, biological signals, biological signal database, character extraction, machine learning, classification

### Introduction

Stress is undoubtedly a popular concept of the modern age, which is often discussed in the media, public media and the public is often perceived in a non-negative sense. It has become more or less an integral part of the life of almost every person on earth, which is, of course, due to today's hectic times, which only encourages the emergence of a state of stress. Thus, stress has a huge impact and influence on today, when unfortunately many people are stressed every day. Stress can significantly affect the physical and mental (mental) health of the body. This is one of the many reasons why it is convenient to detect stressful situations.

Stressors can be understood as adverse influences (pressures) that can bring a person into a difficult personal situation. So they are the triggers of a potential stress response or organization. In general, it could be said that these are the so-called negative life factors (life events, painful memories), which are used to evoke a feeling of danger, fear that something will happen and the feeling that we are losing control.

Stressors can generally be divided into 4 basic categories, which are stress

physical - heat, cold, pressure, etc. 2. chemical - poisons, toxins, alcohol, poisoning, infections, etc.

3. biological - hunger, thirst, pain, etc. 4. psychosocial - anxiety, fear, etc.

Biosignals can be divided according to different aspects. One of the aspects of the possibility of dividing biosignals is according to their behavior over time. Here we distinguish biosignals

### OVERVIEW OF BIOLOGICAL SIGNAL DATABASES

2.1 Traditional Methods of Stress/Relaxation Measurement: Stress has been traditionally measured by some indicative parameters such as heart rates, galvanic skin response, pupil diameter and another method are Questionnaires that help to find a person prone to stress, some life events also helps to detect stress. But, these traditional methods require continuous observation or assessments or some expensive sensors and also have to believe that the person is sharing correct answers of his or her mindset. And also not lying to make a better image in front of psychiatrists. There is a relationship between personality and psychological stress of a person. Identification of Stress and Relaxation from Social Media Content Moving to Research on Social Media: As now we are in the upscaling generation of technology, always try to share our ideas and thoughts on social media by posting a status or comments to the particular or current topic of the day to day activities which helps to judge a person is "Stressed" or "Relaxed". Tweet level emotion detection reflects the instant emotions expressed by a particular tweet which also reflect mental health disorder such as depression or post-traumatic

CSE34\_ICSCI 2022/3246

## IMPACT OF E-VISITOR ON TRADITIONAL TRAVEL AUTHENTICATION AND TOURISM WEBSITE

Pragati Salotkar, Nikita Chikale, Neha Nagdeve, Yamini Kolhe, Ayaz Khan  
GNIET, Nagpur

### Abstract

The aim of his paper to reveal positive effects of E-Visitor facilitation destination's image and the purpose behind destination as compared to traditional visa obtaining processes, As well as, improving the desire urgently to develop the country from tradition vis (typical form) to electronic version depend on the positive result that has been found in this field. Key words: color transform, transportation problem, finite elements. Electronic Visitor Information System (E-VIMS) has been developed to replace traditional visitor registration and visitor information management activities. E-VIMS able to record visitor information during visitor registration by using visitor's Malaysia Government Multipurpose Card (MyKad). The concepts underlying in E-VIMS are MyKad, smart card reader, personal computer/smartcard (PC/SC) and data management. This application enables capturing new visiting record by auto-clock in/out, and assignment of visitor pass. Visitor information are recorded in a centralized database server, which provides data management and manipulation through searching and report generating. The benefits of E-VIMS are enhancing the level of security enforced in premises, providing an organized view of visitor records and reducing the time spent on managing visitor information.

### Introduction

E-visitor is a web-based solution for visitor management for the bhavan managed by the Ministry of Home Affairs, Government of India. The visitor management module assists in capturing all-relevant information about the visitor and automatically saved in database. A high quality pass is issued to the visitor (the system can also be operated in pass-less mode in which no pass is issued to the visitor). No need to re-enter data for regular visitor again as the data can be searched and new pass can be issued with minimum changes.

[1]. The process undoubtedly plays a crucial role in increasing mobility by affecting individuals' perspectives and understanding of the new world in which they live

[2] In addition, extensive technological development has brought many changes in communication, such as the Internet, mobile phones, new information systems, transportation networks and air travel

[3] social media have become popular as a key source of information for travelers that is used by them before, during and after their trip

## Twitter Sentiment Analysis

Ms. Renuka Mahendra<sup>1</sup> Ms. Nikita Naidu<sup>2</sup> Ms. Dhanshri Rokde<sup>3</sup> Ms. Chandani Bagate<sup>4</sup> Prof. Vijaya Kamble<sup>5</sup>  
<sup>12345</sup> Department of Computer Science and Engineering,  
Gurunanak Institute of Engineering and Technology, Kalmeshwar Road, Dahegoan, Nagpur.  
<sup>1</sup>[mahendrarenuka06@gmail.com](mailto:mahendrarenuka06@gmail.com) <sup>3</sup>[dhanshrirokde11@gmail.com](mailto:dhanshrirokde11@gmail.com) <sup>4</sup>[bagatechandani13@gmail.com](mailto:bagatechandani13@gmail.com) <sup>5</sup>[grietvi\\_jaya123@gmail.com](mailto:grietvi_jaya123@gmail.com)  
<sup>12345</sup> Rashtrasant Tukadoji Maharaj Nagpur University, Maharashtra, India

### Abstract:

Twitter is a popular platform for people to express their opinions and express their feelings at different times. Twitter Sentiment Analysis, So Means, Using Advanced Text Mining Methods To Analyze Text Feelings (Here, Tweet) In a Positive, Negative and Medium Way. Also known as Mining Ideas, Mainly for Negotiating Discussions, Opinions, and Sharing Comments (All in the form of a Tweet) to Determine a Business Strategy, Political Analysis, and Evaluation of Public Actions. Over the past few decades, Research in this field has grown steadily. Reason After This A Challenging Tweet Format That Makes Processing Hard. Tweet Format Too Small Producing New Size of Problems like Slang Use, Abbreviations etc. In this Paper, We Use Python to Implement Twitter Sentiment Analysis. We Aim To Review Some Other Papers About The Sentiment Analysis In Twitter, Describing Approved Methods, And Explaining The Common Python Based Method.

Keywords: Naïve Bayes Algorithm, Natural Language Processing, Opinion Mining, Sentiment Analysis, Twitter Sentiment Analysis.

### Introduction

Twitter has emerged as a major micro-blogging website, having over 100 million users generating over 500 million tweets every day. With such a large audience, Twitter has consistently attracted users to convey their opinions and perspective about any issue, brand, company or any other topic of interest. Due to this reason, Twitter is used as an informative source by many organizations, institutions and companies. On Twitter, users are allowed to share their opinions in the form of tweets, using only 140 characters. This leads to people compacting their statements by using slang, abbreviations, emoticons, short forms etc. Along with this, people convey their opinions by using sarcasm and polysemy. Hence it is justified to term the Twitter language as unstructured. In order to extract sentiment from tweets, sentiment analysis is used. The results from this can be used in many areas like analyzing and monitoring changes of sentiment with an event, sentiment regarding a particular brand or release of a particular product, analyzing public view of government policies etc. A lot of research has been done on Twitter data in order to classify the tweets and analyze the results. In this paper we aim to review of some researches in this domain and study how to perform sentiment analysis on Twitter data using Python. The scope of this paper is limited to that of the machine learning models and we show the comparison of efficiencies of these models with one another.

### CONCLUSION

Twitter's sentiment analysis has been developed to analyse customer perceptions about the importance of success in the marketplace. The program uses a machine-based reading method used to analyse sentiment; and natural language processing techniques will be used. As a result, the program is divided into emotions that are positive, negative, and neutral and is represented by the web application using HTML and CSS. This Application cannot give 100% accurate result. A lot of research and tuning is required to attain high level of accuracy.

## IOT BASED COMPLETE HOME AUTOMATION WITH TIMER AND SCHEDULING FEATURE AND FIRE DETECTION ALERT ON IOT APPLICATION

Rohini Gharde, Prachi Gaupale, Rutika Watkar, Bharti Ishwarkar, Miss Vijaya Kamble.  
Department Of Computer Science Engineering, Guru Nanak Institute Of Engineering And Technology, Nagpur, Maharashtra, India

### Abstract

Internet of Things (IoT) is an important concept in today's world when we think about automation and smart home. It is related to the automation by computing things where all things and physical devices can be connected so that we can make those device intelligent, programmable which can interact with humans. IoT is a cloud computing network it can provide ability to user of accessing physical things or control devices from any distance irrespective of time and location through wireless network, the smart home automation is one of the examples of IoT technology.

### Keywords

Internet of things (IoT), Home Automation, Voice Recognition, Mobile Application, Wi-Fi, Time & Scheduling.

### Introduction

"Home automation" refers to the automatic and electronic control of household features, activities and appliances. The utilities and features of our home can be easily controlled via Internet. There are three main elements of a home automation system: sensors, controllers, and actuators. Having day today developing technology is a proud moment to the whole world. The foremost aim of the technology is to increase the efficiency and to decrease the effort. In this trending world, Internet of Things is being given extreme importance. In that, Automation, leads to have less effort and much efficiency. By using IoT, we are successful in controlling the appliances in various areas, in which one of them is to control the home automation by using Node Microcontroller. We can also use other boards like Raspberry Pi, Beagle Bone etc.,. In the present-day technology, the whole work is done through communication so the effective way of communication can be done through voice. Even though the technology is developing in our day to day life, there is no help coming into existence for the people who are physically not good on the basis of technology. As the speech enabled, home automation system deploys the use of voice to control the devices. It mainly targets the physically disabled and elderly persons. The home automation will not work if the speech recognition is poor. The speech given by the user will be given as input to the Microphone. Microphone recognizes the speech given by the person and sends it to the recognizing module. It searches for the nearest word even if there are any disturbances in it. If the command (ON/OFF) is given, the action is done. Similarly, the line following robot functions with respect to the speech commands given to it. The line following robot moves forward and backward with the help of sensors and a motor driver board. Home is the place where one desires to be rest after a long tiring day. People come home exhausted after a long hard-working day. Some are way too tired that they find it hard to move once they land on their couch, sofa or bed. So, any small device technology that would help them switch their lights on or off, or play their favorite music etc. on a go with their voice with the aid of their smart phones would make their home more comfortable. Moreover, it would be better if everything such as warming bath water and adjusting the room temperature were already done before they reach their home just by giving a voice command. So, when people would arrive home, they would find the room temperature, the bath water adjusted to their suitable preferences, and they could relax.



# IMPLEMENTATION OF MACHINE LEARNING TECHNIQUES FOR PREDICTION OF COVID-19

Prof. Vijaya Kamble<sup>1</sup>, Chandrashekhar Nagle<sup>2</sup>,  
Assistant Professor<sup>1</sup>, M. Tech Student<sup>2</sup>, Department of Computer Science Engineering  
Gurukul Institute of Engineering and Technology

## Abstract

Machine learning techniques facilitate mine information to raised estimate and predict the covid-19 infection standing. A fine-tuned ensemble classification approach for predicting the death and cure rates of patients from infection victimization machine learning techniques has been planned for varied states of bharat. Several enterprises sought to embrace and customize computer science (ai)-based technology to take care of the problems show by the covid-19 pandemic. Computer science (ai)-based technologies have via a significant role in addressing tough challenges, and varied corporations are quick to adopt and tailor these technologies. A scientific survey of the literature on the role of computer science (ai) as a complete and productive technology at intervals the fight against the covid-

19 downside at intervals the disciplines of medicine, medical specialty, and unhealthiness progression was the foremost necessary purpose of this inquiry. As a vicinity of this systematic review, we have a tendency to tend to gathered publications from this covid-19 analysis that created use of by artificial suggests that intelligent approaches to supply insights into various covid-19 themes. Our findings highlight to important factors, data types, and covid-19 resources that may be accustomed facilitate analysis and clinical analysis and should be wont to inform future investigation.

## Keywords

COVID-19, Coronavirus, SARS-CoV2, Artificial intelligence, Machine learning, Deep learning, Systematic review, Epidemiology, Pandemic, Neural Network

## Introduction

Novel coronavirus (covid-19), ensuing from a severe acute respiratory syndrome coronavirus two (sars-cov-2), has become a pestilence worldwide in recent times. The number of infected cases moreover rate is increasing rapidly. As of the writing of this manuscript, it's reported that quite 108,000,000 individuals are infected with covid-19, the death cases area unit around two,400,000, and the number of recovered patients is around eighty,000,000 globally. The universal transmission of covid-19 has place a large portion of the world's population into quarantine and ravaged various industrial sectors that successively caused a worldwide financial crisis. The most typical signs of the novel coronavirus embrace fever, dry cough, myalgia, dyspnea, and headache [4], but in some eventualities, no symptoms are a unit visible (asymptomatic) that create the illness an excellent larger threat to public health. The reverse transcriptase chain reaction (rt-pcr) is taken into account because the gold common place for covid-19 identification. However, the dearth of resources and strict take a look at atmosphere necessities prohibit quick and effective screening of suspicious cases. What is more, RT-PCR inspection conjointly experiences false negative rates in some cases. Sadly, the sole answer to effectively combat this transmissible illness is through clinical vaccines as well as precise drug/therapy practices, that don't seem to be nevertheless available. Covid-19 has proved to be amongst the foremost dangerous ailments that have posed a severe threat to humancivilization. With the evolution of contemporary technology within the past few decades.

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What is more, RT-PCR inspection conjointly experiences false negative rates in some cases. Sadly, the sole answer to effectively combat this transmissible illness is through clinical vaccines as well as precise drug/therapy practices, that don't seem to be nevertheless available. Covid-19 has proved to be among the foremost dangerous ailments that have posed a severe threat to humancivilization. With the evolution of contemporary technology within the past few decades.

# A FACE RECOGNITION USING IOT FOR SECURITY IN SMART RECOGNITION PLACES

Miss. Ashu Siddharth Nagrale<sup>1</sup>, Prof. Kalpana Malpe<sup>2</sup> Student<sup>1</sup>, Assistant Professor<sup>2</sup>

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING  
GURUNANAK INSTITUTE OF ENGINEERING AND TECHNOLOGY  
ashunagrale96@gmail.com

## Abstract-

At now, the value is that the best issue. This system is improbably useful for reducing the value of observance the movement from outside. Throughout this paper, a amount of your time recognition system is planned which is able to equip for handling footage really quickly. The foremost objective of this paper is to safeguard home, geographical point by recognizing people. The face is that the foremost distinctive a vicinity of human's body. So, it'll replicate many emotions of academic degree Expression. A number of years past, humans were practice the non-living things like smart cards, plastic cards, PINS, tokens and keys for authentication, and to urge grant access in restricted areas like ISRO, National astronautics and house Administration and DRDO. The foremost necessary choices of the face image square measure Eyes, Nose and mouth. Face detection and recognition system is easier, cheaper, a great deal of correct, process. The system beneath two classes one is face detection and face recognition. Throughout this case, among the paper, the Raspberry Pi single-board laptop is additionally a heart of the embedded face recognition system.

**Keywords** – Raspberry Pi, Face recognition system

## Introduction

Smarts systems provide internet of Things. information superhighway of things is applied in Rural Areas, smart cities and smart Recognition places to bolster our security system. The sound judgment of utilizing IOT is to share knowledge and data with everyone all told over round the world. Face recognition system grow to be one in each of the foremost active analysis areas notably in recent years. It's an outsized application among the ranges: peace, access management, Master Card verification, criminal identification, group action commerce, knowledge security, human laptop computer intelligent interaction, and digital libraries. Generally, it acknowledges persons publicly areas like homes, offices, airports, looking out centers and banks. This mechanism permits secure access to the house by investigating motion controlled by the embedded system. IoT or internet Effects or internet of Things refers to the network of connected physical objects that may communicate and alter knowledge among themselves while not the necessity of any mortal intervention. it's been formally outlined as a "Structure of knowledge Society", as a result of IoT permits us to gather data from all quite mediums similar as humans, creatures, vehicles, room appliances. so any object within the physical world which might be two-handed with an scientific discipline address to change knowledge transmission over a network may be created a part of IoT system by bedding them with electronic tackle similar as detectors, software package and networking gear. IoT is completely different than net as in a very approach it transcends net property by enabling everyday objects that uses bedded circuits to move and communicate with one another sweat this net structure. Today, the end of the day security could also be a very important subject in our standard of living. Like in Rural Areas, Cities, homes, Offices and jointly in smart places. Family security is that the first priority. we'll do one thing for our family. In rural area unites all are exploitation smarts phones. The face is that the foremost distinctive a region of human's body. So, it'll replicate many emotions of associate Expression. some years past, humans were exploitation the non-living things like smart cards, plastic cards, PINS, tokens and keys for authentication, and to urge grant access in restricted areas like ISRO, federal agency and DRDO. The foremost vital choices of the face image area unit Eyes, Nose and mouth. Face detection and recognition system is easier, cheaper, a great deal of correct, process. The system has two categories one is face detection and face recognition.

# FACE MASK DETECTION IN COVID-19 ENVIRONMENT

Miss. Rashmita Wasudeo Soge<sup>1</sup>, Prof. Kalpana Malpe<sup>2</sup> Student<sup>1</sup>, Assistant Professor<sup>2</sup>

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING  
GURUNANAK INSTITUTE OF ENGINEERING AND TECHNOLOGY  
rashmi022@gmail.com

**Abstract**— Since the infectious coronavirus sickness (COVID-19) was 1st reportable in Wuhan, it's become a public ill health in China and even round the world. This pandemic has devastating effects on societies and economics round the world. The rise within the variety of COVID-19 tests provides a lot of info concerning the epidemic unfold, which can result in the likelihood of encompassing it to forestall additional infections. However, sporting a mask that forestalls the transmission of droplets within the air and maintaining an applicable physical distance between folks, and reducing shut contact with one another will still be useful in combating this pandemic. This paper presents a simplified approach to serve the higher than purpose mistreatment the essential Machine Learning (ML) packages like Tensor Flow, Keras, Open CV and Scikit-Learn. The planned technique detects the face from the image properly so identifies if it is a mask thereon or not. As an investigation task entertainer, it have to be compelled to collectively sight a face at the facet of a mask in motion. The technique perform accuracy up to 95.77% and 94.58% severally on two totally different datasets and count optimized values of parameters mistreatment the consecutive Convolution Neural Network model to sight the presence of masks properly while not inflicting over-fitting.

