VISHNU INSTITUTE OF TECHNOLOGY
Vishnupur, Bhimavaram, Andhra Pradesh - 534202
(Approved by A.I.C.T.E. & Affiliated to J.N.T.U Kakinada)
(Accredited by NBA & NAAC 'A' Grade)
Department of Electrical and Electronics Engineering

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Departmen to fElectrical & Electronics Engineering

VISION AND MISSION OF THE DEPARTMENT

VISION:

To be recognized as a Centre of Excellence in the field of Education and Research so as to produce Competent & Ethical Engineers capable enough to contribute to the society.

MISSION:

- To develop innovative, efficient and proficient electrical engineers.
- To keep the curriculum industry friendly, with due regard to the University curriculum.
- To be a place for innovative blended learning and entrepreneurship development in multidisciplinary areas.
- To promote ethical and moral values among the students so as to make them emerge as responsible professionals.

PROGRAM EDUCATIONAL OBJECTIVES(PEO's)

PEO1: To produce Electrical and Electronics Engineering graduates who have strong foundation in Mathematics, Sciences and Basic Engineering

PEO2: To develop problem-solving abilities, technical competency and proficiency in modern engineering tools through hands-on laboratory experience and innovaite projects.

PEO3: To prepare graduates for successful careers in industry, research, or higher education, empowering them to excel in diverse engineering and technology-related fields or become entrepreneurs.

PEO4: To inculcate in students professional and ethical attitude, effective communication skills, teamwork skills, multidisciplinary approach, and an ability to relate engineering issues to broader social context through life-long learning.

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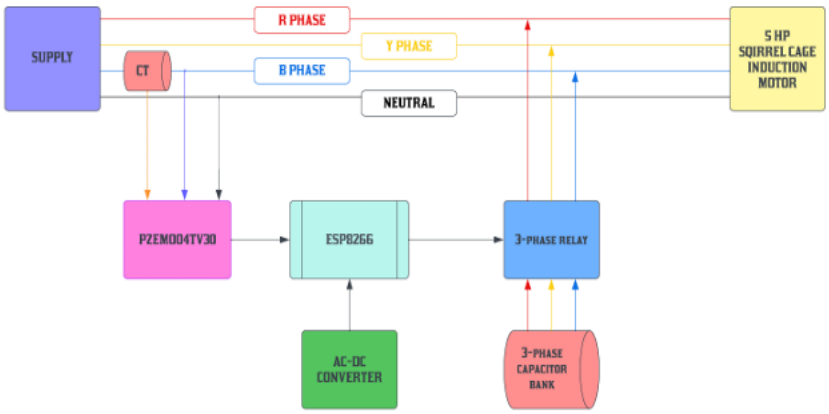
1. POWER MANAGEMENT SYSTEM FOR AQUACULTURE

B. DIVYA DHATRI, J. SIVANI, A. H. C. PRASAD,
K. TEJA VENKATESH, D. ASHOK CHANDRA
SUPERVISOR: Mr.B.N.CH.V.CHAKRAVARTHI,M.Tech.

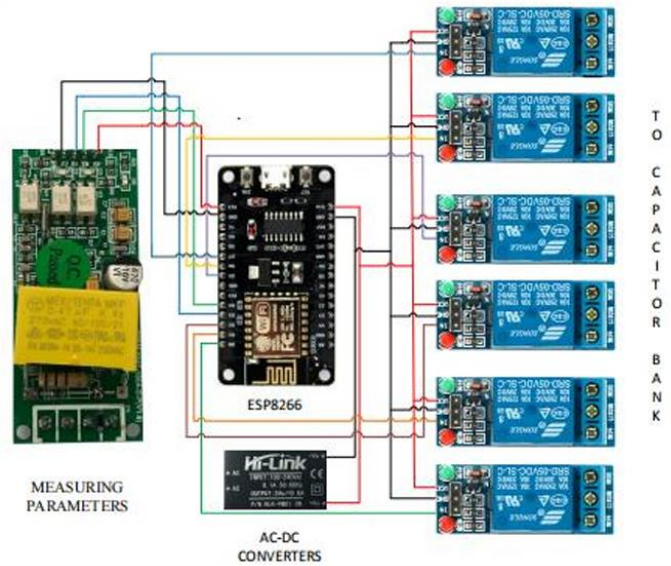
Objectiveoftheproject:

