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

Volume 05 Issue 01
December 2021

E-Magazine 21

Research, Collaboration and Enterprise

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Vishnupur, BHIMAVARAM – 534 202
Department of Electrical & 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 provide intensive training in problem solving, laboratory skills and design skills to use modern engineering tools through higher education and research.

PEO3: Ability to pursue higher studies and to seek employment in a variety of engineering technology positions and work successfully in their chosen career aspirations and generate 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. SIMULATION OF POWERELECTRONIC CONVERTERFOR VOLTAGE REGULATION OF FUEL CELL APPLICATION

B. INDHU PRIYA , K. ADITYA VARMA ,D. RAVI CHANDRA , CH. RUPA SIVA SAI AYYAPPA

SUPERVISOR: Mrs.I.V.V.Vijetha, M.tech (PhD)

OBJECTIVE OF THE PROJECT:

This has led to an increased interest in vehicle electrification, foremost hybrid electric vehicles (HEVs) which can reduce fuel consumption compared to conventional vehicles, but also battery electric vehicles (BEVs). BEVs offer high power train efficiency and no tail pipe emissions, which is why they are so far considered CO2 neutral in the regulations. If charged with electricity that is produced by fossil free and renewable sources, BEVs have the potential to offer an emission free. Efficient, cost-effective, and simple structure of EVsystem by utilizing suitable power conditioning stages with assisted control scheme is the unique EV system. Based on the summarized demerits of conventional boost DC-DCconverters, a dual DC-DC interleaved buck-boost converter is greatly suitable for EVcharging system due to high voltage gain, low switch stress, low current ripples, low EMI issues, and low complex design. Thereafter, the control of this converter is performed through a closed loop control approach. To meet the load requirements in terms of voltage regulation, a buck boost converter controlled with a Proportional Integral controller is proposed. The both converters are simulated under Matlab-Simulink to validate the robustness and the efficiency of this new design.

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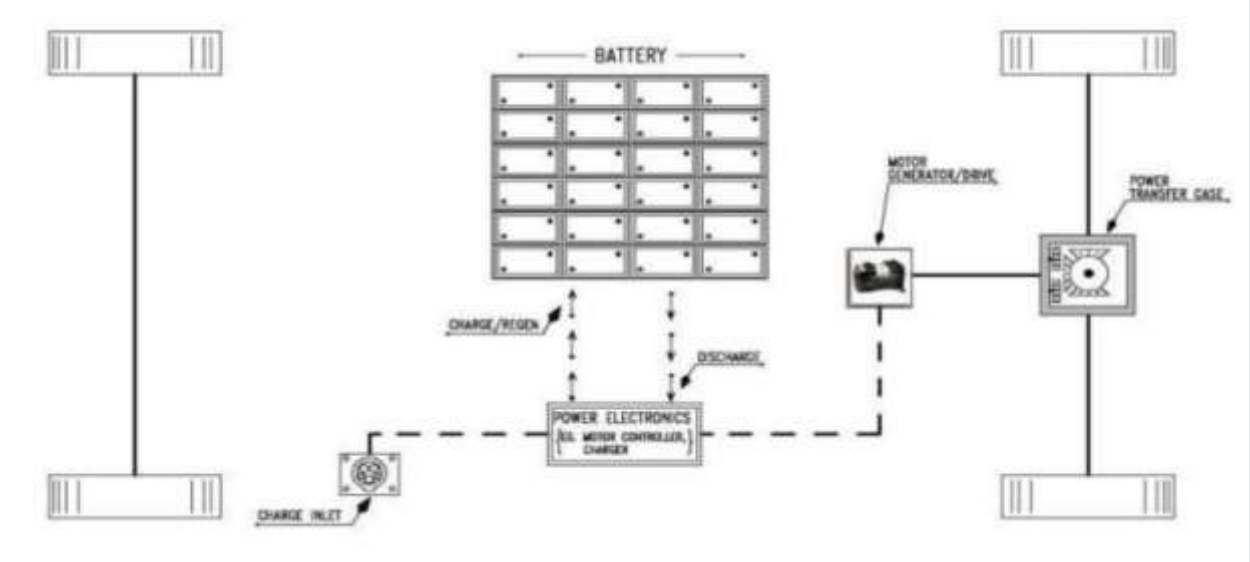