**Keywords** –TensorFlow, Keras, OpenCV and Scikit-Learn

## Introduction

It is true that COVID-19 may be a world pandemic and affects many domains. However, it created a path for researchers in engineering. Therefore, to stop speedy COVID-19 infection, several solutions, like confinement and lockdowns, area unit urged by the bulk of the world's governments. However, this COVID-19 management ineffectualness is to boot explored with game-theoretic situations on the far side the general public product game. Particularly, some researchers have targeted on the hesitancy of governments in enacting troublesome however necessary virus containment measures (e.g., stay-at-home orders and lockdowns), moreover as noncooperation for reasons apart from free riding. For example, authors in argued that as a result of strict stay- at-home measures will greatly impact people's livelihoods, the value of staying home (coupled with internment fatigue) will find yourself outweighing the danger of infection from going out. As individual-level choices have an immediate impact on the society-level effectiveness of stay-at-home orders, governments could refrain from implementing them attributable to anticipated low rates of compliance, particularly from socioeconomically underprivileged people World Health Organization don't have the luxurious of staying home. Some governments could have conjointly been hopeful that herd immunity from recoveries and vaccinations would permit them to avoid imposing such less-traveled measures altogether.

With rising numbers of cases and stretched health facilities, moreover because the lack of a immunogenic throughout 2020 and difficulties related to achieving herd immunity for COVID-19, government inaction became more and more unviable. Hence, to extend people's adherence to strict rules, authors in urged victimization social programs like emergency relief funds and state insurance to lower the prices of compliance, significantly for lower-paid employees . As vaccines became on the market at the tip of 2020, authors in argued that programs driving vaccination uptake can surpass different aspects like immunogen effectuality and isolation procedures in importance. Using EGT, social network analysis, and agent-based modeling, the authors projected that individuals' vaccination decision-making are influenced by "demographics, physical location, the amount of interaction, the health of the immunogenic, epidemic parameters, and perceptions concerning the immunogen being introduced, and equally, the decision-making of the govt. Are influenced by epidemic parameters, the character of the immunogen being introduced, logistics, the management of human resources required for the vaccination effort, and therefore the range of immunogen doses available" In this paper

## AN ANALYTICAL FORECASTING MODEL FOR STOCK MARKET INDEX PREDICTION SYSTEM BASED ON TECHNICAL INDICATOR

Prof. Vijaya Kamble<sup>1</sup>, Sushilkumar S. Kolhatkar<sup>2</sup>

<sup>1</sup> Assistant Professor, Department of Computer Science and Engineering, Gurunanak Institute of Engineering and Technology, Nagpur, Maharashtra, India

<sup>2</sup> M.Tech Scholar, Department of Computer Science and Engineering, Gurunanak Institute of Engineering and Technology, Nagpur, Maharashtra, India  
sairamvijaya@gmail.com<sup>1</sup>, sushilskolhatkar@gmail.com<sup>2</sup>

### ABSTRACT

Stock market forecasting patterns are regarded as a significant activity that is becoming increasingly successful. Technical analysis for stock market with its technical indicators is helpful for traders/investors to predict correct timings either for buying or selling stocks. Trading strategy can be realized with the use of selected trading indicators to know when accumulation or distribution of stocks occurs. This paper proposes trading strategies employing Bollinger Bands and Parabolic SAR indicators. A web-based application is developed to help testing the performance of the proposed strategies. Historical end-of-day (EOD) stock price for a sufficient period of time was used to back-test the proposed strategy performance. Several stocks from LQ-45 were selected to represent up-, down-, and sideways-trends. The results of the research are: the best strategy for an up-trending stock contributes to 17.06% profit and 1.19% for sideways market trend. Whilst when in down-trend the only Bollinger Bands strategy. Techniques such as artificial neural networks (ANN) and neural networks (NN) are most commonly employed to make exact stock market forecasts. Despite the large amount of work that has been done, the most recent stock market-related prediction approach has a number of drawbacks. In this study, it may be assumed that stock market forecasting is an integrated process, and that separate characteristics for predicting the stock market should be regarded more accurate in order to achieve more accuracy.

Keywords-Stock Market Index, Prediction, Price Action, Data Mining, Technical Indicator.

### Introduction

A stock, share, or equity market, is the collection of buyers and sellers of equity stocks (also called shares); these might also include securities registered on a stock exchange as well as those only traded in private. The stock market is the market where equity stocks of different companies are allotted or traded via two Indian exchanges, BSE (Bombay Stock Exchange) and Nifty. It is a very critical element of unrestricted market economy. It provides enterprises right of entry to capital by trading or providing minor stake or rights to the investors. Firms get help by stock market if they need to elevate their funds for the enlargement of their business. An index is a statistical quantity of variation in the stock market or in an economy of the country. Indexes have their individual calculation technique and mostly stated in terms of variation from the base value. Hence, the percentage of variation makes more sense and important rather than the real numeric worth. Analysis of stock market data is very wide and plays a decisive role in predicting the nature of the market and helps in studying the factors affecting the market.

#### A. Data Mining

Data mining, is defined as "the process of using a variety of data analysis tools to discover patterns and relationships in data that may be used to make valid predictions" by "Two Cross Corporation" (1999). Kumer and Zaki (2000) defines data mining as the iterative and interactive process of discovering valid, novel, useful, and understandable patterns or models in massive databases. Data mining is a computing technique that can be used to discover unknown patterns from the huge data set that was produced to make expectations on future data in light of examples found in gathered data. The Table 1 given below depicts the various statistical, NLP, ANN and clustering techniques used with stock market data.

There are many techniques in data mining which are used to extract information from various dataset or data marts which are analyzed further to found or discover some patterns out of it. It is mainly classified into two different categories:

- Descriptive
- Predictive

CSE43\_ICSCI2022/7738

## ELIMINATION OF HARMONICS IN MULTILEVEL INVERTER USING ARTIFICIAL INTELLIGENCE TECHNIQUES.

First Author

Mr. Ankur Roy

Department of Electrical Engineering

Guru Nanak Institute of Engineering and Technology, Nagpur.

Email:ankurroy1997@gmail.com

Second Author

Prof. Rajesh Bhombe

Vice Principal and HOD EE,

Guru Nanak Institute of Engineering and Technology, Nagpur.

Email: rnsbhombe@gmail.com

Third Author

Prof. Yogesh Likhar

Assistant Professor

Guru Nanak Institute of Engineering and Technology, Nagpur.

Email: ymlikhar@gmail.com

### ABSTRACT :

The Project shows the power industries demands for high level of voltage and power signal. To switch these types of signal the multilevel inverter is developed. The multilevel inverter is accomplished to manage the wide range of voltage signal. The power and voltage signal generated in the power industries should not enclose the undesired harmonics. To get rid of the unwanted harmonics from the output waveform of multilevel voltage source inverters, a variety of modulation techniques with the help of AI and optimization are reviewed in this project. Various optimization techniques to calculate the nonlinear transcendental equations in selective Harmonic Elimination are also include. Optimization of the placement and operational conditions of oil wells plays an important role in the development of the oilfields. Several automatic optimization algorithms have been used by different authors in recent years. However, different optimizers give different results depending on the nature of the problem. In the current study, a comparison between the genetic algorithm and particle swarm optimization algorithms are to be given.

KEYWORD :Multilevel inverter, Fundamental frequency , Flying capacitor, GA based controller, PSO based controller .

### INTRODUCTION:

Multilevel inverters are increasingly being used in medium and high power applications due to their many advantages such as low power dissipation on power switches, low harmonic contents and low electromagnetic interference (EMI) outputs. The elementary concept of a multilevel converter to achieve higher power is to use a series of power semiconductor switches with several lower voltage sources. The multilevel inverter it a synthesize a linear sinusoidal voltage from several levels of dc voltages. Capacitors, batteries, and renewable energy voltage sources can be used as the multiple dc voltage sources.

As number of levels increases, the synthesized output waveform has more steps, which provides a staircase wave that approaches a desired waveform. Also, as steps are added to waveform, the harmonic distortion of the output wave decreases, approaching zero as the number of voltage levels increases. A multilevel converter not only achieves high power ratings, but also enables the use of renewable energy sources. Renewable energy sources such as photovoltaic, wind, and fuel cells can be easily interfaced to a multilevel converter system for a high power application.

# MOBILE APPLICATION BASED HOMED APPLIANCE CONTROL SYSTEM

Vilas Shende<sup>1</sup>, Pranav Yeole<sup>2</sup>, Durgadas Wagh<sup>3</sup>, Pawan Somkuwar<sup>4</sup>  
1,2,3,4 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),  
1 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

## ABSTRACT

Technology is a never ending process. To be able to design a product using the current technology that will be beneficial to the lives of others is a huge contribution to the community. This paper presents the design and implementation of a low cost but yet flexible and secure cell phone based home automation system. The design is based on a PIC and BT board and the home appliances are connected to the input/ output ports of this board via relays. The communication between the cell phone and the PIC Controller is wireless. This system is designed to be low cost and scalable allowing variety of devices to be controlled with minimum changes to its core. Variable control is also used by implementing power electronics in this project.

**Keywords :** Cell Phone, PIC Microcontroller, BT Board, Home Appliances

## INTRODUCTION

Wireless technologies are becoming more popular around the world and the consumers appreciate this wireless lifestyle which gives them relief of the well known "cable chaos" that tends to grow under their desk. Now with the embedded Bluetooth technology, digital devices form a network in which the appliances and devices can communicate with each other. Today, home automation is one of the major applications of Bluetooth technology. Operating over unlicensed, globally available frequency of 2.4GHz, it can link digital devices within a range of 10m to 100m at the speed of up to 3Mbps depending on the Bluetooth device class. With this capability of Bluetooth; we propose a home automation system based on Bluetooth technology.

There are few issues involved when designing a home automation system. The system should be scalable so that new devices can easily be integrated into it. It should provide a user-friendly interface on the host side, so that the devices can be easily setup, monitored and controlled. This interface should also provide some diagnostic services so that if there is any problem with the system, it can be tracked down. Moreover the overall system should be fast enough to realize the true power of wireless technology. Finally the project should be cost effective in order to justify its application in home automation.

EE38\_ICSCI2022\_2165

## DRY RUN PROTECTION OF AGRICULTURE PUMP

Ms. Yamini Pawamkar<sup>1</sup>, Mr. Krunal Bombarde<sup>2</sup>, Mr. Lokesh Mankar<sup>3</sup>, Mr. Vishal Shewar<sup>4</sup>,  
Prof. Manish Agrawal<sup>6</sup>

<sup>1,2,3,4</sup> (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),  
<sup>6</sup> (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

**Abstract:** Water Level Measurement & Control forms an important part of any process in industries as well as domestic purposes. It is generally observed that the measurement and control of liquid level is done either with the help of various continuous control strategies employing Proportional-Integral-Derivative (PID) Controller in many plants where as in many other applications discrete control of pump starting and stopping is done for both for industrial & domestic purposes. Here in this particular work we propose a automatic liquid level monitoring & control strategy in the control algorithm which helps the pump not to operate when there is no water in the underground tank thus preventing the dry run of the pump helping in conservation of energy, preventing water wastage as well as protecting the pump from operating under dry run condition by switching the pump off. The system designed uses Arduino UNO as the Microcontroller board actually the control action via a relay circuit to turn on or off a operating Dc pump as a prototype model.

### INTRODUCTION OF PROJECT

In this work we focusses on developing a discrete water level control system which serves for namely the purposes firstly saving water at large by preventing the overflow, energy conservation by switching the pump in certain appropriate conditions & last but not least the objective is to also prevent the dry run of the pump enhancing the longevity of the operating pump. The automatic water pump.

### PROJECT METHODOLOGY

This work presents a scheme to monitor the the overhead tank water level as well as the underground tank water level simultaneously and then determine the decision of switching the pump on or off.

### LITERATURE SURVEY

Control systems are also classified as sequential, continuous or discrete. Hence various conventional & advanced schemes has been proposed for the control of level of the liquid in domestic and industrial applications for continuous level monitoring & control [1,2&3] where various advanced techniques like fuzzy, IMC as well as Fractional based Proportional-integral-derivative control schemes are applied on Level control loops for effective control of the liquid level in industrial applications. On the otherhand discrete control are widely applied across domestic & industrial areas for sequential as well as discrete control of water or liquid [4,5,6&7]. Researchers have also monitored the level of liquid over the network for efficient Liquid or water level management.

### REFERENCES:

1. B. Mondal, S. Rakshit, R. Sarkar & N. Mondal "Study of PID and FLC based Water level control Using ultrasonic Level Detector" In the Proceedings of 2016 IEEE International Conference on Computer, Electrical & Communication Engineering (ICCECE)
2. U. M. Nath, C. Dey, R. K. Mudi "Fuzzy-based auto-tuned IMC-PID controller for level control process", In the Proceedings of 2017 International Conference on Computational Intelligence, Communications, and Business Analytics CICBA 2017, pp 372-381, 2017
3. S. Sen, C. Dey, & U. Mondal "IMC based Fractional-order Controller for a Level Process" In the Proceedings of International Conference on Opto-Electronics and Applied Optics OPTRONIX 2019.



EE10\_ICSCI2022\_1963

## BIDIRECTIONAL DC- DC CONVERTER FOR CONTROLLING PMDC MOTOR DRIVES

Prof.Rajendra Bhombe<sup>1</sup>, Prof.Diksha Khare<sup>2</sup>  
 1,2 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India)

### INTRODUCTION

As we move forward in the 21st century, our responsibilities for curbing air pollution and conserving non-replenish able resources is increasing. The exhaust from petrol/diesel engines is a major cause of global warming and respiratory ailments, along with rising fuel prices draining consumers [1]. These reasons have contributed to the awareness around substituting conventional fuel-based IC engine vehicles with electric vehicles.

To extract maximum electrical energy from the rotational mechanical energy created during braking operation, power electronic components along with technique such as fuzzy logic control are used [4]. This way a dual control strategy i.e. current control and voltage control, is used to extract energy as efficiently as possible from braking to charging the battery [5]

### BIDIRECTIONAL DC-DC BUCK-BOOST CONVERTER

During the different stages of operation of a vehicle, it is driven at different speeds in real life scenarios. At each of these instances, there is a vehicle motor terminal voltage i.e.  $V_{mot}$  and vehicle battery voltage  $V_{bat}$ . In a normal EV without regenerative braking, energy would flow from the battery to the motor when the vehicle is driven to power it and reduce gradually as the brakes are pressed. However, in the case of regenerative braking, since we wish to utilize the energy released during the braking action, there is a reversal of the flow of energy. When the brakes are pressed, the kinetic energy of the motor converts into electrical energy. So, the motor works as a generator and energy flows from motor to battery. Hence, to maintain the appropriate voltage level to drive the motor during motoring action as well as to charge the battery efficiently during regenerative braking process bidirectional buck-boost converters are used. [1, 17]

The cascaded bi-directional buck-boost DC-DC converter

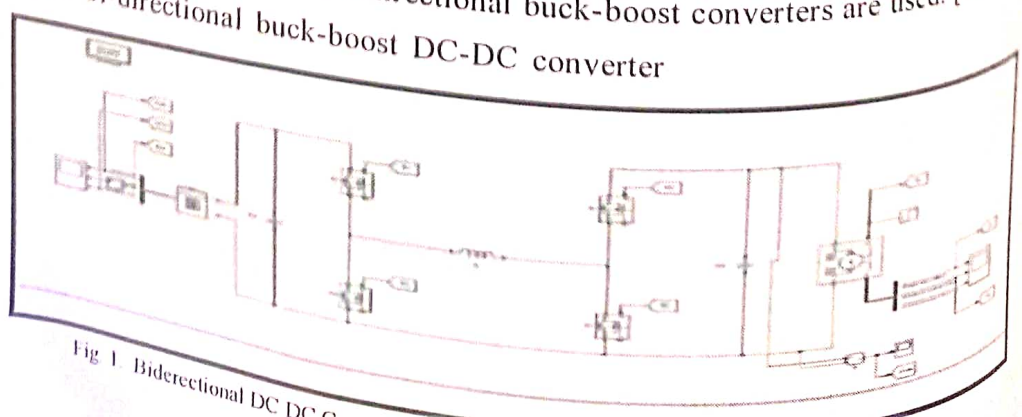


Fig 1 Bidirectional DC DC C

EE11\_ICSCI2022\_6485

## WASTE HEAT RECOVERY FROM REFRIGERATION PLANT

Prof. Manish Agrawal<sup>1</sup>, Prof. Yogesh Likhari<sup>2</sup>, Prof. Milind Rode<sup>3</sup>, Prof. Akshay Pillewan, Mr. Chandan Sanjiv Verma<sup>4</sup>

1-4 Assistant Professor, Department of Electrical Engineering G.N.I.E.T, Nagpur, Maharashtra, India

5 Research Scholar Department of Mechanical Engineering G.H.R.C.E, Nagpur, Maharashtra, India

**Abstract:** Heat is energy which is one of the important issues in terms of the use of refrigerants and the protection of the global environment. This waste heat leads to global warming when the heat in the rise in area, and it is not good for the ozone layer, so it affects the environmental conditions. Therefore, it is necessary to take concrete measures to save energy by using waste heat. I tried to use the waste heat from the condenser of the refrigerator. This heat can be used for many household and industrial purposes. With minimal construction, maintenance and operation costs, this system is also useful for home application. This is a valuable alternative approach to improving overall efficiency and reusing waste heat. Technically feasible and economically visible with the aim of saving energy and to reduce global warming effect, our work focuses on the valorization of the waste heat evacuated by the condenser of a refrigeration machine (air-conditioner) for the desalination of sea water. In this paper, we have realized the concept of a new system that combines air conditioning and desalination. The modelling of the heat exchanges of each part of the system is realized. To improve the performance of the system, various experimental tests are represented and discussed.

**Keywords:** Refrigeration unit, Condenser, Evaporator etc.

### INTRODUCTION

The vapour compressor system employs the main components as Evaporator compressor. Expansion Device and condenser. The heat sucked by refrigerants from evaporator and heat added in compressor is extracted, then it can be useful for other purposes. The amount of heat is directly proportional to the refrigeration capacity of plant. So, the heat utilization can be economical for large capacity plants. The condenser is key element for our project, The aim of the project is to design a condenser which is a heat exchanger which will cause the heat transfer from the refrigerant to water. The heated water is to be used for low temperature applications. The data required i.e., capacity, refrigerants etc., Nagpur the capacity of plant is 30 TR. The heat transfer from refrigerant to water is assumed to be by natural convection. The condensation of refrigerant is film condensation. The basic aim of designing the heat exchanger is to find the length of coil for complete condensation of refrigerant, raising the water temperature by 50C.

### HEAT TRANSFER

The Science of thermodynamic deals with the quantitative transition and rearrangement of energy as heat in bodies of matter. Heat transfer is the Science which deals with the rate of exchange of heat between hot and cold bodies called the source and receiver. There are three distinct ways in which heat may pass from a source to a receiver. Almost all engineering applications are based on this. These are Conduction, Convection and Radiation.