The presence of the reactive power in the electrical systems can lead to a range of undesirable effects, such as increased current draw, greater losses, higher maintenance costs, and reduced power stability. To address these issues, we have designed and built a scaled prototype of a reactive power management and control system, equipped with live data monitoring and real-time visualization capabilities. By using PZEM-004TV30 sensors and embedded systems, we are able to measure various parameters, including voltage, current, frequency, power factor, active power, reactive power, apparent power, active energy, and apparent energy in all three phases of the electrical system. The collected sensor data is then transmitted to a dashboard we designed using HTML, CSS, React JS, and API. With this dashboard, we can remotely monitor and control different aspects of reactive power and power factor, and switch capacitor banks as needed. The entire prototype was developed using the Arduino IDE, which provides a flexible and customizable platform for designing and testing the system. Overall, our reactive power management prototype represents a useful and innovative solution that has the potential to improve the efficiency and stability of electrical systems.

BLOCK DIAGRAM:



CIRCUIT DIAGRAM:



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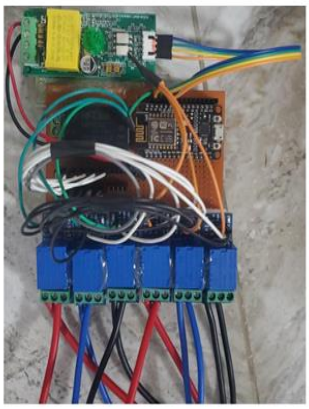


CONCLUSION:

In conclusion, Power management systems play a crucial role in ensuring the stability and efficiency of the electrical grid. By regulating reactive power flow, these systems can improve power quality, reduce losses, and increase energy efficiency. With advances in technology, including AI, machine learning, and advanced monitoring and control systems, power management systems will continue to evolve and become even more effective. Additionally, as renewable energy sources become more prevalent and the demand for clean energy increases, power management systems will play an increasingly important role in integrating these energy sources into the grid. Overall, the future of power management systems is promising, and they will continue to be an essential component of the modern electrical grid.

2. DESIGN AND DEVELOPMENT OF AN IOT BASED 440/230V SCALED DOWN SUBSTATION PROTOTYPE WITH A DASHBOARD FOR DATA VISUALIZATION AND MONITORING

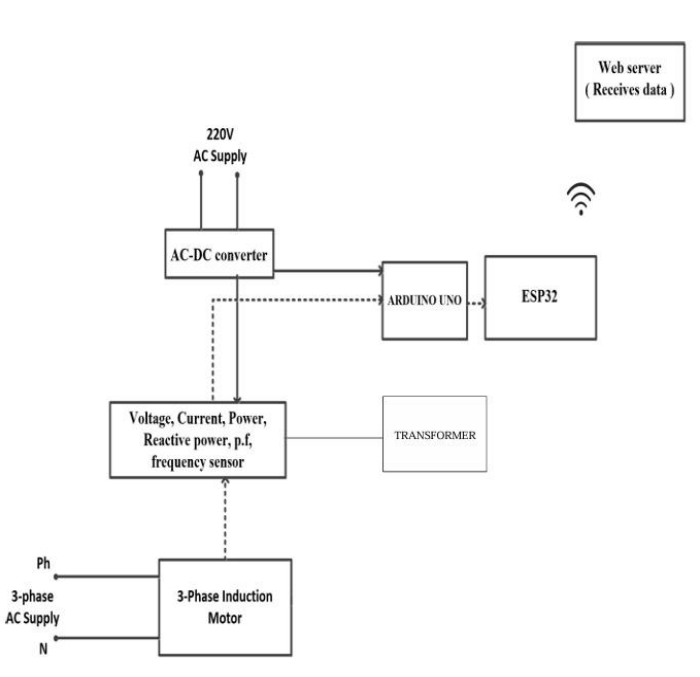
CH.LOKESH, G.Y.GANESH, B.JITHENDRA, G.R.CHANDRA, E.HEMANTH

SUPERVISOR: Mr. P.Naveen, M.Tech (Ph.D).