### CONDUCTION HEAT TRANSFER

Conduction heat transfer is the process by which energy is transferred of kinetic energy at a molecular level in the direction from areas of higher temperature and higher molecular energy level to areas of lower temperature and lower molecular energy level.

$$q = KA (dT/dx)$$

Where  $q$  = heat transferred in  $x$  direction  $dT/dx$  = Temperature gradient in  $x$  direction

EE12\_ICSCI2022\_1264

## FUTURE BASED SELF LEARNING HYBRID MODEL OF AUTOMATIC MANLESS SMART CITY WITH IMPLEMENTATION OF REMOTE ACCESS USING AUTOMATION

Miss. Prajakta Malakwade<sup>1</sup>, Prof. Rajesh Bhombe<sup>2</sup>, Prof. Yogesh Likhar<sup>3</sup>

### ABSTRACT :

The objective of an “AUTOMATED SMART CITY” is system-based approach for the design of this services, and the related protocols and technologies, discussing their suitability for the current environment. The aim is to convert the system in a fully auto-self diagnosed unmanned level which is userfriendly and work with not only in support with the current technology but which also care for the user safety.

Keywords: Automation, Building automation, transport automation and Medical/safety automation. Remote access Automation.

### INTRODUCTION

Automation is a recent communication paradigm that envisions a near future, in which the objects of everyday life will be equipped with microcontrollers, transceivers for digital communication. The concept of smart city is the ability of the system to work, diagnose, and troubleshoot in its own required way as per the requirement of the user. The application makes the identification of solutions capable of satisfying the requirements of all possible application scenarios a formidable challenge.

### METHODOLOGY

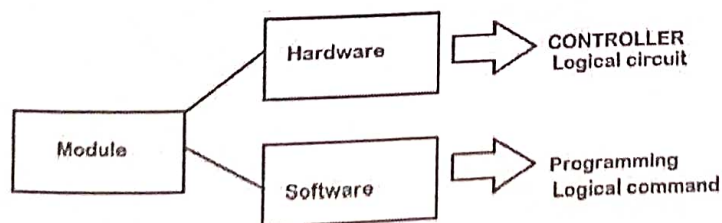
The method adopted here is to work the system in a micro level just like the technology used previously but the main difference here is to combine the different system like home automation, transport automation and medical/safety automation to achieve the smart city concept.

**Home Automation:** The city can never be called a smart city unless it has proper automated house which is equipped with automated devices which supports the user in a day today life.

**Transport Automation:** Transport is the main lifeline of any city to keep the city up and running to an automated approach with perfect traffic control is necessary.

**Safety Automation:** The city without safety and precaution can never be smart. So as a safety measure it is equipped with proper alarm system and emergency devices which is done remotely

### FIGURES AND TABLES



The project consist of three major part as the smart city is a big idea: It is the combination of Building automation, transport automation and Medical/safety automation.

### Smart Home System:

EE13\_ICSCI2022\_2584

## MODELLING AND SIMULATION OF PV ARRAY FOR MAXIMUM LOAD DEMAND GRID INTERCONNECTION

Ms. Sweta A Hingaspure

Department of Electrical Engineering

Guru Nanak Institute of Engineering & Technology, Nagpur

The demand for electrical energy is growing proportionate to the population growth and also due to rapid industrialization [1-2]. To meet the gap between the demand and the supply, additional fossil fuels have to be burnt, leading to number of disadvantages like speedy depletion of fossil fuels, environmental pollution, greenhouse effect, acid rain, global warming, etc., hence to overcome these fossil fuels are replaced with renewable energy sources (RES).

The modeling and simulation of 100 kWp Photovoltaic Power System for maximum load demand at Jagadambha college of engineering and technology. This grid-connected PV system consists of Maximum Power Point Tracker (MPPT) for capturing the maximum possible power under varying solar irradiance conditions in MATLAB/Simulink platform uses Incremental Conductance (IncCond) algorithm which is incorporated in the control strategies employed in the DC-DC boost converter connected between the PV array and the inverter [2]-[6]. The simulation results of output power and other parameters for varying solar irradiance are observed.

### DC-DC CONVERTER

Solar photovoltaic (PV) system converts solar energy to electrical energy. PV system has number of advantages like, the required input i.e., solar energy is available free of cost, it decreases the dependency on oil, gas, coal for production of electrical energy, hence no pollution will be produced, as there are no moving parts in PV system, maintenance is not required, in long time period, there will be high returns for the invested amount on the PV system.

Fig. 2 above shows the inductor current waveform and Fig. 3 shows the inductor voltage waveform.

From the inductor voltage balance equation we have

### MAXIMUM POWER POINT TRACKING

Many algorithms have been reported in the literature to capture the maximum power from the PV system. There are two methods, namely the Perturb and Observe and Incremental Conductance methods, of which Incremental Conductance who have good speed of convergence and less complexity, is employed in our simulation.

#### Incremental Conductance Method (IncCond)

This paper presents modelling and simulation of standalone mode of PV system and three phase grid connected PV system. The various elements of PV system are modelled, finally the PV system in standalone mode, grid connected mode are simulated and the results are discussed.

The paper is structured as follows, different elements of the PV system like PV cell, DC-DC boost converter, inverter, are modelled in section II, the simulation results of the standalone mode of PV system, grid connected PV system using are deliberated and presented in section III, at the end the paper is concluded in section IV

The various elements of PV system are PV panel, power conditioning devices i.e., a DC-DC converter, MPP controller, DC-AC converter, i.e., an inverter, filter. The generated output voltage is variable and low, a DC-DC boost converter steps up the generated DC voltage to the required voltage level. The generated output PV power is depends upon the weather conditions [10-12]. There is a unique operating

EE14\_ICSCI2022\_1085

## “DETECTION OF FAULT IN INDUCTION MOTOR BY MOTOR CURRENT SIGNATURE ANALYSIS (MCSA)”

Miss. Vaishnavi Warkad<sup>1</sup>, Prof. Rajendra Bhombe<sup>2</sup>, Prof. Yogesh Likhhar<sup>3</sup>

1 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),

2,3 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

**Abstract** - Induction motors are widely used in transportation, manufacturing, petrochemical and in almost every other fields dealing with electrical power. Faulty induction motor signifies reduction in production and cost increases in a industry. Condition monitoring and fault diagnosis systems are employed in industries to monitor the health of the machines continuously. There are many condition monitoring methods including vibration monitoring, thermit monitoring, chemical monitoring but all these methods required expensive sensors or specialized tools. Whereas current monitoring system does not require expensive sensors. To identify the different types of fault in induction motor by monitoring the current. The signal processing techniques are used for condition monitoring and fault detection of IM. Signal processing technique to detect the fault by wavelet transform. Motor current signature analysis (MCSA) is the most popular method used for fault detection in IM. MCSA is sensing an electrical signal containing current component.

**Keyword** : current monitoring, Algorithm for fault detection, MATLAB simulink Software, Spectrum Analysis

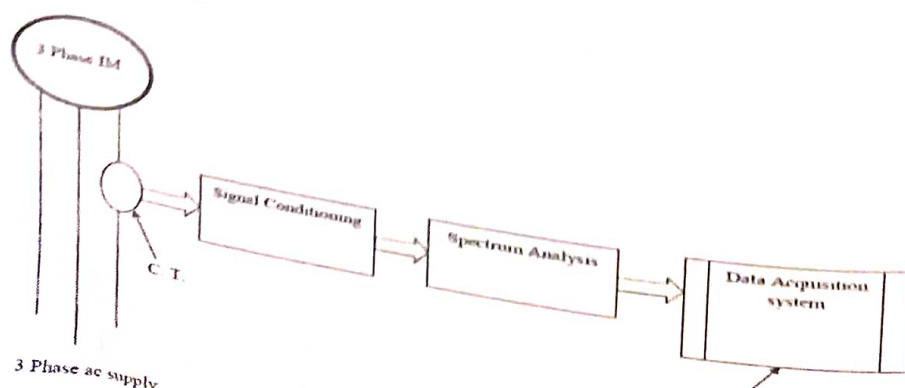
### INTRODUCTION

It is observed that the technique called ‘Motor Current Signature Analysis’ (MCSA) is based on current monitoring of induction motor, therefore it is not very expensive, accurate analysis of fault is possible. The MCSA uses the current spectrum of the machine for locating fault frequencies. When fault present, the frequency spectrum of the current becomes different from healthy motor. The signal processing techniques are used for condition monitoring and fault detection of induction motor. The simple to implement. The wavelet transform (WT) decomposes a signal into a set of basic functions called mother wavelet by dilations and shifting. Wavelets are obtained from a single prototype wavelet  $\psi(t)$ . These basis functions are called wavelets. Algorithm for fault detection: The standard deviation of wavelet coefficients is used to detect loose connection and stator resistance unbalancing fault in induction motors. Greater concentration of mid and low range frequency deviation is caused by these faults.

### METHODOLOGY

- Type of project is Software as we use MATLAB simulink Software.
- Technique Used are motor current signature analysis (MCSA).
- Mathematical Modeling of MCSA.

### BLOCK DIAGRAM



EE15\_ICSCI2022\_1586

## A DUAL CONTROL REGENERATIVE BRAKING STRATEGY FORTWO-WHEELER APPLICATIONS

Paras Revchand Kamble<sup>1</sup>Yogesh likhar<sup>2</sup>, Rajendra Bhombe<sup>3</sup>

1 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),  
2,3 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

**Abstract-** In this paper, bi-directional DC/DC buck-boost converter with dual control strategy during regenerative braking is used for a two-wheeler application. Proposed system combining of two source one as PV array and other as Battery which use to provide as in put to bidirectional DC-DC converter .During the normal and Good Solar Irradiation Conditions the PV array generated maximum voltage therefore it play important role during motoring mode to supply power to motor but when Availability or less amount of solar irradiations output battery will supply power to motor. PV and battery not sufficient to provide power to motor some time. The converter with the proposed control strategy used in this work has made it possible to charge the battery even when the back emf of the machine is less than the battery voltage. A fuzzy logic control strategy is used to consider the non-linear factors like SOC, speed of the vehicle and the required brake force. This is done in order to make the system more reliable and realistic. The model is completely simulated in MATLAB/Simulink. By implementing the dual control strategy, the average power stored by the battery is increased and the vehicle comes to halt faster in comparison with the existing control strategy. To support the above claims, simulation results are presented to show the effectiveness of the proposed method

**Keywords—** Braking, Bidirectional Converter, Fuzzy, SOC

### INTRODUCTION

In today's world of dwindling resources and ever increasing prices, spending a lot on fuel has become a major part of the economic budget. Reducing fuel consumption can have a major impact on decreasing the capital spent on fuel. To achieve this, hybrid electric vehicles (HEV) and plug in hybrid electric vehicles (PHEV) [2] are an alternate solution. Installation of high energy battery packs and regenerative braking play an important role in improving the drive range [7] of the electric vehicles as well as improving the battery life. In order to extract the maximum electrical energy from the rotational mechanical energy, DC/DC converters with appropriate charging and discharging profile are required. Various topologies of DC/DC converters have been discussed in . However, regenerative braking [7], has to be carried out with the conventional frictional braking. In the braking process, there are two issues that are to be addressed. First is accurately applying the brakes which restrains the vehicle speed and maintains the vehicle's travelling course. And the second issue is to recover the braking energy to increase the energy efficiency of the battery. In practical scenario, factors like state of charge (SOC) of batteries, speed of the vehicle and driver's brake force requirements limit the effectiveness of electric braking. Thereby mechanical braking has to be incorporated along with regenerative braking. In literature, many works on regenerative braking and various algorithms for the control during the regenerative braking are proposed. The work proposed a method wherein vehicle's speed is taken into account and not the SOC. Authors in [4] have taken the SOC into account and computed the regenerative force. However, the above works have not stated any methods to utilize the regenerative power to charge the battery. Works carried out in [5] and [6] have used different topologies of bi-directional DC/DC converters to charge the battery. However, the converters used in the works do not address the issue that arises if the terminal voltage of the machine falls below the battery voltage during low speed of the vehicle. The back emf is neglected when the battery voltage is greater than the terminal voltage of the machine. In this paper, the focus is on the dual (voltage and current) control strategy which is used to extract the maximum possible energy during the regenerative braking and to ensure that the vehicle stops in an optimum time frame. In addition, fuzzy logic control is used to determine the battery charging current as its determining factors (SOC, vehicle speed and brake

- 10.1109/ACCESS.2021.3074581
- [2] S. Heydari, P. Fajri, M. Shadmand and R. Sabzehgar, "Maximizing Harvested Energy through Regenerative Braking Process in Dual-Motor All-Wheel Drive Electric Vehicles," 2020 IEEE Transportation Electrification Conference & Expo (ITEC), 2020, pp. 1246-1250, doi: 10.1109/ITEC48692.2020.9161542
- [3] M. Wang, H. Yu, G. Dong and M. Huang, "Dual-Mode Adaptive Cruise Control Strategy Based on Model Predictive Control and Neural Network for Pure Electric Vehicles," 2019 5th International Conference on Transportation Information and Safety (ICTIS), 2019, pp. 1220-1225, doi: 10.1109/ICTIS.2019.8883435.
- [4] Siddharth Mehtaa, S. Hemamalinib "A Dual Control Regenerative Braking Strategy for Two-Wheeler Application" 1st International Conference on Power Engineering, Computing and CONTROL, PECCON-2017, 2-4 March 2017, VIT University, Chennai Campus
- [5] Q. Liu, F. Qu and J. Song, "A novel dual function pneumatic valve for blending braking system and control strategies," 2017 International Conference on Mechanical, System and Control Engineering (ICMSC), 2017, pp. 255-261, doi: 10.1109/ICMSC.2017.7959482.
- [6] R. G. Chougale and C. R. Lakade, "Regenerative braking system of electric vehicle driven by brushless DC motor using fuzzy logic," 2017 IEEE International Conference on Power, Control, Signals and Instrumentation Engineering (ICPCSI), 2017, pp. 2167-2171, doi: 10.1109/ICPCSI.2017.8392101.
- [7] Xiaohong Nian, Fei Peng, and Hang Zhang, Regenerative Braking System of Electric Vehicle Driven by Brushless DC Motor, IEEE Transactions on Industrial Electronics, vol. 61, no. 10, pp. 5798-5808, OCTOBER 2014.
- [8] Jung-Song Moon, Jung-Hyo Lee, In-Yong Ha, Taeck-Kie Lee, Chung-Yuen Won, An Efficient Battery Charging Algorithm based on State-of-Charge Estimation for Electric Vehicle, International Conference on Electrical Machines and systems, Beijing, China 20- 23 August 2011.
- [9] Xiangpeng Yu, Tielong Shen, Gangyan Li and Kunihiko Hikiri, Regenerative Braking Torque Estimation and Control Approaches for A Hybrid Electric Truck, 2010 American Control Conference Marriot Waterfront, Baltimore, MD, USA, June 30- July 02, 2010
- [10] Hao Zhang, Guoqing Xu, Weimin Li, Meilan Zhou, Fuzzy Logic Control in Regenerative Braking System for Electric Vehicles, IEEE International Conference on Information and Automation, pp. 588-591, June 2012.

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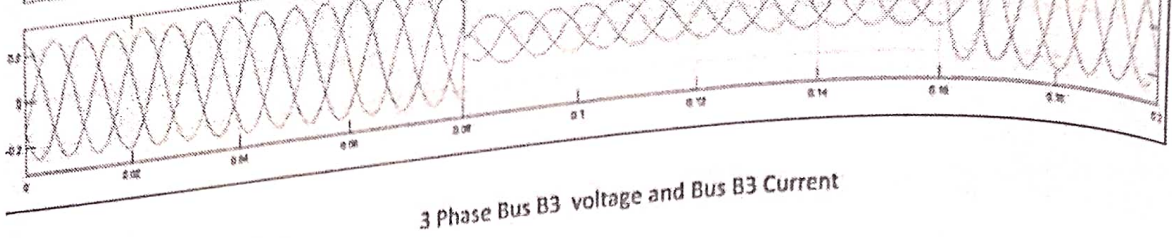
## VOLTAGE SAG MITIGATION USING MULTILEVEL INVERTERBASED DYNAMIC VOLTAGE RESTORER

Dhiraj J Yadav<sup>1</sup>, Prof. Yogesh Likhar<sup>2</sup>, Prof. R. M. Bhombe<sup>3</sup>

<sup>1</sup> (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India).

<sup>2,3</sup> (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

Abstract- The problem of voltage sags and swells and its severe impact on sensitive loads is well known. To solve this problem, custom power devices are used. One of those devices is the dynamic Voltage restorer (DVR), which is the most efficient and effective modern custom power device used in power distribution networks. Its appeal includes lower cost, smaller size, and its fast dynamic response to the disturbance. This work describes DVR principles and voltage restoration methods at the point of common coupling (PCC). Simulation results are presented to illustrate and understand the performances



## CONCLUSION

The voltage sag is most major and frequently occurring problems in present power grids. Voltage sags are harmful for sensitive loads because they cause power loss for sensitive loads, which is a cause problem. Recently due to the increased sensitive loads in power grid, high quality power are important to provide. To reduced the problem of voltage sag, DVRs are suitable devices to compensate these voltage sags, protect sensitive loads and fulfill their voltage during voltage sag. One of the important topics in DVR is the procedure and method of voltage compensation.

## REFERENCE

- 1) Albrecht Wolf, ManoharanThamodharan, "Reactive Power Reduction in Three-Phase Electric ArcFurnace" IEEE transactions on industrial electronics, vol. 47, no. 4, august 2000.
- 2) Martin Cernan, Josef Tlustý, "Study of the susceptance control of industrial Static Var Compensator" 2015 IEEE.
- 3) Atousa Yazdani, Mariesa L. Crow, J. Guo, "An Improved Nonlinear STATCOM control for Electric arc furnace voltage flicker mitigation" IEEE transactions on power delivery, vol. 24, no. 4, october 2009.
- 4) Mahmood Joorabian, Davar Mirabbasi, Alireza Sina, "Voltage flicker compensation using STATCOM" 2009 IEEE.
- 5) C. Sharmeela, G. Uma, M. R. Mohan, "Voltage flicker analysis and mitigation in AC Electric arc furnace using PSCAD" National Power Systems Conference 2004.

EE17\_ICSCI2022\_7950

## COMPARATIVE ANALYSIS DIFFERENT TOPOLOGIES OF GRID-TIED TRANSFORMER LESS INVERTERS

Mr. Amit Kumar Thakur<sup>1</sup>, Prof. Rajendra Bhombe<sup>2</sup>, Prof. Yogesh Likhar<sup>3</sup>

<sup>1</sup> (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),

<sup>2,3</sup> (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

**Abstract-** Transformer-less inverters are widely used in grid-tied photovoltaic (PV) generation systems due to the benefits of achieving high efficiency and low cost. Various transformer-less inverter topologies have been proposed to meet the safety requirement of leakage currents. In this paper, a family of H6 transformer-less inverter topologies with low leakage currents is proposed, and the intrinsic relationship between H5 topology, highly efficient and reliable inverter concept (HERIC) topology, and the proposed H6 topology has been discussed as well. One of the proposed H6 inverter topologies is taken as an example for detail analysis with operation modes and modulation strategy. The power losses and power device costs are compared among the H5, the HERIC, and the proposed H6 topologies. A universal prototype is built for these three topologies mentioned for evaluating their performances in terms of



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## STUDY OF MAXIMUM POWER TRACKING TECHNIQUE AND THEIR APPLICATION

Bhagwati Rajendra Sarode<sup>1</sup>, Prof. Diksha Khare<sup>2</sup>, Prof. Yogesh Likhar<sup>3</sup>

<sup>1</sup> (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),

<sup>2,3</sup> (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

**Abstract:** This paper provides a detailed review of the maximum power point tracking (MPPT) techniques used in photovoltaic (PV) systems. The MPPT technique proves to be an essential part of the PV system, and hence the most appropriate method should be chosen in order to optimize the efficiency of the system, keeping into consideration the economic point of view. A small description of various MPPT techniques has been provided and a comparison based on features, such as convergence speed, implementation complexity, accuracy, the relative cost of implementing the set-up, and their commercial availability has been done. This paper aims at choosing the most appropriate technique for any particular PV application taking into account all the above-mentioned factors, especially the cost, complexity, and accuracy, so as to maximize the effectiveness of the system by optimizing all the parameters. It aims to serve as a useful guide for both users and manufacturers.

**Keywords:** Maximum Power Point Tracking, Photovoltaic, Renewable Energy, PV System

### INTRODUCTION

A photovoltaic (PV) system converts solar energy into direct current (DC) electrical energy straightly, which is assembled by the solar cell as the main device of the PV panel. Meanwhile, power electronic converters have been evolved as an interface between renewable energy sources and power electric grids to improve power extraction.

As Yang and Zhao have shown in [1], using converters and inverters not only adjust the low DC voltage produced by the PV module in the electric grid to the voltage level but also, should merge functionally for tracking the MPPT since the power conveyed from the modules to the point of operation is very delicate. MPPT is an electrical device that is used to match the characteristics of the module to obtain the maximum power by adjusting the duty cycle of the DC-DC converter, avoiding the power loss of the system.

MPPT is a critical device in a solar system since PV systems efficiency is low, comparatively. The major problem of PV systems is the amount of electrical power that a PV panel can be generated may be varied in different weather conditions [2], furthermore, another drawback of the PV systems is their costly energy generation process compare to the cost that needed to generate energy by conventional power generation systems.

Verma et al. [3] discussed a summary of 31 different kinds of MPPT methods. They claimed that the features of the solar cell are mostly influenced by insolation, temperature, and partial shading condition (PSC). Moreover, in this paper, MPPT methods are classified under Indirect Control (IND) which is a mathematical method based on the empirical data, Direct Control (DIC) that is based on the sampling-based control or modulation-based control strategy, and Soft computing techniques based method that is based on soft computing techniques like genetic algorithm, artificial neural network, and particle swarm optimization.

Ramli et al. [4] considered MPPT methods not only under uniform insolation but also under PSC. Some of these methods are the same for both conditions, however, some of the methods are not suitable for shading conditions and need to improve. Also the considered MPPT methods with reconfigurable field-programmable gate array (FPGA) technology. One of the most important issues in using MPPT methods practically is using a proper converter that is di-

Wu et al. [5] posited an MPPT

EE19\_ICSCI2022\_8579

## SHUNT COMPENSATION FOR POWER QUALITY IMPROVEMENT USING A STATCOM CONTROLLER: MODELLING AND SIMULATION

Ms.Rita V. Zodape<sup>1</sup>, Prof. R. M. Bhombe<sup>2</sup>, Prof. Yogesh Likhar<sup>3</sup>

<sup>1</sup> (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),

<sup>2,3</sup> (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

**Abstract:** The paper deals with compensation of frequently time-variable loads by means of STATCOM controllers. An arc furnace is considered as a heavily distributing load. The STATCOM system was used to ensure good power quality at the point of common coupling. For analysis of the system performance, the PSCAD/EMTDC programme was applied. Simulation models of the load and two types of STATCOM controllers, 12-pulse and 24-pulse, are discussed in the paper. A PSCAD model of a measurement block is also proposed for power quality assessment. Some results of simulation are presented, which show the compensation effectiveness

### INTRODUCTION

In recent years power quality issues have become more and more important both in practice and in research. Power quality can be considered to be the proper characteristics of supply voltage and also a reliable and effective process for delivering electrical energy to consumers. Binding standards and regulations impose on suppliers and consumers the obligation to keep required power quality parameters at the point of common coupling (PCC).

Interest in power quality issues results not only from the legal regulations but also from growing consumer demands. Owing to increased sensitivity of applied receivers and process controls, many customers may experience severe technical and economical consequences of poor power quality. Disturbances such as voltage fluctuations, flicker, harmonics or imbalance can prevent appliances from operating properly and make some industrial processes shut down. On the other hand, such phenomena now appear more frequently in the power system because of systematic growth in the number and power of nonlinear and frequently time-variable loads.

When good power quality is necessary for technical and economical reasons, some kind of disturbance compensation is needed and that is why applications of power quality equipment have been increasing. For many years conventional static VAR compensators (SVC) have been widely used in distribution power networks to improve power quality. Providing fast reactive power compensation, they prevent fluctuations in supply voltage, which can be detrimental to consumers. They thus maintain a constant voltage on the load buses and reduce voltage flicker, keeping the power factor steady and balancing the reactive power consumption. Different conventional SVC configurations have been applied: a fixed capacitor with thyristor controlled reactor (FC/TCR), a

thyristor switched capacitor (TSC) and a combined thyristor switched capacitor with thyristor controlled reactor (TSC/TCR). Such compensator performance has been described and analysed in many publications

The most recent approach for solid-state power compensators is based on self-commutated converters using components with a current blocking capability. Such a compensation system is the static equivalent of the synchronous compensator, hence the term STATCOM (static synchronous compensator).

A STATCOM can provide fast capacitive and inductive compensation and is able to control its output current independently of the AC system voltage (in contrast to the SVC, which can supply only diminishing output current with decreasing system voltage). This feature of the compensator makes it highly effective in improving the transient stability. Therefore, STATCOM systems with GTO thyristors have been initially used for improving flexibility and reliability of energy transmission in FACTS (flexible AC transmission system) applications. As the switching frequency of GTOs must be kept low, the control with fundamental frequency switching has been used and multi-phase configurations have been formed to reduce harmonics production. The newest applications of STATCOMs concern power quality improvement at distribution network level. Some examples given in the literature are the reduction of flicker, voltage control and balancing single phase load. These are systems of a smaller power where IGBT or IGCT technology can be applied, allowing fast switching with PWM control.

- 5 Schauder, C., Gernhardt, M.: 'Development and testing of a 100 Mvar static condenser', *IEEE Trans. Power Deliv.*, 1995, 10, (3), pp. 1486-1495
- 6 Song, Y.H., and Johns, A.T.: 'Flexible AC transmission systems (FACTS)', *IEEE Trans. Power Deliv.*, 1995, 10, (3), pp. 1486-1495
- 7 Suzuki, H., Nakajima, T., Izumi, K., Sugimoto, S., Mino, Y., and Abe, H.: 'Development and testing of a 100 Mvar static condenser', *IEEE Trans. Power Deliv.*, 1995, 10, (3), pp. 1486-1495
- 8 Ghosh, A., and Ledwich, G.: 'Power quality enhancement using custom power devices' (Kluwer Academic Publishers, Boston 2002)
- 9 Arrilaga, J., and Smith, B.: 'AC-DC power system analysis' (IEE, London 1998)
- 10 'Introduction to PSCAD/EMTDC'. Manitoba HVDC Research Centre INC, 31 March, 2000
- 11 Sousa, J., Correia de Barros, M.T., Covas, M., and Simoes, A.: 'Harmonic and flicker analysis in arc furnace power system'. Proc. Int. Conf. on Power Systems Transients (IPST), Budapest, Hungary, June 1999, pp. 626-630
- 12 European Standard EN 50160: 'Voltage characteristics of electricity supplied by public distribution systems', 1994
- 13 European Standard EN 60868: 'Flickermeter: functional and design specifications', 1993
- 14 Steimer, P.K., Gruending, H.E., Werninger, J., Carroll, E., Klaka, S., and Lindner, S.: 'IGCT: a new emerging technology for high power, low cost inverters'. Presented at IEEE Ind. Appl. Soc. Annual Meeting, New Orleans, Louisiana, 5-9 October, 1997
- 15 Steimer, P., and Apeldoorn, O.: 'IGCT technology baseline and future opportunities'. Presented at IEEE PES Conf. Atlanta, GA, October 2001

EE20\_ICSCI2022\_8473

## MICROCONTROLLER BASED CONVERSION OF SOLAR PV MODULE DC VOLTAGE TO AC USING OCTOCOUPLER DRIVING THE GATE CURRENT OF 3 PHASE INVERTER

Rupesh P. Tayde<sup>1</sup>, Prof. R. M. Bhombe<sup>2</sup>, Prof. Yogesh Likhar<sup>3</sup>

1.(Research Scholar, GNIET, Department of Electrical Engineering, Nagpur University, Nagpur, India), 2,3(Assistant Professor GNIET, Department of Electrical Engineering, Nagpur University, Nagpur, India).

**Abstract:** In this paper the total work is done experimentally in which Solar PV DC Voltage has been converted into AC. In this Proposed work Microcontroller Plays a very vital role as 3 Phase Inverter needs to be given pulses and for this we have used a 725mA 1 $\phi$  Transformer and the Transformer output which is AC is Converted in DC and this DC is given to the Series Voltage Regulator LM7805 and then the output of this Voltage Regulator is Fed to Microcontroller. Now, the Microcontroller Output is given to TLP250 which is an Octocoupler which drives the Gate Current of 3 $\phi$  Inverter and Pulses is given to the 3 Phase Inverter. Now connect the Solar PV Module to Input of Inverter in which gets Output of 3 Phase Inverter in 120° mode & the Phase Voltage obtained is in the form of Quasi Square Wave.

### INTRODUCTION

Photovoltaic Module, through photoelectric experience, produce electricity in a nonstop electricity

EE21\_ICSCI2022\_0313

## STUDY OF THE SUSCEPTANCE CONTROL OF INDUSTRIAL STATIC VAR COMPENSATOR AND IMPROVE POWER FACTOR

Ms.Komal P. Naitam<sup>1</sup>, Mr.Manish Agrawal<sup>2</sup>, Yogesh Likhar<sup>3</sup>

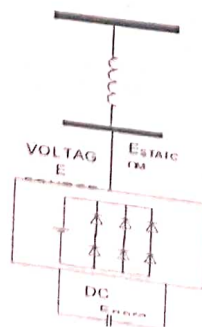
1.(Research Scholar, GNIET, Department of Electrical Engineering, Nagpur University, Nagpur, India), 2,3(Assistant Professor GNIE3T, Department of Electrical Engineering, Nagpur University, Nagpur, India).

*Abstract*—This paper deals with the simulation of industrial distribution system with electric arc furnace - non-linear load of variable active and reactive power. The simulation is considered with all key features such as passive harmonic filters, Thyristor Controlled Reactor (TCR), Electric Arc Furnace (EAF) modeled by Cassie Mayer-model of the arc, transformers and other equipment. Management TCR is based on measuring and managing susceptance in the Point of Common Coupling (PCC). Results of the simulations is that the device Static Var Compensator (SVC) controlled manner described limit flicker effect and allow to crucially increase the performance of the furnace. The benefit is the ability developed simulation analysis of interactions SVC with modern supplement FACTS devices such as active filters.

*Keywords*—EAF, SVC, TCR susceptance control

### INTRODUCTION

FACTS devices are currently used in two different areas of application. The first area is the use of in the transmission system where FACTS devices are used primarily for control of power flow in the system and improve system stability. To ensure the stability is great benefit of FACTS devices possibility damping of power oscillations generated during fault conditions. The second area is the use in distribution systems, where the main task of FACTS devices improve power quality. It is mainly reactive power compensation, suppress voltage unbalance and suppress flicker effect for dynamic loads. For this purpose they are often used SVC devices. The paper will focus on the benefits of SVC devices with susceptance regulation for the purpose of improving the quality of electricity in the industrial network with an electric arc furnace. To analyze the effect of regulation SVC will consider an assembly of EAF, furnace transformer, furnace reactors to limit short-circuit power, passive harmonic filters, TCR and transformer 110/22 kV. Circuit diagram is shown in figure 1. In the following parts of the paper we will describe the various equipment and their function.



EE22\_ICSCI2022\_3285

## SOLAR POWERED SMART IRRIGATION SYSTEM USING RASPBERRY PI

Vishakha Chandekar<sup>1</sup>, Prof. Yogesh Likhari<sup>2</sup>, Prof. R. M. Bhombe<sup>3</sup>

1 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),  
2,3 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

**ABSTRACT :** To meet the growing demand of irrigation in India due to the uncertain climatic conditions, it is necessary to focus on sustainable irrigation approaches and improving the efficiency of the existing irrigation systems. Irrigation requirement varies from a couple of life saving watering during the monsoon season to assured year-round water supply. Due to rapid urbanization in India demand for water from urban sector is increasing. The scarcity of water will shoot up with time due to increasing population and growing demands. Study conducted by National Commission for Integrated Water Resources Development (NCIWRD) reveals that the irrigation water demand in India will shoot up to 1180 Billion cubic meters (BCM) by 2050 from the demand value of 710 BCM in 2010[1].

**Keywords:** Solar Energy, Automated Irrigation System, Image Processing, Arduino, Medicinal Plants, Maximum Power Point Tracking (MPPT).

### INTRODUCTION

India has powerful historic health care practices which is portrayed by the classical systems of medicine like Ayurveda, Siddha, Unani, and Swa-rigpa. Majority of the Indian health care traditions depends on raw materials extracted from the huge range of plant species which is approximately 6,500. In order to estimate the present demand and supply of medicinal plants, National Medicinal Plant Board (NMPB) made a survey on a herbal market of India. The estimated commercial demand of herbal raw drugs in the year 2014-2015 was approximately 5,12,000 MT. exports of herbal raw drugs was estimated 1,34,500 MT in the year 2014-2015. the consumption by domestic herbal industry has been estimated 1,95,000 MT 2014-2015. rural household uses 1,67,500 MT of herbal raw drugs every year. But the demand for medicinal plants is accompanied by decreasing the supply of these plants which is due to overexploitation, habitat destruction. Medicinal plants are also known as medicinal herbs. The world health organization estimates that around 80% of the world's population use herbal medicines and natural remedies for primary health care needs. There are 1000 of plants through the world that have medicinal uses many of them are also used in medicine to make pharmaceutical drugs. Cultivating medicinal plant requires high care in modern trends, different irrigation methods are used to reduce the dependency of rain and mostly the existing irrigation systems are driven by electrical power. The manual controlled irrigation systems cannot ensure a proper level of water in the sites. Due to the lack of electricity and mismanagement in the manually controlling system, sometimes their fields become dry and sometimes flooded with excess water this may cause water wastage. There is an urgent need to create strategies based on science and technology for sustainable use of water, detect the present condition in medicinal plant. Below table shows some of the diseases and respective remedies with appearance.

Table 1: Diseases and Respective Remedies with Appearance

Diseases	Appearance of leaves	Remedies
Early Bright	Brown spots with Early concentric rings on leaves.	Neem oil.
Power mildew	Powdery white spots on leaves	Potassium bicarbonate.

This system is usually designed for ensuring the proper level of water for growing up the plants throughout the season even when the person who looks after it is away. These automatic irrigation systems always

## REFERENCES

1. Priyanka G. Shinde, Ajay K. Shinde, Ajinkya A. Shinde, Borate S. P. "Plant Disease Detection Using Raspberry PI By K-means Clustering Algorithm". International Journal of Electrical, Electronics and Computer Systems (IJECS), 2017.
2. Prof. Meenakshi Saron, Ajinkya Borse, Rohan Parsekar, Vinit Harsora, Pratik Shirsekar, "Autonomous Plant Health Indication System Using Image Processing In MATLAB", IOSR Journal of Engineering (IOSRJEN), ISSN (e): 2250-3021, ISSN (p): 2278-8719 Volume 12, PP 56-58.
3. Ashutosh Gupta, Varun Krishna, Saarthak Gupta and Jitesh Aggarwal. "Android based Solar Powered Automatic Irrigation System". Indian Journal of Science and Technology, Vol 9(47), DOI: 10.17485/ijst/2016/v9i47/101713, December 2016.
4. Kavita Bhole, Dimple Chaudhari. "Solar Powered Sensor Base Irrigation System". International Research Journal of Engineering and Technology (IRJET), Feb-2016.
5. J.P. Reges, E.J. Braga, E.J. Braga, A.R. de Alexandria, "Inserting Photovoltaic Solar Energy to an Automated Irrigation System", International Journal of Computer Applications (0975 - 8887) Volume 134 - No.1, January 2016.
6. P Srinivas, K Vijaya Lakshmi, "Solar Energy Harvester for Wireless Sensor Networks", International Journal Innovative Research in Electrical, Electronics, Instrumentation and Control Engineering, ISO 3297:2007 Certified, Vol. 5, Issue 6, June 2017.
7. N. Pughazendi, M. Muthukumaravel, M. Sushil, V. Sai Manohar, "Wireless Solar Powered Automatic Drip Irrigation System", International Journal of Pure and Applied Mathematics, Volume 118 No. 22 2018, 1133-1143, ISSN: 1314-3395 (on-line version), url: <http://acadpubl.eu/hub> Special Issue.
8. Md. Tanvir Arifat Khan, S.M. Shahrear Tanzil, Rifat Rahman, S M Shafiul Alam, "Design and Construction of an Automatic Solar Tracking System", 6th International Conference on Electrical and Computer Engineering ICECE 2010, 18-20 December 2010, Dhaka, Bangladesh.
9. Ghulam Mustafa Choudhary, Vikrant Gulati, "Advance in Image Processing for Detection of Plant Diseases", International Journal of Advanced Research in Computer Science and Soft Engineering Research Paper, Volume 5, Issue 7, July 2015, Available Online at: [www.ijarcse.com](http://www.ijarcse.com).
10. Neha D. Kherade, Jyoti Kute, Pooja Pashte, Pranita Marye, Prof. DR. Saurabh Mehta, "Autonomous Farming Robot with Plant Health Indication", International Journal of Advance Engineering and Research Development Volume 4, Issue 3, March -2017.
11. Suman, Manjari Sharma, Srishti Tyagi, "Solar Powered Auto Irrigation System using GSM Module", GRD Journals- Global Research and Development Journal for Engineering, Volume 2, Issue 6, May 2017, ISSN: 2455-5703.
12. Jia Uddin, S M Taslim Reza, Qader Newaz, Jamal Uddin, "Touhidul Islam, and Jong-Myon Kim, Automated Irrigation System Using Solar Power", 2012 7th International Conference on Electrical and Computer Engineering, 20-22 December, 2012, Dhaka, Bangladesh.