Objective of the project:

In this work IoT based substation is designed and implemented to acquire and monitor the remote electrical parameters like voltage, current, power, power factor, active power, reactive power energy and frequency and send these real time values over network. This system can automatically update the real time electrical parameters continuously. This project makes use of IoT sensors, arduino uno and ESP32 etc as this is a prototype of the proposed project. The controller can efficiently communicate with the different sensors being used and sends the real time data to web page designed. The proposed IoT system control is developed using arduino IDE and dash board is designed using HTML, CSS, React JS, Node js, Mongo dB etc. Further characteristic graphs are drawn with respect to time.

Block Diagram:



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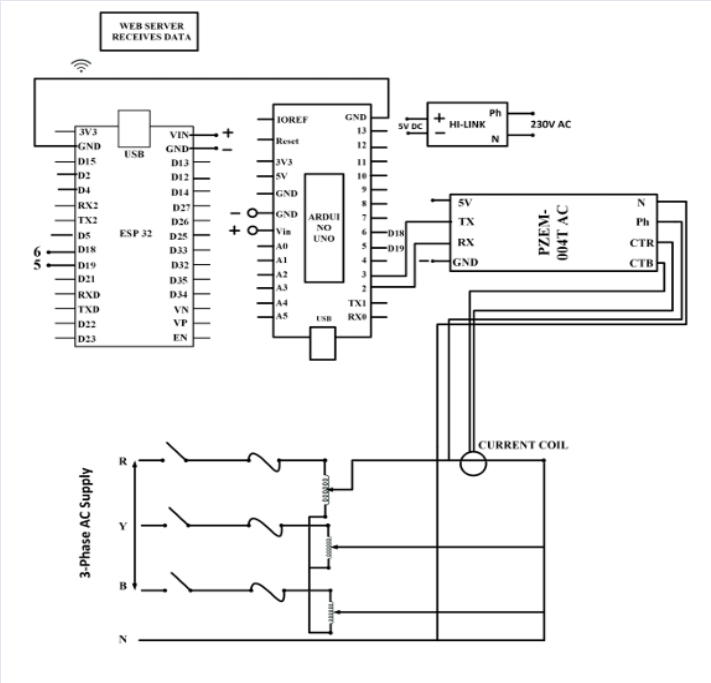


CONCLUSION:

This project describes a monitoring and data visualization system for distribution transformers using IoT communication. It is also easy to install and use. It may reduce human efforts with the automation of the substation which increase transformer life, reduce faults, and increase stability. It increases the efficiency of the system. This leads to accurate and reliable operations. It will provide fast and easy monitoring with more efficient way as compared to existing manual monitoring of the sub-station. The system is implemented in real time and it is working satisfactorily and accurately.

3. PIEZO AND SOLAR HYBRID POWER SYSTEM FOR SMART STREET LIGHTING

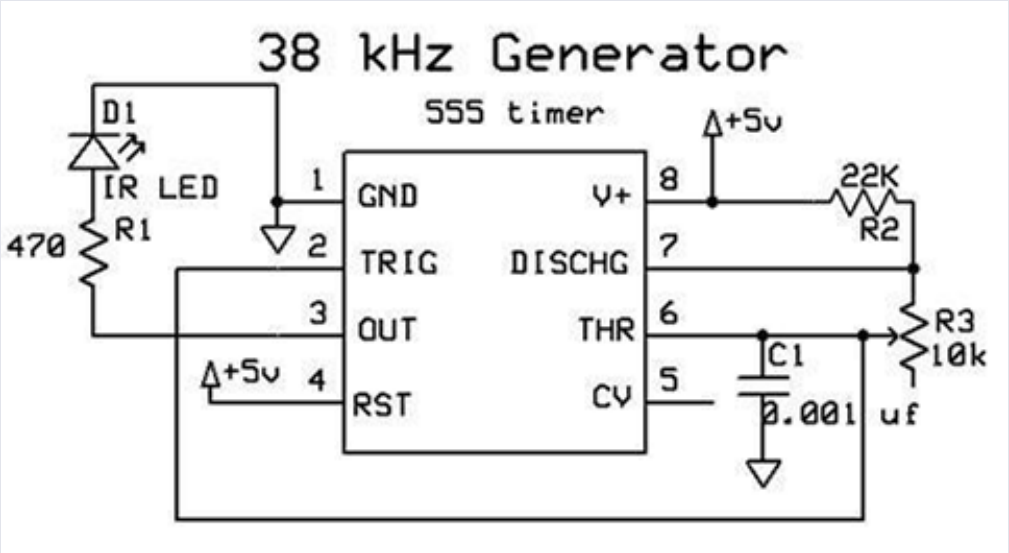
A.S.S.SIVA, D.J.N.S.P.KUMARI , B.SRAVANI , K.ROHITH , G.V.PRASAD