EE23\_ICSCI2022\_4567

## "Tracking The Maximum Power Point Of PV Array By Sliding Mode Control Method"

Anamiika Anil Patil<sup>1</sup>, Yogesh Likhar<sup>2</sup>, Prof. Rajendra Bhombe<sup>3</sup>

<sup>1</sup> (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),

<sup>2,3</sup> (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

**Abstract-** Enhancing the PV power requires necessity to track the MPP robustly. Most techniques implemented to obtain MPPT have some drawbacks, one of them is the oscillation around the operating point. This paper suggests sliding mode control technique to minimize this problem. The strategy of SMC is designed a sliding surface which sets the operating point. Reaching this surface in finite time requires control law applied to the DC/DC converter gate. The PV peak power can be obtained smoothly at different conditions by changing the duty cycle of converter. The PV connected with grid via multilevel inverter. To prove the stability of the SMC comparison between P&O and SMC methods was done. SMC has low transient under sudden variation and reaches the steady state point faster than P&O. The simulation results are implemented in SIMULINK. The results confirmed the robustness, good performance of SMC strategy at different environmental conditions.

# AUTOMATIC GATE OPENING SYSTEM OF COAL CRUSHER MILL OF THERMAL POWER PLANT

Pranali Dongre<sup>1</sup>

<sup>1</sup> (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India)

**Abstract:** Compared with actual situation of the current thermal power plant, this project studies operation process of coal handling system in thermal power plant. Analyze technical characteristics of coal handling system and operating characteristics of the relevant machinery and equipment. The safe operation of coal handling system and the proper method of the equipment maintenance are summed up.

**Keywords:** India coal grades, Crusher, Construction, Crushing stages, Defect identification

## INTRODUCTION

At present, coal is the preeminent fuel of thermal power plant. Continuing up the large unit, and large capacity, the demand of coal is very large. Coal need to process from loading and unloading to stockpile, this procedure can finish by coal conveying system. This system includes add up to mechanical, guarantee the important of these mechanical are normal operation, it is very important for this system stable operation. And it is a key problem of reduce costs, ensure safety in production, improve the efficiency of work.

The coal handling plant (CHP) in a thermal power station covers unloading of coal, its crushing, storage and filling of boiler bunkers. Coal unloaded in the wagon tippler hoppers/ track hoppers conveyed to crusher house. Different Type of Coal Grade

Details Mostly E and F Grade Coal used in India.

Table 1: India Coal Grades Details

Grade	C.V.(KCal/Kg)	%Ash+Moisture
A	>6200	19.57
B	5601-6200	19.57-23.97
C	4941-5600	23.92-28.69
D	4201-5940	28.69-34.05
E	3361-4200	34.06-40.14
F	2401-3360	40.14-47.10

## PROJECT OBJECTIVE

This project is used in Coal crusher Mill where many power plant uses manual operation for carry the crushed coal to the pulverizer by using conveyor belt. Therefore if the belt get stop in emergency that the coal remain falling down at one place which is very

## AUTOMATION IN ELECTRICAL INDUSTRY USING IOT

Akash Katre<sup>1</sup>, Remo Francis<sup>2</sup>, Dhanashree Charpe<sup>3</sup>, Nikhil Khardekar<sup>4</sup>, Ashish Belkede<sup>5</sup>, Prof. Diksha Khare<sup>6</sup>

1,2,3,4,& 5 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur University, Nagpur, India), 6 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur University, Nagpur, India).

**Abstract-** Electrical systems are necessary in each kind of field such as factories, hospitals, homes and so on. The need for increased power monitoring and analysis system in residential and commercial units is becoming important to protect electrical appliances from damage with over voltage/current and save electricity. As a solution power monitoring and analysis system has developed with purpose of monitoring power continuously to prevent any fault that can affect the electrical device making heat loss, power loss, damaging and provide an instant alarming if anomalous values are revealed. The main aim of the project is to develop remote power monitoring system based on web server using Raspberry pi board consisting ARM11 processor and a Real Time Operating System.

**Keywords:** Voltage, Current, Control Unit, Automation, Smart

### INTRODUCTION

The Arduino Uno Smart expansion module extends the Arduino with interfaces to measure voltage and current in a contactless manner. It enables to control electricity production consumption and turns the Arduino UNO into a full featured smart meter. All measurement data can be stored and are accessible via the local network or Internet for disposal. Current is measured contactless via inductive current sensors. In the standard version currents up to 100A can be measured. By exchanging the series resistor to use other sensors measure currents up to 300A is feasible. The module has 4x 3.5mm jack inputs. Measurement of all three phases and even the neutral conductor is possible. To get other dimensional units in addition to the current measurement, the Smart Arduino module has screw terminal to measure voltage. Hereby e.g. the direction of energy flow is determinable.

### LITERATURE REVIEW

There are many research done on this topics many of them are having certain drawbacks. Here are some algorithms and techniques used in researches done previously.

An Arduino-Based System for Monitoring and Protecting Overvoltage and Under-voltage.

In this paper, an experimental system based on Arduino Uno microcontroller board was developed for measuring electrical quantities and protecting overvoltage and undervoltage conditions in a single-phase power supply. The main components are described in detail, including the hardware and software to build the system in which an Arduino Uno platform is implemented as a vital microcontroller to read voltage and current measurement from a voltage sensor (ZMPT101B) and a current sensor (ACS712) respectively. In addition, the Arduino is also used to send all measurement data to a PC through a serial port for monitoring the measured data graphically. The proposed method for designing the software uses the root mean square (RMS) method for measuring electrical quantities and then the RMS voltage measurement is compared with the minimum voltage and the maximum voltage to switch on or switch off the load. The monitoring GUI is designed with the use of the free and open-source Telemetry Viewer v0.5 software to monitor RMS voltage, RMS current, active power, and trip signal of the experimental system. The experimental results in this paper demonstrate



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## EXHAUST AIR ENERGY RECOVERY SYSTEM FOR ELECTRICAL POWER GENERATION

Shantanu Dhakare<sup>1</sup>, Aditya Chore<sup>2</sup>, Ritik Gedam<sup>3</sup>, Ganesh Burile<sup>4</sup>, Gyanesh Deshmukh<sup>5</sup>, Prof. Kanchan Bande<sup>6</sup>

1,2,3,4,& 5 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur University, Nagpur, India),

6 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur University, Nagpur, India).

**Abstract-** This paper investigates a technology-driven solution to supply a portion of energy demand in future green cities. An idea on harnessing unnatural wind resources for electricity is presented. Two vertical axis wind turbines with an enclosure are mounted above a cooling tower to recover part of the energy from the exhaust air. Guide-vanes are designed to create a venturi effect and guide the wind before it interacts with the turbine blades. Diffuser-plates help to draw more wind and accelerate the exhaust airflow. Safety concerns that may result from blade failure are minimized by the design of the enclosure. From the laboratory test and field test results, there is no significant difference in the current consumption of the fan motor with the installation of the wind turbines. The integration of the enclosure has shown an improvement on the turbine's rotational speed which is 30.4% higher. The electricity generated from this system can be fed into the electricity grid. For 3000 units of cooling tower (2 m outlet diameter powered by a 7.5 kW fan motor and operated for 16 hours/day), 13% of the energy to power the fan motor is expected to be recovered from this system which equals 17.5 GWh/year.

**Keywords-** cooling tower, energy recovery, green technology, renewable energy, urban wind energy, wind turbine  
**Nomenclature-**

GHG = Greenhouse Gas, TNB = Tenaga Nasional Berhad, VAWT = Vertical Axis Wind Turbine  
RE = Renewable energy, DAWT = Diffuser Augmented Wind Turbin

### INTRODUCTION

Nowadays, global energy consumption in both developed and developing countries has increased rapidly due to population growth and it is expected to double or more by the year 2040.<sup>1</sup> In Malaysia alone, total energy demand is growing at 5.4% per annum with 1.8% average annual population growth rate. Eventually, the energy demand in the year 2020 will be approximately 971 TWh with 33.4 million populations. As a consequence, Malaysia is predicted to become a net energy importer by 2020.<sup>2</sup> This energy consumption growth is contributed by both industrial and residential sectors. The existing energy resources for electricity generation in Malaysia mainly depend on fossil fuels (oil, coal and natural gas) which contribute 94.5% of the electricity generation while only a small portion of energy supplies comes from hydroelectricity or others (solar, biomass, etc.). However, the usage of fossil fuels brings negative impacts to the environment such as greenhouse gases (GHG) emission. According to Ahmad et al., more than 90% of the energy related GHG emission is a result of the CO<sub>2</sub> emissions from fuel combustion globally.<sup>3</sup> Currently, the increase in the concentration of GHG emission has caused a notable rise of temperature in the earth's atmosphere (global warming) and thus widespread melting of snow and ice at the polar ice caps. The melting of ice causes the rise of sea level and lesser land can be used for an increasing world population, along with the changes in climate.<sup>4</sup> In terms of the economic aspect, the deployment of fossil fuels for electricity generation will become more and more costly as these resources are limited in supply and will be exhausted one day. Based on the commercial tariff of electricity in Malaysia provided by Tenaga Nasional Berhad (TNB), energy cost is USD 0.113/kWh and it is predicted to increase by 10% annually.<sup>5</sup> In parallel with a country experiencing rapid growing energy demand and economic development, the challenges of supplying

## LOW COST DATA LOGGER AND MONITORING SYSTEM FOR A SMALL SOLAR PV ENERGY SYSTEM

Darwin Yadao Suryawanshi<sup>1</sup>, Shaffan Iqbal Sheikh<sup>2</sup>, Priya Dharmadas Tabhane<sup>3</sup>, Abrar Arif Khan<sup>4</sup>, Swapnil Manmohan Chatakwar<sup>5</sup>, Prof. Yogesh Likhar<sup>6</sup>

1,2,3,4 & 5 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),

6 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India),

**ABSTRACT** - A data logger and monitoring system are very crucial for a smooth, efficient and robust operation of PV solar energy system. Datalogger and monitoring system enables the proper operation and contributes to identifying system malfunctioning before any major breakdown. In this thesis, a low-cost, user-friendly, reliable datalogger and monitoring system has been developed mainly for a pico solar home system in a rural area of a developing country. This Aurdino microcontroller all monitoring parameter on the system displays that on a local format. The developed data logger hardware prototype uses only three sensors for temperature, voltage, and current sensing. all parameters in real time basis for an efficient monitoring which can also able to send an alert text message to maintenance personnel for any issues in battery charging.  
Keywords : Aurdino Microcontroller, PV Solar, Voltage sensor.

### INTRODUCTION

A Solar Home System comprises of a small solar PV Photovoltaic generator typically one PV module, a battery charge controller and a battery. This small panel of the solar home system is called pico-solar system. Pico-solar systems are smaller than traditional SHS. This system is mainly used to provide electricity to a remote user where on-grid distribution lines cannot be reached. Pico-solar system is vastly used for low power consumption appliances i.e. lighting, mobile cell charging and turning small DC fans in rural areas. The operation principle of pico-solar systems is the same as SHS, but it has an integrated charge controller unlike a sperate charge controller unit in regular SHS. solar system has a wide range of different shapes and sizes and comes with portable design. Monitoring based design of an electronic system for the measurement and control of the physical parameters like water temperature, solar collector's fluid temperature, solar radiation level, etc. to monitor and consequently optimize thermal-solar plant functioning is presented in . The designed control unit can monitor and program the device functionality by means of a touch-screen graphical display that to check or correct operation and quickly reveal any fault, to manage and view locally the plant functioning by serial connection to PC with terminal role, and also remotely viewing and monitoring actions, by system.

### LITERATURE REVIEW

Technological advancement increased the global energy demand along with the growing world population. Government and researchers are giving more emphasis to the alternative or renewable energy sources. Solar energy is considered as the most promising and reliable source of renewable energy. To provide a reliable, consistent performance of photovoltaic (PV) system makes a demand for developing a monitoring system. There are many data acquisition and monitoring system available for the large plant which is expensive and complicated. Even there is no such data logging and control system for a small plant like pico-solar system for rural home electrification pregame. To overcome this problem, many researchers are conducting several projects to find a low cost and reliable solution for a pico- solar system. Some of the proposals are reviewed as following for finding objective and goal to develop a new low-cost data logger and control system which can operate without any internet connection in a rural area of developing country.

## RUNNING THREE PHASE INDUCTION MOTOR USING SINGLE PHASE SUPPLY

Sanghpriy Gajbhiye<sup>1</sup>, Avinash Nagpure<sup>2</sup>, Rishabh Fulzele<sup>3</sup>, Akash Khandare<sup>4</sup>, Saurabh Dhoke<sup>5</sup>, Prof. Kanchan Bande<sup>6</sup>

1,2,3,4,& 5 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur University, Nagpur, India), 6 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur University, Nagpur, India).

**Abstract-** This research paper mainly focuses to develop such a design related to induction motor to run and control the 3 phase induction motor control using single phase input with the variable speed. The main principle of behind this design is to convert single phase AC source into three phases by using phase converter. In this way, the magnitude of the magnetic field in the stator is kept at an approximately with in constant level throughout the operating range/values. There is need to maintain the maximum constant torque producing capability in the overall system. In this project we have tried to reduce problem of specific limitation of 3phase supply which is required to drive 3 phase induction motor. In this project we have mentioned the experimentally verified way of how we can drive three phase induction motor by using single phase energy source by using capacitance of the compensation condenser for a conversion of single phase to three phase matrix converter so we can run three phase induction motor even with the single phase supply with the variable speed driving capability in the system.

**Keyword-** Three Phase Induction Motor, Capacitor. Single Phase Supply, MCB, DOL Starter, Simplified Connection.

### INTRODUCTION

We all know that in industries there are lots of motor (rotational transformer) is use for the different application for performing lots of mechanical activities to perform manufacturing and different task in the industries, Induction motor is one of basic and simplest type of motor which use not only in industries but it also regularly use in domestically, induction motor is available in different types according to that their input requirements are also different for single phase and three motor. The ranges of motor drives that use in industries are very wide. This drives require the adjustable variable speed for different kind variable speed needed. In any drives there is the speed and position is controlled, a specific power electronic based device is needed as an interface between the input power and the motor. It also needs to adjust motor in such a way that it can set to its drive requirements. In this system there is a one converter which is used for the conversion of single phase AC supply to three phase AC power conversion, for this conversion there is voltage source indirect converter are used for the sake of boosting up in their output voltage and helps to compensate the fluctuation in the single phase power source by using the DC link capacitance. In this way design there is lots of chances of losses in both side, it means there is a possibility of losses in input as well as output side of converter in capacitor side. This kind of problem is reduced by the method of single phase to three phases MCs is useful to solved this problems. Symmetrical component theory can express the actual relationship between the starting performances of a three phase induction motor while connected in single phase supply source. Here is a phase converter play most important role in converting single phase supply to required multiple phase or vice versa. There are lots of phase converter is use for conversion of single phase to multiple phase energy conversion for the different applications. Such a technique is used where three phase energy supply is not available or sometimes may be costly because unwell geographical condition or many times this are some basic reason to need to use such techniques in the system.

## POWER FACTOR IMPROVEMENT BY COMPENSATION APPLICATION

Niharika Dinesh Temburne<sup>1</sup>, Pooja Ganesh Ramteke<sup>2</sup>, Madhuri Manoj Nirmalkar<sup>3</sup>,  
DikshantAshwin Patil<sup>4</sup>, Priyanka Lakshaman Barange<sup>5</sup>

Mrs. Diksha Khare<sup>6</sup>,

1,2,3,4,5(Research Scholar, GNIET, Department of Electrical Engineering, Nagpur University, Nagpur, India), 6(Assistant Professor GNIE3T, Department of Electrical Engineering, Nagpur University, Nagpur, India).

*Abstract*— A conventional three-phase electric arc furnace causes flicker at the point of common coupling with ac mains. This generally occurs with ac mains having a low short-circuit capacity. The flicker is caused by fluctuating reactive power consumption of the furnace. This paper describes a way, through computer simulation, of increasing the dynamic performance of the furnace and keeping reactive power consumption constant. This can be achieved with the addition of a three-phase power controller and a booster transformer to the power source and the introduction of a new control method of regulating the reactive power input. The problem of flicker can thus be minimized. This was experimentally tested on a single-phase model and the results obtained were very satisfying. Due to laboratory facilities, the three-phase testing was not performed.

*Index Terms*—Booster transformer, furnace transformer, power controller, three-phase electric arc furnace.

### INTRODUCTION

The conventional three-phase electric arc furnace causes distortions in the ac mains with a low short-circuit

Capacity. They are caused by the following three reasons [1].

- 1) The furnace behaves as an unsymmetrical consumer during operation. This lies in the geometry of the high-current path in the furnace and the difference in each arc length between the electrode and molten pool.
- 2) The arc behaves as a nonlinear ohmic resistance, resulting in harmonics being produced in the ac mains.
- 3) The arc length changes as a result of the electromagnetic force and the continuous movement of the molten pool. This produces quick changes in the reactive power consumption, thus resulting in flicker.

These disadvantages could be reduced if the furnace transformer of the conventional three-phase electric arc furnace is supplemented with a three-phase power controller and a booster transformer.

### POWER SOURCE

The main feature of the power source is the furnace transformer. It is specially designed for high-current and low-voltage output. Due to high power consumption of the furnace, they are generally connected directly to the high voltage ac mains in two ways: either through a block circuit consisting of pre-transformers and a furnace transformer or through direct connection of the furnace transformer with intermediate circuit to the high-voltage ac mains. Fig. 1 shows the circuit diagram of the second method, which is the most favored one. It is comprised of a main transformer and a magnetically and horizontally decoupled booster transformer [2]. The booster transformer has half-rated power. The voltage of the intermediate circuit  $V_{211}$  is set at the level of the intermediate voltage. Switching is done with the intermediate voltage switch. Its switching power amounts to 50% of the furnace power [3]. The static var compensator meant for com-

## INVERTER REPLACED BY HIGH POWER ENERGY SOURCE SYSTEM USING BUCK BOOST CONVERTER

Divya khobragade<sup>1</sup>, Deepali Surjagade<sup>2</sup>, kalyan Ambatwar<sup>3</sup>, Surendra kasdekar<sup>4</sup>, Saurabh Manwatakar<sup>5</sup>

Prof, Akshay Pilewan<sup>6</sup>

1,2,3,4,5 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),

6 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

**Abstract:** In our proposed project we are trying to make Inverter Replaced By High Power Energy Source System. Using Buck Boost Converter. A renewable energy systems offer economic and environmental benefits in providing clean and sustainable energy rather than conventional fossil fuels .renewable energy sources such as solar energy has received tremendous demands since it is pollution-free from any poisonous by products that can pollute the environment. DC-DC converters are widely used in renewable energy generation systems such as solar photovoltaic (PV) system, wind power system and fuel cell for correct energy conversions .the solar photovoltaic (PV) power generation system is extensively used in grid-connected and off-grid applications . Normally, these solar PV modules will be connected in series to increase the PV output voltage due to the nature of solar PV energy that can only generate low DC output voltage in the range between 12V to 20V . Thus, the power electronic interfaces or power converter such as DC-DC converter is a compulsory interface to convert the low DC output voltage from solar PV system to the required voltage rating needed by the utility grid or any suitable utilization voltage.

**Keywords:** DC-DC Converter, Photovoltaic, Renewable Energy, PV System

### INTRODUCTION

A Buck-Boost converter is a type of switched mode power supply that combines the principles of the Buck Converter and the Boost converter in a single circuit. Like other SMPS designs, it provides a regulated DC output voltage from either an AC or a DC input. The buck-boost converter is a type of DC-to-DC converter that has an output voltage magnitude that is either greater than or less than the input voltage magnitude. Buck converter produces a DC output in a range from 0V just less than the input, to a level much higher than the input. Battery-powered systems, where the input voltage can vary widely, starting at full charge and gradually decreasing as the battery charge is used up. At full charge, where the battery voltage may be higher than actually needed by the circuit being powered, a buck regulator would be ideal to keep the supply voltage steady. However as the charge diminishes, the input voltage falls below the level required by the circuit, and either the battery must be discarded or re-charged; at this point the ideal alternative would be the boost regulator.

### OBJECTIVES

The purpose of this project is to provide emergency dc supply service in industry level as well as domestic level. Buck-boost converter is to receive an input DC voltage and output a different level of DC voltage, either lowering or boosting the voltage as required by the application. The control unit senses the level of input voltage and takes appropriate action on the circuit based on that voltage

## ACCIDENT PREVENTION USING MULTIPLE SENSORS

Sumit kathe<sup>1</sup>, Sneha shete<sup>2</sup>, Siddhant dongre<sup>3</sup>, Kalyani wankhede<sup>4</sup>, Nandkumar kohad<sup>5</sup>

Prof, Yogesh likhar<sup>6</sup>

1,2,3,4,5 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),

6 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India)

**Abstract-** In today's world of science and technology, the Transport system is an important part of life. Having this also gives us a sense of the most sophisticated creatures on earth. Cars play an important role in our daily lives but like all other things, there are some positives that are negative as well. Road accidents are a major threat to people's lives. Speed is an important factor in many accidents. Therefore, there is a need to control all accidents. One of the methods of accident detection was, to see the accident in person, which depended on passersby informing the relevant emergency authorities of any safety precautions to be taken but this Road had a hole in it because its efficiency was unreliable. This approach includes delays and inaccuracies due to the problem of witness speaking. This project proposes an effective management approach. First the project concerns the prevention of accidents by sending a nearby vehicle maintenance alarm to prevent a collision, and then for some reason the conflict then the next step is the acquisition of that target smart phone based on the accident detection and notification system which will track the accident with the help of implanted sensors with a small control unit and with a GPS app smartphone, GSM will send a notification to emergency services near the victim's family. Accident detection using ultrasonic sensor provides the facility to detect an accident not only in various street situations but also it might perform well under various natural conditions like rains. This system uses different sensors such as accelerometer, ultrasonic sensor, alcohol sensor, eye blink sensor, smoke sensor. GPS and GSM modules for location of accident spot.

**Keywords:** over speeding prevention, signal jumping, accident alert, overtaking assistance, wireless notification, smart system, accident prevention.

### INTRODUCTION

Everyday many lives are lost due to accidents on roads. Normally death happens due to the injury suffered by the passenger in the road accident but most of the time it also has been seen that the information of the accident, reach the emergency department very late, consequently the injured person could not sustain.

In India car use is increasing daily, for that reason accidents, car theft and air pollution are also on the rise. In India, compared to all other cities, Chennai and Delhi tend to have more road accidents. According to the data, per year 4,80,652 accidents result in 1,50,785 deaths and 1,817 deaths per month and 413 deaths per day and 55 accidents per day resulting in 17 deaths. According to one report, the highway is a major killer. On the national highway, 34.5 percent of accidental deaths occurred and on the provincial highway, 29.9% of accidental deaths occurred. The car was hijacked every 13 minutes in NEW DELHI. In the first three months of 2017, it marked a sharp 44% increase over the same period in 2016. Only about 4% of these vehicles were found. But it can be reduced by applying our suggestion. According to the Indian government report, every hour 60 accidents occur and more than 70% of them lose their lives on the spot.

## SOLAR POWERED EV CHARGER USING RFID

Ms. Shraddha Samrit<sup>1</sup>, Mr. Akshay Didawat<sup>2</sup>, Mr. Amit Parbate<sup>3</sup>, Mr. Swapnil Kolarkar<sup>4</sup>, Mr. Amol Prof. Akshay Pillewan<sup>6</sup>

1,2,3,4,5(UG students, GNIET, Department of Electrical Engineering, Nagpur, India)

6(Assistant professor, Department of Electrical Engineering, Nagpur, India)

**Abstract:** As world's resources are diminishing, govt. agencies and nongovernment organisations are pushing greener solutions through the use of renewable energy's sources. Electric vehicles are being invented and in order to run the electric vehicle the fuel required is the electricity. Electric vehicle smart charging stations which are the promising alternative and environmental sustainable solution to meet up the energy crisis.

This project describes a EV battery charger using solar panel system based on RFID module. This design is based on Arduino microcontroller with LCD displays showing the actual time left. During the time period, a relay output is latched. This can be used at Hotels, Conference centers, Exhibition halls, service offices, Shopping malls, Airports, Train terminals. So that the EV battery users can reactivate a low battery or dead battery by simply plug in & charging for one rupee.

The system battery will charge from the solar panel. Despite solar energy being a good source of energy there is a need to improve the methods to harness this energy.

**Keywords:** Arduino, LCD, RFID AND EM18, SOLAR PANEL

### INTRODUCTION

In many developing countries, the Grid power supply is not available for several hours on daily basis. Specially in Semi Urban & rural areas where the cell phones are essential communication devices. So we use solar panel to charge battery with coin detecting mechanism, microcontroller, RFID, charging circuit and different phone sockets. The coin based charger is similar like a vending machine for charging cell phones, the user has to plug in the phone into one of the adapters and insert the coin for charging at constant current for a definite time period. Coin detecting mechanism is used to detect when user insert the coin, this will detect the coin and send a corresponding signal to signal conditioning unit which converts the incoming signal into square pulse and then given to microcontroller. The microcontroller used is ARDUINO which is a type of reprogrammable microcontroller programmed. Driver circuit consists of relay, which acts as a switch to turn ON and turn OFF. The relay output is directly given to the mobile charger pin. The solar power application for a battery charging has been studied properly. Solar chargers convert light energy into DC current for a range of voltage that can be used for charging the battery. They are generally portable but can also be mounted as per required place. In this design of coin based mobile charger is a fixed solar panel of size 18 cell, 3 WP is used to charge the battery upto maximum 100 mAmp in bright sun light. Development of a coin based universal mobile battery charger based on main power and solar power is discussed and this is primarily for rural areas where the mobiles are basic needs for communication and the main power is not available all the time. The coin-based mobile charger designed in this paper is providing a unique service to the rural public area. Where grid power is not available for partial/full daytime so we use coin based mobile battery using radio frequency identification and a source of revenue is provided. The coin based mobile battery charger can be quickly and easily installed outside any business purpose. The mobile phone market is a vast industry, and has spread into rural areas, public places and railways etc. as an essential means of communication. While the urban people use more complex mobiles with good power batteries lasting for several days, the rural people buy the mobile phones that require charging instantly. So many times battery becomes dead in the middle of conversation particularly at inconvenient times when access to a standard charger is not possible, so we use this coin-based mobile battery chargers are made to solve

## CLOUD MONITORING SYSTEM FOR INDUSTRIAL MOTOR

Kartik Naitam<sup>1</sup>, Nirbhay Somkuwar<sup>2</sup>, Ashwini Bagde<sup>3</sup>, Milind Rode<sup>4</sup>

1,2,3(research scholar, GNIET, Department of Electrical Engineering, Nagpur, India)

4(Assistant professor, GNIET, Department of Electrical Engineering, Nagpur, India)

**Abstract**– Situation monitoring means, it is an upholding process for monitoring. The explicit parameter like over current, speed, vibration, temperature, emanation for early finding of impending failure and require to maintenance previous to failure or to guesstimate the machine vigor. It is technique that serves for situation based safeguarding. In stipulation based maintenance provide the current status of machine and indicate clearly where and what type of maintenance is essential so that it be able to reduce manpower consumption, optimal utilize of machine parts and will assurance that crashes will not transpire suddenly.

**Index Terms:** mobile control system-GSM monitoring, Potential Transformer, current transformer, electric drive, induction motor, activity control system .

### INTRODUCTION

In view of the fact that technology for activity control of electric drive befall available. The crash of motor proves to be very expensive as it increases down time on the machines. So it befalls essential to swell some cost capable and steadfast stipulation monitoring system for the fortification of motors to shun unexpected crashes. Stipulation monitoring techniques be able to be classified into two categories: Firstly the classical method and secondly the digital method. In classical method, electromechanical tools are expensive, less efficient, having very slow response and not reliable as some of the tools have even shorter life than the motor itself.

The digital method is the newest method for the stipulation monitoring and it involves integrated circuit, microcontrollers, microprocessors and programmable logic controllers. There are numerous factors which give to burning of motors and some of them are thermal overloading, due to objectionable stress, air gap eccentricity, speed oscillations, stator winding failure, Broken rotor bars, bearing failure and deranged voltages. According to a assessment the percentage crash of the faults is as follows:

Bearing related Motor faults 41% Stator related Motor faults 37% Rotor related Motor faults 10% Additional faults 12%

This document provides a sensor-less method to widen stipulation monitoring system for the over current, over voltage, speed, temperature via microcontroller. The anticipated system has the capability to detect faults at the time of working motor. This system endlessly monitored the status of motor on mobile screen. The anticipated system could be applied to AC motors of all sizes, particularly in severe environment stipulation where access to motor is not effortless.

### METHODOLOGY

In This work the system consist of a 3 phase AC induction motor. The system has current and voltage transformer attach to the supply which is fed with power switching circuit shown in Fig. 1. The transformer attach to the supply which is fed with power switching circuit shown in Fig. 1. The current and voltage transformer give defense of switching circuit or the control panel from the uncharacteristic current and voltage.

The interfacing tool interfaced or connects with control panel system and gives the stipulation for control the motor. The driver circuit also connect to the microcontroller for the reason that all parameter control by the microcontroller. Driver circuit be able to utilize for motor and the relay which give the signal to the three phase contactor tool for either on or off the stipulation. All the system is digitally so that we easily understand what the process is going on. The complete process shows in the diagram in Fig.1.



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## REAL TIME FAULT DETECTION IN TRANSMISSION LINE USING IOT

Ms.Simran Ramteke<sup>1</sup>, Manoj Katre<sup>2</sup>, Sonali Chalkh<sup>3</sup>, Roshni Shikardar<sup>4</sup>, Manish Lonare<sup>5</sup>,  
Prof.Akshay Pilewan<sup>6</sup>

1,2,3,4,5 (Research Scholar, GNIET, Department of Electrical Engineering, Nagpur, India),  
6 (Assistant Professor GNIET, Department of Electrical Engineering, Nagpur, India).

**Abstract :** The purpose of this project is to acquire the faults in electrical transmission line's parameter like Voltage and send these real time values over GSM network using GSM Modem/Phone at Electricity Transmitter Station. This project is also designed to protect the electrical circuitry by operating an Electromagnetic Relay. The Relay can be used to operate a Circuit Breaker to switch off the main electrical supply. User can send commands in the form of SMS messages to detect the faults in the electrical transmission line. This system also can automatically send the real time electrical parameters in the form of SMS. This system also sends SMS alerts whenever the faults occur or whenever the Voltage exceeds the predefined limits. Similarly, the main purpose of this project is to disconnect the electricity of that Transmission Line, if the faults occur.

### INTRODUCTION :

The time complicated interlocking and operation controlling requirements usually noticed in the Transmission Line working, which lead to necessity of automation of the undergoing process. In this respect, Transmission Line automation, which is the creation of a highly reliable, self-healing power system that rapidly responds to real time events with appropriate actions, ensures to maintain uninterrupted power services to the sub-stations.

**ARCHITECTURE AND WORKING OF GSM NETWORKS :** A GSM network consists of several functional entities whose functions and interfaces are defined. The GSM network can be divided into following broad parts. The Mobile Station (MS), The Base Station Subsystem (BSS), The Network Switching Subsystem (NSS), The Operation Support Subsystem (OSS). The added components of the GSM architecture include.

### DEBUGGING TOLLS :

Embedded debugging may be performed at different levels, depending on the debugger (ICD), a hardware device that connects to the microprocessor via a JTAG or Nexus interface. A complete emulator provides a simulation of all aspects of the hardware, allowing all of it to be controlled and modified and allowing debugging on a normal PC. Unless restricted to external debugging, the programmer can typically load and run software through the tools, view the code running in the processor, and start or stop its operation. The view of the code may be as assembly code or source-code. Embedded development makes up a small fraction of total programming. There are also a large number of embedded architectures, unlike the PC world where one instruction set rules and the UNIX world. Where there are only 3 or 4 major ones. This means that the tools are more expensive. Special hardware such as JTAG ports can overcome this issue in part. However, if you stop on a breakpoint when your system is controlling real world hardware, permanent equipment damage can occur. As a result, people doing embedded programming quickly become masters at using serial IO channels and error message style debugging.

MBA04\_ICSCI2022\_1627

## NEW DIMENSIONS OF FIFTH GENERATION INDIAN BANKING SECTOR REFORMS

Mrs. Ashima Varghese

(Assistant Professor, MBA Department, Guru Nanak Institute Of Engineering & Technology Dahegaon, Nagpur)

### Introduction

Banking is essential to the survival of business, commerce, and industry. Any country's growth and development is largely dependent on its banking sector. As one of the most important and widely used service sectors, the banking system has a critical role to play. A India's banking system is an important pillar that supports the financial system of the country's economy. The Indian banking system is still working on improving asset quality, implementing prudent risk management methods, and ensuring capital sufficiency.

The term "banking system" refers to a network of interconnected organisations. It discusses bank ownership, the banking system's structure, the functions performed, and the nature of business. The elements of the banking system include:

- a) Commercial Banks
- b) Investment Banks
- c) Central Bank

Commercial Banks are financial institutions that accept deposits and make loans and advances. Investment Banks handle with capital market issues and trading, whereas the Central Bank regulates the banking system by issuing currency and implementing monetary policies, among other things. The Reserve Bank of India, the country's Central Bank, was created on April 1, 1935, when the Reserve Bank of India Act, 1934, was enacted. According to the preamble to the RBI Act, the purpose of establishing the Reserve Bank was to "control the issue of bank notes and the holding of reserves with a view to securing monetary stability in India."

According to the Banking Regulation Act of 1949, "Banking means accepting for the purpose of lending or investment, of deposits of money from the public, repayable on demand or otherwise and withdrawable by cheque, draft or otherwise."

This definition clarifies a bank's three primary functions as :

- i) Accepting deposits and lending loans.
- ii) Issuance and payment of cheques, collection of consumer cheques on their behalf.
- iii) Services of Insurance, mutual funds, merchant banking, venture capital funding etc.

Banks serve as financial mediators between depositors who supply capital and borrowers who require it. When banks receive deposits, their obligations grow, and they become debtors; yet, when they make advances, their assets grow, and they become creditors.

All banks protect money and assets while also providing loans, credit, and payment services like money orders and cheques. Investment and insurance goods are also available through the banks.

Banks provide primary functions.  
Deposit Acceptance : Commercial banks' principal role is to take money from the general public.  
Commercial banks' principal duty is to collect money from people in the form of

MBA05\_ICSCI2022\_1813

## A STUDY ON MEASURING THE SERVICE QUALITY OF NAGPUR CITY

## MOVIE THEATRE WITH SPECIAL REFERENCE TOPVR.

Dr. Jonathan Joseph

(HOD, Department of Management Studies, GNIET)

**Abstract:** The Indian entertainment and media industries is growing at a fair clip. Amongst the many segments, multiplex cinemas have emerged as one of the fastest growing segments of the media industry. The objective of the study is to measure the service quality of PVR in Nagpur city and to know about the preference of the people in terms of watching movies, distance of cinema theatre, booking the tickets, watching movies in theatres. The study also aims to understand the taste/kind and requirements of the people going to movie theatres. It will also give information about the preference for choosing a cinema theatre. The study will be conducted with the help of primary and secondary data. And will be concluded by suggestions and recommendations.

**Key words:** PVR, Cinema Halls, Service Quality, Ambience.

## Introduction

PVR Cinemas is a film amusement organization in India. The organization, which started as a joint endeavor understanding between Priya Exhibitors Private Limited and Village Roadshow Limited in 1995 with 60:40 proportion, started its business activities in June 1997. The organization is established by Ajay Bijli, who is the Chairman and Managing Director. Ajay Bijli's sibling Sanjeev Kumar Bijli is the Joint Managing Director of PVR Ltd. The organization likewise works a favorable to dynamic CSR wing under PVR Nest. The full type of PVR is Priya Village Roadshow. PVR Cinemas is one of the biggest film chains in India. By presenting the products idea in India, PVR films got entirely different change in outlook to the film seeing experience: posh seating, cutting edge screen and general media frameworks. PVR films likewise give a solid and responsive assistance bundle which incorporate numerous unmistakable components, for example, very much kept up with film lobbies, bathrooms and prepared workers who handle their obligations with compassion. Ajjay Bijli, Managing Director, PVR Limited, was given 'The Theatre World Newsmaker of the Year Award for 2003'. It is his vision and remarkable commitment to the film display industry that has made PVR the biggest film presentation organization in the nation today. PVR Gurgaon was designated for an honor in the "Best Retail Environment" class at the "Yearly Design Week" grants. Ajjay Bijli was likewise respected with an extraordinary honor at Cine Asia 2004 for his critical commitment to the multiplex business of India. Interestingly, Cine Asia regarded an Indian exhibitor. He has likewise been picked as Signature Youth Icon for the year 2005.