SUPERVISOR: Mr. N.VEERAIAH M.Tech.

Objective of the project:

The Smart Street Light System is a project that aims to provide efficient and cost-effective lighting solutions for urban areas. The system is designed to be powered by both solar and piezoelectric energy sources, which will be stored in a battery and managed by a charge controller. The project uses an Arduino microcontroller to control the system and an LCD display to show the current status of the lights. The system is equipped with LDR (light-dependent resistor) and IR (infrared) sensors that detect the movement of vehicles and turn on the LED street lights at full intensity. During the remaining dark hours, the system automatically reduces the intensity of the street lights to 30% to conserve energy. During the day, the system turns off the street lights completely to further conserve energy. This project provides an effective solution to reduce energy consumption and costs while providing adequate lighting for streets. The use of renewable energy sources and the implementation of efficient lighting control mechanisms make this system a sustainable and environmentally friendly solution for urban areas.

Circuit Diagram:



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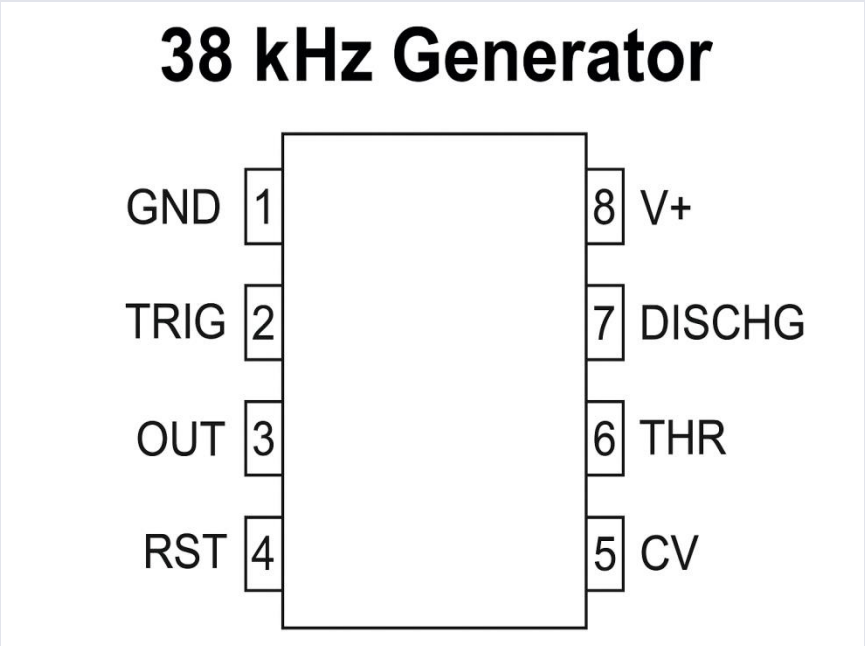

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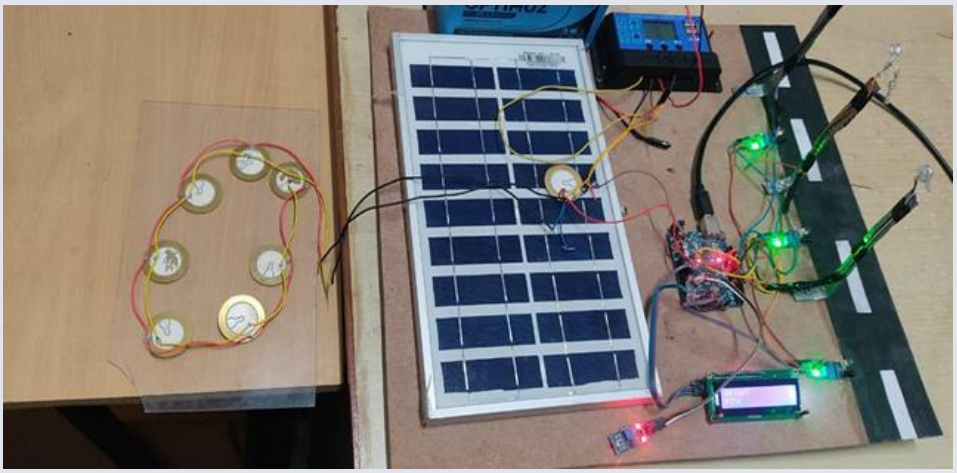

CONCLUSION:

In this chapter, we concluded the Piezo and Solar Hybrid Power system for Smart Street Lighting.

4. IOT- ENABLED DC PARAMETER MEASUREMENT SYSTEM

K.YESURAJU, K. RAZIA, G. SWATHI, A. S. S. TEJA , K. S. KUMAR
SUPERVISOR: Mr. K. N. S Durga Prakash, M.Tech (Ph.D).

OBJECTIVEOFTHEPROJECT:

Nowadays the population is increasing day by day so the usage of two wheelers is being increased. In that way the accidents are increasing day by day, so efforts are made to avoid them and to minimize their consequences. This work proposes two important aspects, one is accident prevention and the other one is accident detection. Drunk and driving is one of the most common reasons for accidents. So, we have designed a unit that helps to stop the bike engine whenever the driver not worn a helmet or in case of alcohol detection as well. The second part is the accident detection part whenever an accident occurs then it will send an alert message and the accident location to the contacts given. By this, they can respond quickly and it is more useful when accidents occur in a remote location. This proposal work has three main features and each feature has its own purpose. the purpose of the first feature is to encourage or force riders to wear helmets, similarly, the purpose of the second feature is to preventing riders to drink and drive, and the third feature is to save lives as many as possible by sending information quickly.

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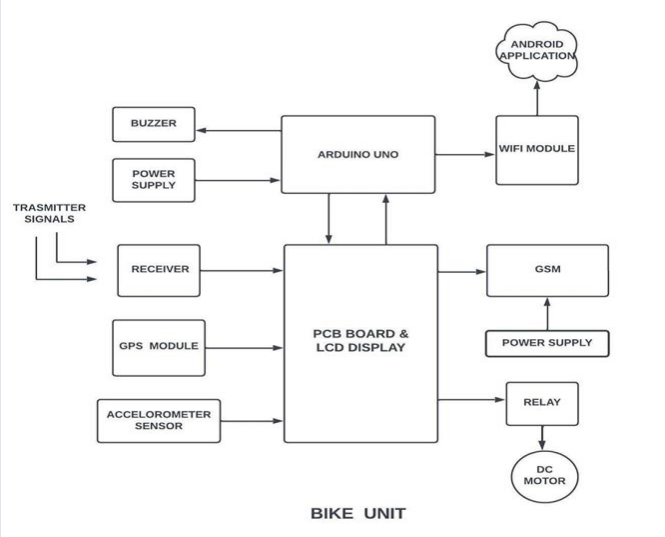
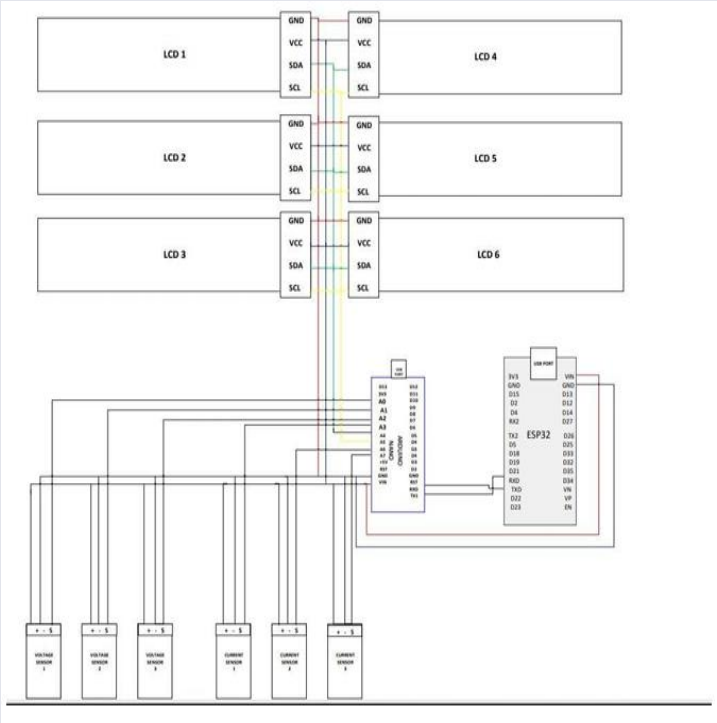
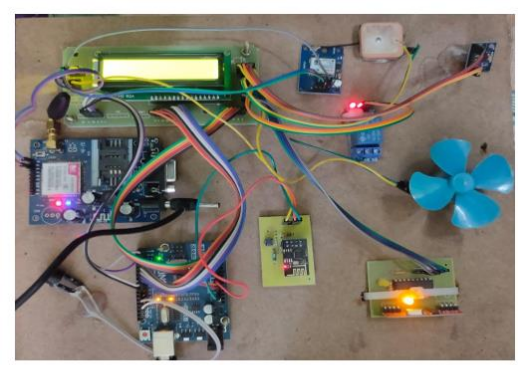