## PVR FIRSTS:

- First to send off a multiplex in Quite a while PVR Anupam Saket, Delhi.
- First to send off India's greatest 11 screens multiplex-PVR Bangalore.
- First carry chief film survey to India with the selective Europa film and parlor at PVR Gurgaon.
- First to present gold-class films in Quite a while at PVR, Bangalore.
- First to get intuitional financing in the film business from ICICI adventure.
- First to offer mechanized and internet tagging administration.
- First to present versatile based data and tagging administration.
- First to send off dedication program moviegoers in Quite a while.
- First to send off films first month to month magazine that refreshes the film sweethearts on the most recent Hollywood.

PVR has expanded its item contributions:

- Extravagance film:** PVR has brought to its clients the experience of extravagance film. After the gigantic accomplishment of Cinema Europa in Delhi, PVR Cinemas has presented the idea of extravagance review to Bangalore also. Gold Class Cinemas have been presented without precedent for India, are two ultra extravagant selective amphi theatres, each furnished with 32 rich and completely leaning back seats and liberal legroom. Supporters can likewise appreciate star like treatment at the elite Gold Class relax which furnishes an incredible pre film insight with delightful food and refreshments.
- Mass Bookings:** There are exceptional plans for mass appointments (of at least twenty tickets) done by corporates. Subtleties can be filled on the web and PVR leaders themselves reach out to the concerned individuals.
- E-booking and tele-booking:** PVR additionally gives the facility of e-booking, which was initially begun by PVR, it has now been replicated by Satyam cineplexes also. It additionally helps clients to book tickets.
- Parties at PVR:** PVR has additionally begun helping clients to have parties at PVR. It additionally has made PVR a healthy amusement experience.

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**E-booking and tele-booking:** PVR additionally gives the facility of e-booking, which was initially begun by PVR, it has now been replicated by Satyam cineplexes also. It additionally offers telebooking.

**Parties at PVR:** PVR has additionally begun helping clients in arranging birthday/kitty parties at PVR. They've made PVR a healthy amusement experience than only a film watching binge.

MBA13\_ICSCI2022\_6909

## CAUSES OF CONFLICTS IN THE ORGANIZATIONAL SETTINGS

Prof. Vinita Dighorikar<sup>1</sup>, Prof. Shweta Wasnik,<sup>2</sup> Prof. Puja Nagpure<sup>3</sup>  
(Assistant Professor Department of Management Studies, Guru Nanak Institute of  
Engineering & Technology, Nagpur)

**Abstract:** This paper examines the causes, effects and remedies of organizational conflict. What are the things that lead to conflicts in organizations? The study found out that like other terms, conflict generates considerable ambivalence and leaves many scholars and administrators quite uncertain about (1) its meaning and relevance; and (2) how best to cope with it. Conflicts are inevitable in human life. It is also inevitable in organizations or even between nations. Conflict is an inseparable aspect of people's as well as organizations' life. The study also discovered that conflicts occur in organizations as a result of competition for supremacy, leadership style, scarcity of common resources, etc. The paper concludes that early recognition and paying attention to the conflicting parties and negotiation between parties involved in the conflict should be adopted in resolving conflicts while force or intimidation should never be used to resolve conflicting parties. Force and intimidation can only be counter productive.

**KEY WORDS:** Causes, Effects, Remedies, Organizational, Conflict, Concept.

### Introduction

Today, many organizations are changing operational methods in the management of human resources. Organization treats employees individually but now the employee is treated as part of a group or team working in an organization, with the aim to optimize the group be established as social aspects, technical as well as the performance of the individuals themselves in the work environment. Because in a group or work team consists of various individuals with different backgrounds, education, and the different nature so that conflicts can arise at any time. If a conflict can not be resolved properly then it can be bad for the group directly or indirectly organizational performance.

The concept of conflict, because of its ubiquity and pervasive nature, has acquired a multitude of meanings and connotations, presenting us with nothing short of semantic jungle. Like other terms, conflict generates considerable ambivalence and leaves many scholars' and administrators quite uncertain about (1) its meaning and relevance; and (2) how best to cope with it. Conflict arises whenever individuals have different values, opinions, needs, interests and are unable to find a middle way. Conflict situations are inevitable in one's personal life, in organizations or even between nations. Conflict is a process in which one party suggests that its interests are being opposed by another party. Conflict is a clash between individuals arising out of a difference in thought process, attitudes, understanding, interests, requirements and even sometimes perceptions. A conflict results in heated arguments, physical abuses and definitely loss of peace and harmony. A conflict can actually change relationships. Conflict is an inseparable part of people's life. It is a perpetual gift of life, although varying views of it may be held. Some may view conflict as a negative situation which must be avoided at any cost. Conflict theory is significant to the role of the administrator, but it emanates primarily from fields such as business, sociology, psychology, etc.

ASH07\_ICSCI\_2022\_6436

## GROWING CORONAVIRUSES: GENOME COMPOSITION, DUPLICATE, AND PATHOGENESIS

SuharshanaS. Somkuwar<sup>1</sup>, Sadaf Gauhar<sup>2</sup>

<sup>1</sup>Guru Nanak Institute of Engineering & Technology, Kalmeshwar Road, Dahegaon, Nagpur  
[suharshan98@gmail.com](mailto:suharshan98@gmail.com)

<sup>2</sup>Guru Nanak Institute of Engineering & Technology, Kalmeshwar Road, Dahegaon, Nagpur  
[hod.fy.gniet@gmail.com](mailto:hod.fy.gniet@gmail.com)

### Abstract

The recent emergence of a novel coronavirus (2019-nCoV), which is causing an outbreak of unusual viral pneumonia in patients in Wuhan, a central city in China, is another warning of the risk of CoVs posed to public health. In this mini review, we provide a brief introduction of the general features of CoVs and describe diseases caused by different CoVs in humans and animals. This review will help understand the biology and potential risk of CoV that exist in richness in wild life such as bats.

### KEYWORDS

coronavirus, epidemiology, pathogenesis, respiratory tract, virus classification, zoonoses

### INTRODUCTION

Coronaviruses (CoVs) are important pathogens for human and vertebrates. They can infect respiratory, gastrointestinal, hepatic, and central nervous system of human, livestock, birds, bat, mouse, and many other wild animals.<sup>1-3</sup> The outbreaks of the severe acute respiratory syndrome (SARS) in 2002/2003 and the Middle East respiratory syndrome (MERS) in 2012 have demonstrated the possibility of animal to human and human to human transmission of newly emerging CoVs.<sup>4,5</sup> An outbreak of mystery pneumonia in Wuhan since December 2019 has been drawing tremendous attention around the world. Chinese government and researchers have been taking swift measures to control the outbreak and conduct the etiological studies. The causative agent of the mystery pneumonia has been identified as a novel coronavirus (nCoV) by deep sequencing and etiological investigations by at least five independent laboratories of China (<http://virological.org/> and <https://www.gisaid.org/>). On 12 January 2020, the World Health Organization temporarily named the new virus as 2019 novel coronavirus (2019-nCoV). The sporadic emergence and outbreaks of new types of CoVs remind us that CoVs are a severe global health threat. It is highly likely that new CoV outbreaks are unavoidable in the future due to changes of the climate and ecology, and the increased interactions of human with animals. Thus, there is an urgent need to develop effective therapies and vaccines against CoVs.

### CORONAVIRAL GENOME STRUCTURE AND REPLICATION

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## MECHANISM OF FERROELECTRIC DOMAIN FORMATION IN $\text{KNbO}_3$ SINGLE CRYSTAL

Vivek B. Korde

Guru Nanak Institute of Engineering & Technology, Nagpur- 441502

[vivekkorde0605@gmail.com](mailto:vivekkorde0605@gmail.com)

**Abstract:** Grown sample of potassium niobate ( $\text{KNbO}_3$ ) crystals were subjected for domain studies. Trinocular microscopy method was used to verify the observations of ferroelectric domain. The observed domain walls and domain boundary is very attractive part of the domain study. In recent year domain walls in ferroelectric materials have attracted significant interest because of the unique properties that can be found in their vicinity. Brief mechanism of forming this domain structure and domain wall is discussed

**Keywords:** Domain studies, chemically etched, coupling of dipoles. Domain Wall

### INTRODUCTION

Atomic force microscopy (AFM), Scanning electron microscopy, reflecting electron microscopy this are few promising technique by which to study the surface morphology of materials. It is also attracting interest in the experimental study of ferroelectrics [1]. AFM is the very important technique for the high resolutions surface study [2-3]. In AFM get good result without etching and without disturbing the crystal. But etching is important in surface study of scanning electron microscopy and reflecting electron microscopy [4]. In this work we apply the Trinocular microscopy to ferroelectrics domains walls and demonstrate the general feasibility of Trinocular microscopy for domain wall studies, as well as new opportunities it offers for characterizing such functional micro object. In our ferroelectrics test system  $\text{KNbO}_3$  we visualize the domain wall by Trinocular microscopy and mapped this different domain orientations. Because Trinocular microscopy has not yet been used for studying ferroelectric domain walls although it is well established for imaging domain in ferroelectric

#### Experimental studies

A working method has been developed to identify domain patterns visibly on the pseudocubic {001} surface by simply observing the crystal flake under a Trinocular microscope. Here trinocular microscope use because of a trinocular microscope has two eyepieces like a binocular microscope and an additional third eye tube for connecting a microscope camera. They are therefore a binocular with a moving prism assembly in which light is either directed to the binocular assembly of the microscope or to the camera. The best models of this microscope will have at least three positions, allowing 100 percent of light to the binocular, 80 percent to camera and 20 percent to the binocular or simply a 100 percent to the camera. One of the biggest advantages of this microscope (three position trinocular) is its versatility. For instance, for bright field photographic purposes, the 20% visual- 80% photo system would be the ideal choice. After taking photographed the crystal flakes with pseudocubic {001} faces are then treated with methyl alcohol. During dissolution the layers of the surface are removed without stress, and the domain structures inside are brought to the surface and again studied in Trinocular microscopy.

#### Results

The pseudocubic (001) plane, we must find with a Trinocular microscope the line of impurity segregation associated with a near and parallel domain line that the line of impurity segregation should be associated with the  $60^\circ$  and  $90^\circ$  domains in the orthorhombic phase [5]. Indeed, such evidence can be obtained, as seen in the photomicrographs of figure 1. This photomicrograph shows several small domain wall portions, careful observations of the regions marked **AB** and **CD** in figure 1 shows the formations of  $90^\circ$  domains walls [6]. In this same crystal surface shows the typical regions of **E** and **F** shows the wedge shaped domains it is formed due to impurity dipoles.

## 1. Input MRI images :

Magnetic resonance (MR) portrayal is fundamental device in detection of broadening and widening of tumor. The accurate disunion of tumors are complex and laborious. Various ways are

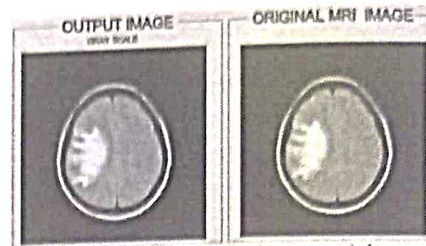


Fig. 2. Converting MRI image into grayscale image.

used for the detection. There are three steps .

## 2. Preprocessing:

Magnetic Resonant images of brain are obtained and preprocessing is carried out for removing sound and sharpening the image. Image preprocessing is very important and challenging factor in diagnostic systems. In medical image preprocessing and segmentation both are very important so that feature extraction algorithm works properly.

Image segmentation: It has vital role in image processing as it extracts doubtful parts from

### Conclusion:

The Magnetic Resonance image is inputted and is obtained and extraction is done with the help of morphological operation and disunion procedure. The disunion procedure has complexity in partitioning structure with different sizes and various properties. In this kind of situation edge detection technique is more convenient to use. Appropriate disunion techniques are required for precise diagnosis of tumor patients that can be used for Magnetic Resonance images to be carried out in improvement in treatment. The brain tumor detection method is amazing for the help of physicians and also for medical industries.

### References:

- [1] A. Dipanjan Moitra, R. Mandal P (2017); Review of brain tumor detection using pattern recognition technique ; Int J Computer Science Engineering.
- [2] Sonal Patil, VR Udupi; IOSR journal of electrical and electronics engineering P(2012)
- [3] Marwan AA Hamid, Najeed Ahmed Khan; Journal of Medical and biological Engineering P(2020)
- [4] Akila Gurunathan, Batri Krishnan; Detection and diagnosis of brain tumors using deep learning convolutional neural networks; International Journal of Imaging System and Technology P (2021)
- [5] N Varuna Shree, TNR Kumar; Identification and classification of brain tumor MRI images with feature extraction. P (2018)
- [6] Arti Tiwari, Shilpa Srivastava, Millie Pant; Brain tumor segmentation and classification from magnetic resonance images. P (2020)
- [7] Image Processing Techniques for Brain Tumor Detection: A Review; Vipin Y. Borole , Sunil S. Nimbhore , Dr. Seema S. Kawthekar ; P(2015)
- [8] Brain tumor extraction from MRI images; Pranjal Jain , Harshita Didwania , Shivi Chaturvedi, Student, Department of ECE, Lakshmi Narain College of Technology, Bhopal Department of ECE, Lakshmi Narain College of Technology, Bhopal ; P (2017)

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## DYNAMIC SPECTRUM ALLOCATION FOR COGNITIVE CELLULAR NETWORK

Prof. Deepak Deshpande<sup>1</sup>

Assist. Professor

ETC Deptt. GNIET, Nagpur

[deepakdeshpande3d@gmail.com](mailto:deepakdeshpande3d@gmail.com)<sup>1</sup>

Prof. Yeshwant Deodhe<sup>2</sup>

Assist. Professor

ETC Deptt. GNIET, Nagpur

[yeshwant.deodhe@gmail.com](mailto:yeshwant.deodhe@gmail.com)<sup>2</sup>

### ABSTRACT

Currently the spectrum allocation is done by statically and this technique is commonly used to allocate the services such as mobile satellite, fixed and broadcast satellite on exclusive basis. These wireless



- [4] J. Sachs, I. Maric, and A. Goldsmith. Cognitive Cellular Systems within the TV Spectrum. In *New Frontiers in Dynamic Spectrum*, 2010 IEEE Symposium on, pages 1–12. IEEE, 2010.
- [5] S. Sodagari, A. Attar, and S.G. Bilen. Strategies to Achieve Truthful Spectrum Auctions for Cognitive Radio Networks Based on Mechanism Design. In *New Frontiers in Dynamic Spectrum*, 2010 IEEE Symposium on, pages 1–6. IEEE, 2010.
- [6] H. Takagi and B. Walke. *Spectrum requirement planning in wireless communications: model and methodology for IMT-Advanced*. John Wiley & Sons Inc, 2008.

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## AIR POLLUTION PREDICTION USING DEEP LEARNING A REVIEW

Prof. Harana Bodele<sup>1</sup>, Dr.G.Asutkar<sup>2</sup>  
Assistant professor ,GNIET,Nagpur  
haranawaghmare@gmail.com

**Abstract** - Air pollution is one of the significant environmental challenges facing urban life in urban areas. This problem is due to the abundance of automobiles, emissions from industrial production, combustion of petroleum products for transportation, and power generation. This paper will consider all the recent studies for detecting and predicting air pollution in the Smart City. This paper examines studies related to deep learning technology in the framework of smart cities. This research paper concludes that most researchers use more sophisticated and intelligent methods to control the problem of detecting air pollution at an early stage, while some research involves simple techniques. The principal estimated pollutant is PM<sub>2.5</sub>. PM<sub>2.5</sub> can lead to an increase in mortality and cardiovascular disease[13]

**Keywords**-Air pollution, prediction, model

### Introduction

According to the 2019 Urban Population website, the number of people who moved to the city was 55.714%. As published by the United Nations, it is expected that by 2050, 68 percent of the world's population will live in urban areas. This population movement will cause many health problems, transportation, and air quality problems. To address these issues, smart city theory has been found. It can be defined as "a smart city is a city that has six core elements including smart environment, smart economy, smart transportation, smart management, smart life.", And smart citizens "[3]. Another definition is" smart computing technology used to create services for a city and essential infrastructure components, including city administration, education, real estate, public safety, interconnection. "Transportation, healthcare and utilities. And efficient "[2]. From the data provided by SmartCities, we **Conclusions**-After reviewing specific papers applying deep learning techniques to predict air pollution in the smart city, deep learning has the potential to extract complex information from big data. It can be said that deep learning is common- it is an objective method and can be used in various research fields. The use of air pollution forecasting is still in its infancy. It requires further development by building deeper networks that better represent the spatial

### References:

- 1) Giffinger, R.; Fertner, C.; Kramar, H.; Kalasek, R.; Pichler-Milanović, N.; Meijers, E. Smart cities: Ranking of European medium-sized cities. *vienna, austria: Centre of regional science (srf), vienna university of technology*. Available online: [http://www.smartcities.eu/download/smart\\_cities\\_final\\_report.pdf](http://www.smartcities.eu/download/smart_cities_final_report.pdf)
- 2) Wan, J.; Li, D.; Zou, C.; Zhou, K. M2M communications for smart city: An event-based architecture. In *Proceedings of the 2012 IEEE 12th International Conference on Computer and Information Technology*, Chengdu, China, 27–29 October 2012; pp. 895–900.
- 3) Air Pollution. Available online: [https://www.who.int/health-topics/air-pollution#tab=tab\\_1](https://www.who.int/health-topics/air-pollution#tab=tab_1)
- 4) Air Quality Index. Available online: <https://www.epa.gov/pmcourse/patient-exposure-and-air-quality-index>
- 5) Ketkar, N. (2017) *Deep Learning with Python*, Deep Learning with Python. doi: 10.1007/978-1-4842-2766-4.
- 6) Ayturan, Y. A., Ayturan, Z. C. and Altun, H. O. (2018) „Air Pollution Modelling with Deep Learning: A Review“, *International Journal of Environmental Pollution and Environmental Modelling*, 1(3), pp. 58–62.
- 7) Kok, I., Simsek, M. U., & Ozdemir, S. (2017). A deep learning model for air quality prediction in smart cities. 2017 IEEE International Conference on Big Data (Big Data).

8) Li, V. B. P. to fill in missing data using LSTM, *Conference, GLOBECOM 2017 - Proceedings, 2018- January*, pp. 1-6. doi: 10.1109/glocom.2017.8255004.

9) Bui, T. C., Le, V. D. and Cha, S. K. (2018) „A deep learning approach for forecasting air pollution in south korea using LSTM“, arXiv.

10) Al-Janabi, S., Mohammad, M., & Al-Sultan, A. (2019). A new method for prediction of air pollution based on intelligent computation. *Soft Computing*. doi:10.1007/s00500-019-04495-1

11) Chang, Y. S. et al. (2020) „An LSTM-based aggregated model for air pollution forecasting“, *Atmospheric Pollution Research*, 11(8), pp. 1451–1463. doi: 10.1016/j.apr.2020.05.015.