CIRCUIT DIAGRAM:



PMSM Simulation in MATLAB/Simulink:



CONCLUSION OF THE PROJECT:

The project described above is a system designed to improve road safety by detecting whether a rider has consumed alcohol, is wearing a helmet, and if an accident has occurred. It also includes features for notifying authorities in case of an accident and sharing the rider's location through a WIFI connection. The results of this project are promising, as the system can detect if the rider is wearing a helmet and if they have consumed alcohol. The system is also able to detect accidents using an accelerometer and send an alert message with the location of the rider to a predefined number. Additionally, the system is able to cancel the alert message if the rider presses a button within a certain time. The system is designed to be mounted on a two wheeler, making it convenient and easy to use for riders. In conclusion, the system described above is a promising solution for improving road safety for two-wheeler riders. It addresses the common issues of alcohol consumption and lack of helmet use, while also providing an innovative solution for detecting accidents and sharing the rider's location. The cost-effective components used in the system make it accessible to a wide range of riders. With further development and testing, this system could potentially save many lives and reduce the number of accidents on the road.

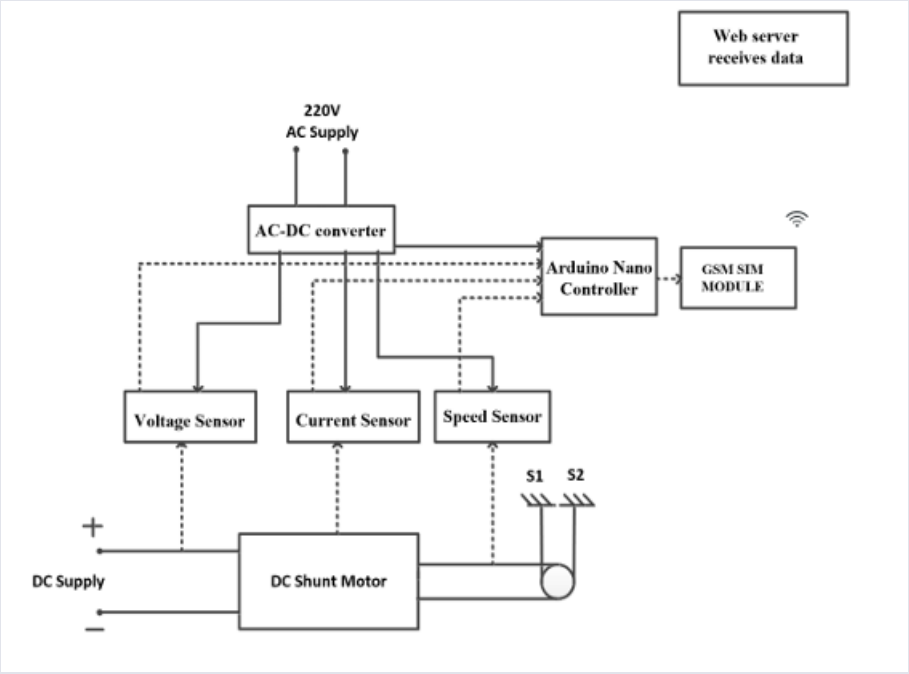
5. DATA VISUALISATION OF A DC SHUNT MOTOR TO IDENTIFY THE MACHINE CHARACTERISTICS USING IOT