12) Xayasouk, T., Lee, H. M. and Lee, G. (2020) „Air pollution prediction using long short-term memory (LSTM) and deep autoencoder (DAE) models“, *Sustainability (Switzerland)*, 12(6). doi: 10.3390/su12062570.

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## SMART FARMING USING IOT

Neha Chourasia<sup>1</sup>, Kajal Dhawale<sup>2</sup>  
 Guru Nanak Institute of Engineering and Technology,  
 Dahegaon, Kalmeshwar Road, Nagpur- 441501, India

[kajaldhawale@gmail.com](mailto:kajaldhawale@gmail.com)<sup>2</sup>  
[nsschourasia@gmail.com](mailto:nsschourasia@gmail.com)<sup>1</sup>

**Abstract:** Huge amount of data is collected by the sensors from the end subsequently, this considerably big amount of data must be processed, analyzed and stored in a cost effective ways. In this manner, an enormous pool of computing resources and storage must be provided to compute this vast amount of data. We focused on introducing the latest technologies such as sensors, IOT to radically revise approaches to agriculture by collecting the data about the various parameters of soil, analyze the data and performed the computations, giving the best optimal solutions for the farming. The application of computing in agricultural economy will open up a vast range of prospects, such as the vast storage of agriculture information, the cloud management of agricultural production process, the storage of agricultural economy information, early-warning and policy-making based on the agricultural products market, the tracing management of agricultural products quality.

**Keywords:** Sensors, Computing resources, IoT, NodeMcU, Ubidots.

### I. Introduction

The main contextual data elements of Arduino sensor based feedback advisory system include many different types of sensors, such as temperature, humidity, soil moisture, canopy temperature, canopy humidity and wind velocity, placed on the field with data loggers to communicate the observations to the server. Apart from sensor information the farmer uploads information about climatic conditions, soil conditions, rain, etc. By presenting all this information in the context of the farmer query

#### Researcher Analysis

In the current scenario, farmers have very less knowledge about the soil and its parameters level, percentage of carbon, nitrogen, water absorbing capacity etc. which plays a very big role in the crop production.

Farmers are doing the farming based on traditional knowledge so it is difficult for them to predict that which type of soil is suitable for which type of crop and because of insufficient knowledge farmers are facing loss in the crop production degrading the economical structure of the farmers.

As the scientific consensus grows that significant climate change, in particular increased temperatures and precipitation, is very likely to occur over the 21st century economic research has attempted to quantify the possible impacts of climate change on soil.

So, there is a need to design of performance monitoring unit using IoT.

### II. Internet of Things

The Internet of Things (IoT) is interconnection everything being equal, living things and non-living things that are implanted with sensors, actuators, electronics, software and network availability and capacity to exchange human-to-human or human-to-PC association. The IoT enables articles to be detected or controlled remotely crosswise over existing system framework, making open doors for

store all the data  
type of data, plus  
channel. You can use Ubidots apps

- ment based Experiential Computing in "Agro- Advisory System for Rural Farmers",  
S R I, Anupama Hongal 2, Jyothi M P3 "IoT Based Monitoring System in Smart  
International Conference on Recent Advances in Electronics and Communication  
2017.  
Patil, Prasad S, Gawande and R. V. Bag "Smart Agriculture System based on IoT  
International Journal of Computer Applications (0975-8887), Vol. 176- No.  
2017.  
Baranwal, Nitika , Pushendra Kumar Pateriya "Development of IoT based Smart  
Monitoring Devices for Agriculture", 6th International Conference - Cloud System  
Engineering, 978-1-4673-8203-8/16, 2016 IEEE.  
Putjaika, Sasimance Phusae, Anupong Chen-Im, Dr. Phond Phunchongharn and Dr.  
Akkarajaisakul "A Control System in an Intelligent Farming by using Arduino  
Sih ICT- ISPC, 2016.  
C and Asha S "A Study on Development a Smart Environment in Agricultural Irrigation  
September 2015.  
Singh., "Intelligent Monitoring & Controlling Of Agricultural Field Parameters Using  
IITE Vol.03 Issue-01, January 2015.  
Patil, Akshay Narkhede, Ajita Chalke, Harshali Kalaskar and Manita Rajput "Real  
Automation of Agricultural Environment", International Conference for Convergence of  
Technology-2014.  
Jeonghwan Hwang, and Hyun Yoe "Agricultural Production System based on  
IEEE 16th International Conference, 2013.

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## ANDROID BASED MATRIX LED ROLLING DISPLAY USING BLUETOOTH TECHNOLOGY

Ashutosh L. Hedau<sup>1</sup>,  
Pawan N. Garghate<sup>2</sup>,  
Sagar R. Denge<sup>3</sup>,  
Ojas A. Meshram<sup>4</sup>

[Ashutoshhedau19@gmail.com](mailto:Ashutoshhedau19@gmail.com)  
[garghatepawan@gmail.com](mailto:garghatepawan@gmail.com)

sagardengel@gmail.com  
Ojasmeshram25@gmail.com  
Department of Electronic &  
Telecommunication Guru  
Nanak Institute of  
Engineering & Technology  
Kalmeshwar Road, Near  
Radha Swami Satsang  
Nagpur-441501.

*Abstract*—To display rolling message on matrix LEDs. This message can be controlled using an android app installed on smart phone. The message is sent over Bluetooth. Nowadays, people are using outdated technology to display message or any notice or information on the LED display. To layout and acquire a project “Android based Matrix LED Rolling display Using Bluetooth Technology. Three major parts of project are “Matrix LEDs”, microcontroller and “Bluetooth receiver. Micro Controller 89s51 is the major part and heart of this project.

*Keywords*— Android Based, Rolling Display, Matrix LEDs, Bluetooth, Micro Controller

## I. Introduction

This project can be used for Advertising or for providing information at various places like shops, government offices, hospitals, railway stations. The Rolling display is prepared using 5 X 7 Matrix LEDs which means LEDs are arranged in a pattern consisting of 5 columns and 7 rows. A matrix of 5 X 7 LEDs contributes to a single character. Here we have used 5 characters which means 5 matrices. The actual physical dimension of single matrix is 60 mm by 60 mm, so dimensions of complete display is 360 mm by 60 mm. Bluetooth interfacing is used for receiving data from Android mobile. is 360mm by 60mm. Bluetooth interfacing is used for receiving data from Android mobile. The message received from Android mobile is displayed on the Rolling display. Bluetooth technology is used so that user can change the message easily. User doesn't have to touch the rolling display circuit to change the message. Whenever a user needs to change the message on the Electronic Notice board, then the user has to type a message on an application installed on Android mobile and send it to the microcontroller using Bluetooth technology.

## II. Literature Survey.

- 1] A flexible display or rollable display is an electronic visual display which is flexible in nature, as opposed to the traditional flat screen displays used in most electronic devices. Electronic paper displays which can be rolled up have been developed by E Ink.
- 2] Android mobile can be used to change the message displayed on the Electronic Notice Board. This Electronic Notice Board is made up of Matrix LEDs. This is also called Rolling Display. Whenever a user turns on the power display then the system displays a default welcome message on the Rolling display.
- 3] For the Android mobile can be used to change the message displayed on the Electronic Notice Board. This Electronic Notice Board is made up of Matrix LEDs. This is also called Rolling Display. Whenever a user turns on the power display then the system displays a default welcome message on the Rolling display.
- 4] It stores the data even use a microcontroller which belongs to the 8051 family. The various functions of microcontroller are like I. Reading input from Keypad and store it into EEPROM II. Sending data to Data bus so that it displays characters on the Matrix. II. Storing the data into EEPROM memory and display it later using Matrix. IV. Receiving data from the computer using serial port 4. EEPROM We are going to use EEPROM memory, it is Electrically erasable programmable read only memory. E2PROM interfacing with 8051 is done using 12C communication protocol. It stores the data even if power supply is disconnected. This is used to the characters which has to be displayed on the Matrix display. 5. PC Interfacing: We are going to use max 232 IC for pc interfacing, the values of message to be displayed on Matrix LEDs will be received from PC. 6. Keypad: Various operations of keypad are as following, I. Start / Stop display. II. Select message to be displayed. III. Receive data from the Computer Applications and Advantages.

- References
1. Gas Leakage Detection Based on IOT Suma V, Ranjith Dayananda Sagar College of Engineering, Bengaluru (2019) Gas Leakage Detection and Smart Alerting and Prediction Using IoT Asmita Varma, Prabhakar S, Kayalvizhi Jayavel SRM University, Kattankulathur, Chennai(2018)
  2. Abhishek, P. Bharath, "Automation of lpg cylinder booking and leakage monitoring system," International Journal of Combined Research and Development (IJCRD), pp. 693-695, 2016.
  3. Byeongkwan Kang, Sunghoi Park, Tacklim Lee and Sehyun Park, "IoT- based Monitoring System using Tri-level Context Making Model for Smart Home Services", 2015 IEEE International Conference on Consumer Electronics (ICCE), 2015. J. Tsado, O. Imoru, S.O. Olayemi, —"Design and construction of a GSM based gas leak Alert system", IEEE Transaction. IRJEEE Vol. 1(1), pp. 002-006, September, 2014. Harshada Navale, Prof. B.V.Pawar, "Arm Based Gas Monitoring System". International Journal Of Scientific & Technology Research Volume 3, Issue 6, June 2014. D. Surie, O. Laguionie, T. Pederson, —"Wireless sensor networking of everyday objects in a smart home environment, Proceedings of the International Conference on Intelligent Sensors", Sensor Networks and Information Processing- ISSNIP- 2008, pp. 189 - 194. M. Eisenhauer, P. Rosengren, P. Antolin, —"A Development Platform for Integrating Wireless Devices and Sensors into Ambient Intelligence Systems", pp.1-3.

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### IOT SMART HOME AUTOMATION

Mr. Himanshu Nimje<sup>1</sup>, Mr. Shubham Bhiwapure<sup>2</sup>, Ms. Prajakta Band<sup>3</sup>, Mr. Anurag Nagdwane<sup>4</sup>

Department of Electronics and Telecommunication Engineering  
Guru Nanak Institute of Engineering and Technology, Dahegaon,  
Kalmeshwar Road, Nagpur- 441501, India  
Himanshunimje649@gmail.com<sup>1</sup>, ssbhiwapure@gmail.com<sup>2</sup>,  
prajaktaub101@gmail.com<sup>3</sup>, anuragnagdwane28@gmail.com<sup>4</sup>

**Abstract:** Internet of things may be a growing network of everyday object-from industrial machine to client home appliances which will share data and complete tasks whereas you're busy with different activities. The IoT aims to unify everything in our world below a typical infrastructure, giving United States of America not solely management of things around United States of America, however conjointly keeping United States of America knowing of the state of the items[2]. Adafruit account and IFTTT "If This Than That" which is a cloud based free IoT web server used to create virtual switches, which is used to create if else conditional statements. Google assistant have been added through IFTTT for voice command. The respective relay can be turned On or OFF as per the users request to the Google Assistant. The communication between the Node MCU and the application can be establish via Wi-Fi IR Remote and also Manually.

**Keywords :** IFTTT, web-based interface, Adafruit, IoT, applets, plug-and-play.

#### I. Introduction

"Home automation" refers to the automatic and electronic control of household, activities controlled via Internet. The foremost aim of the technology is to increase the efficiency and to decrease the effort. In this trending world, Internet of Things coming out in top. The system of a simple lock and key security concept are being replaced by advanced security systems like cameras, various contact sensors, proximity sensors, GSM, etc. Modern homes are now connected to the internet and users can control and access to their homes remotely from anywhere in the world [1]

#### II. Internet Of Things

The Internet of Things (IoT) can be connecting various types of objects like smart phones, personal computer and tablets to the internet, which brings new-fangled type of communication between things and people. IoT term has two major parts:

- Internet is the backbone of connectivity

Node MCU and  
as per the users require  
information and security system with  
easy to control. The goal of this project is to automate  
ensure a strong security system for our home. The project can be further upgraded  
implementing different types of sensors and efficient home appliances. Since smart  
homes are now widely used, these user-friendly systems can be used for the welfare of the  
mass.[4].

### REFERENCES

1. A. C. J. a. R. Malekian, "Smart Home Automation Security: A Literature Review," Smart Computing Review, vol. 5, no.4, pp. 269-285, 2015.S.Hrushikesava Raju1, Dr.M.Nagabhushana Rao2, N.Sudheer3, P.Kavitharani4 May 2018 International Journal of Engineering & Technology 7(2.32):412 DOI:10.14419/ijet.v7i2.32.15728S. Z. M. Y. Mohammed Shahbaaz, "SMART HOME USING GOOGLE ASSISTANT (IFTTT)." International Research Journal of Engineering and Technology (IRJET), vol.6, no. 3, pp. 7854-7857, 2019Sajjadul Islam Nader, Aparna Das, Abdullah Al Mamun,Pullock Deb Nath DOI:10.1109/ICONAT53423.2022 9726112 Conference: 2022 International Conference for Advancement in Technology (ICONAT) At: Goa, India

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## IOT BASED DC MOTOR CONTROLLING & MONITORING SYSTEM

Ankita Tiwari<sup>1</sup>, Anshu Sharma<sup>2</sup>  
DivyaTahalramani<sup>3</sup>, Ajay Choudhary<sup>4</sup>  
Guru Nanak Institute Of Engineering & Technology, Nagpur  
[Ankitajtiwari2211@gmail.com](mailto:Ankitajtiwari2211@gmail.com)<sup>1</sup> [Anshusharma08041999@gmail.com](mailto:Anshusharma08041999@gmail.com)<sup>2</sup>  
[Divyagtahalramani8@gmail.com](mailto:Divyagtahalramani8@gmail.com), [Ajc5011@gmail.com](mailto:Ajc5011@gmail.com)

### Abstract:-

DC motor plays very important role in different industries. In this review paper, we are discussing about a system which provides protection to the DC motor as well as helps in control and monitor various parameters. We have used Node MCU 8266 wi-fi and web server also with the help of some transducers we can easily achieve our goal to protect and control the motor as well as to monitor various parameters. We have provided various controls through internet to avoid faults in DC motor.

Keywords- DC motor, IoT, Node MCU wi-fi, Sensors, etc

### 1. INTRODUCTION:

Nowadays, IoT based embedded systems are used in various fields like technology, space, defense, research Applications so maintenance of those motors were a difficult task for the operators in the industry. But by the use of IoT based system any operator can check any motor's present status from the control room. He can record real time readings of various parameters like voltage, current and temperature by using IoT based system on a single computer screen. Also if he find any abnormal condition in any motor of the plant he can stop the motor from the control room by the use of IoT based system.

### 2. LITERATURE SURVEY:

1. In their paper, Tan, Lee and Soh (2002) proposed the development of an Internet-based system to allow monitoring of important process variables from a distributed control system (DCS). This paper proposes hardware and software design etc. So we have decided to use this system for protection, control and monitoring of DC motors. In

**Conclusion-**The proposed mobile application that maintains and account all virtues and downsides of the mentioned researches.

- References**
- 1) Gareth M. Thomas & Deborah Lupton, "Threats and thrills: pregnancy apps, risk and consumption", *Taylor and Francis Online*, Pages 495-509, Dec 24, 2015.
  - 2) Francisca Fonseca, Hugo Peixoto, Jorge Braga, Jos'e Machado and Ant'onio Abelha, "Smart Mobile Computing in Pregnancy Care", *International Society for Computers and Their Applications (ISCA)*, ISBN: 9781510885967, Mar 13, 2019.
  - 3) Mariam Bachiria, Ali Idria José, Luis Fernández-Alemánb, Ambrosio Toval, "Mobile personal health records for pregnancy monitoring functionalities: Analysis and potential", *ScienceDirect Online*, Volume 134, Pages 121-135, October 2016.
  - 4) Shusmoy Kundu, Anusha Kabir, Muhammad Nazrul Islam, "Evaluating Usability of Pregnancy Tracker Applications in Bangladesh: A Heuristic and Semiotic Evaluation", *2020 IEEE 8th R10 Humanitarian Technology Conference (R10-HTC)*, Dec 3, 2020.
  - 5) Loretta M Musgrave, Nathalie V Kizirian, Caroline S E Homer, Adrienne Gordon, "Mobile Phone Apps in Australia for Improving Pregnancy Outcomes:

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## IOT BASED SMART IRRIGATION SYSTEM

Prof. Akansha Kale

Professor of Electronics & Telecommunication  
Engineering Guru Nanak Institute of Engineering  
& Technology)

Gaytri Mahalle

[gaytrimahalle116@gmail.com](mailto:gaytrimahalle116@gmail.com)

Pragati Dahat

[pragatidahat0358@gmail.com](mailto:pragatidahat0358@gmail.com)

Vrushali Meshram

[vrushalimeshram20@gmail.com](mailto:vrushalimeshram20@gmail.com)

Akshay Deshmukh

[akshay77.ad@gmail.com](mailto:akshay77.ad@gmail.com)

Department of Electronics & Telecommunication Guru Nanak Institute Of Engineering & Technology Kalmeshwar Road, Nagpur-441501

**Abstract:** As agriculture is the backbone of Indian economy, it deserves to be modernized. To overcome backwardness of traditional methods of agriculture and to enhance the crop production, to avoid the risk of damaging crops, and to do efficient use of water resources, the latest technology of Internet of things (IoT) is playing a crucial role nowadays. So, this paper "smart irrigation system" is proposed where the soil sensor is used to collect large number of real-time data from the agricultural field. The sensors interact with each other through Internet connection. The data collected from the sensors sent to the Web server using wireless sensor network. IoT framework analyzes and processes the sensed data. Then, notifications are sent to the farmer's smart phone application periodically. The farmer can track changes in soil moisture. In this way, unnecessary wastage of water can be avoided. This paper discusses the various experiments done in this context and a comparatively low cost system module with sensors and wireless networks for modernized irrigation is represented.

**Keywords:** Smart irrigation, Internet of things, Arduino, Wireless sensor network, Sensors

### Introduction

In India, where 60-70% economy depends on agriculture, there is a great need to modernize the conventional agricultural practices for the better productivity. Due to unplanned use of water the ground water level is decreasing day by day, lack of rains and scarcity of land water also results in depletion in volume of water on earth. Now a days, water shortage is becoming one of the biggest problems in the world. We need water in each and every field. In our day to day life also water is essential. Agriculture is one of fields where water is required in tremendous quantity. Wastage of water is the major problem in agriculture. Every time excess of water is give to the fields. There are many techniques to save or to control wastage of water in agriculture. The objective of the system is to conserve energy & water resources handles the system manually and automatically. The system detects the level of water. Due to the climatic changes and lack of precision, agriculture have resulted in poor yield as compared to population growth. Irrigation is mostly done using canal systems in which water is

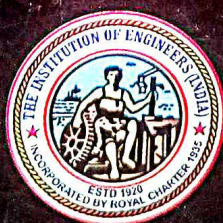
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