G.VINEETHA, K.ASHOK VARMA, CH.NARESH,
G.YASHWANTH AKASH, G. SUNDAR
SUPERVISOR: Mr. P. RAM PRASAD, M.Tech.

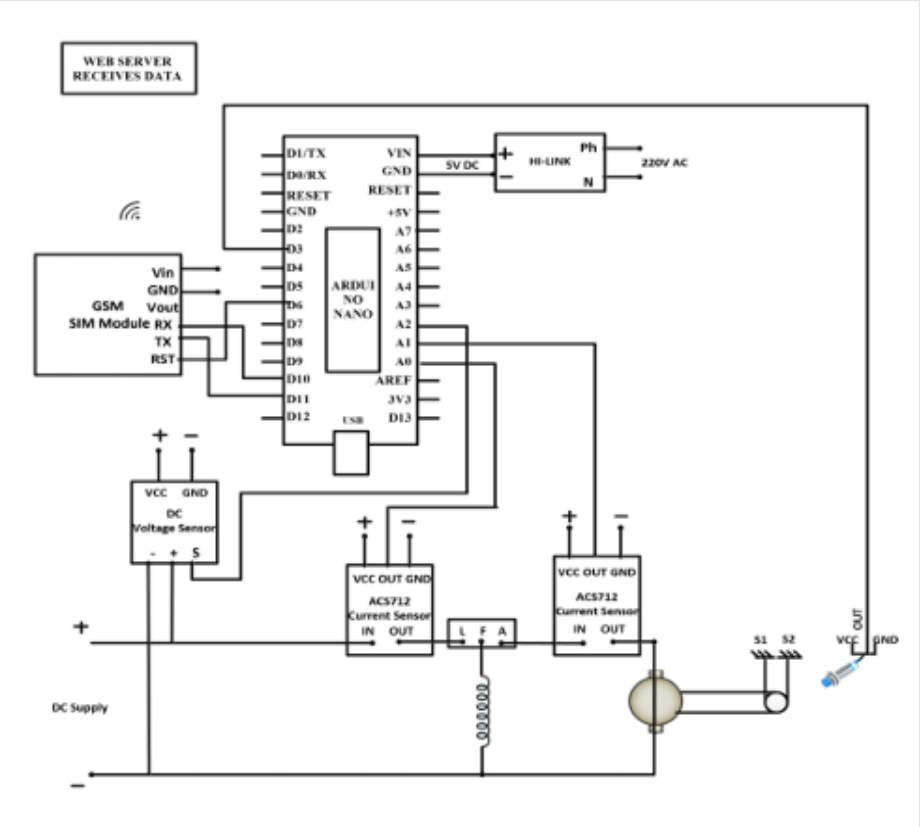
OBJECTIVEOFTHE PROJECT:

In this modern educational era, though the conventional way of conducting lab is more relatable it requires usage of emerging technologies to attain the interest of students. In this project we have developed an IoT system and dashboard to conduct brake test on DC shunt motor for data visualization and monitoring of motor parameters like current, voltage, power and speed. This system also generates load characteristic graphs in required format with student name and register number printed on the top. The proposed IoT system control is developed using Arduino IDE and dash board is designed using HTML, CSS, React JS, Node is, Mongo dB etc.

Block Diagram:



Circuit Diagram:



CONCLUSION:

The proposed system can be extended and implemented in practical. Here we developed the brake test on dc shunt motor but we yet to developed in other experiments too. The main purpose of developing the project, we have to acknowledge that now a days we are totally on a digital environment, so we are implemented the practical in digital to draw the output graphs with good accuracy in website.