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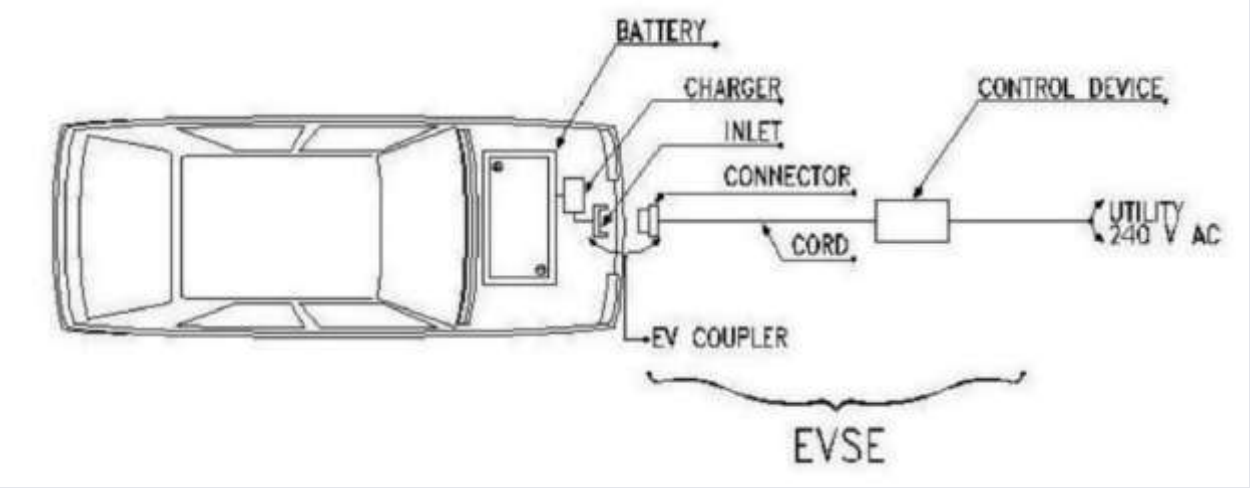

CONCLUSION:

In this work, two converters, IBC and step up/step down converter connected in cascade are analyzed and simulated in aim to generate the maximum of power and control the load voltage. The PEMFC is used to supply a DC load or to be connected with hybrid energy systems. In both cases, the regulation of the DC bus is compulsory. For this reason, a buck boost converter controlled with a PI regulator was proposed in this work. The two converters are connected in series in a simple way to generate the optimal power from the PEMFC and regulate the load voltage. The results show a good robustness of the proposed design.

AN IOT BASED SMART METHEDOLOGY TO MONITOR, MEASURE AND CONTROL POWER CONSUMPTION OF ELECTRIC LOADS

B. KESAVA HEMANTH, B. HITESH KRISHNA SATYASAIRAMCH. ANIL KUMAR, K. ASHOK

SUPERVISOR: Dr. B. MALLIKARJUNA, PhD

OBJECTIVE OF THE PROJECT:

Nowadays effective use of electrical energy has become a big task because most of people don't know how to monitor the loads and how much power that each load is consuming to know where we have more power consumption. To overcome this problem we designed a project "An IOT based smart methodology to Monitor, Measure and Control Power consumption of Electric loads.

The main aim of this project is to control electric loads according to our requirement, monitoring of loads frequently to know which load is consuming more power and to measure the total power and energy consumed by the loads using IOT. This model is designed using Voltage sensor, Current sensor, Arduino Nano (microcontroller) in conjunction with Arduino IDE (software), Voltage regulator, 4 – Channel relay module, WIFI module and Electric loads. The total power and energy consumption are calculated using voltage and current values which are measured using voltage and current sensors respectively and The WIFI module is used to connect the Arduino Nano and Blynk application through WIFI.

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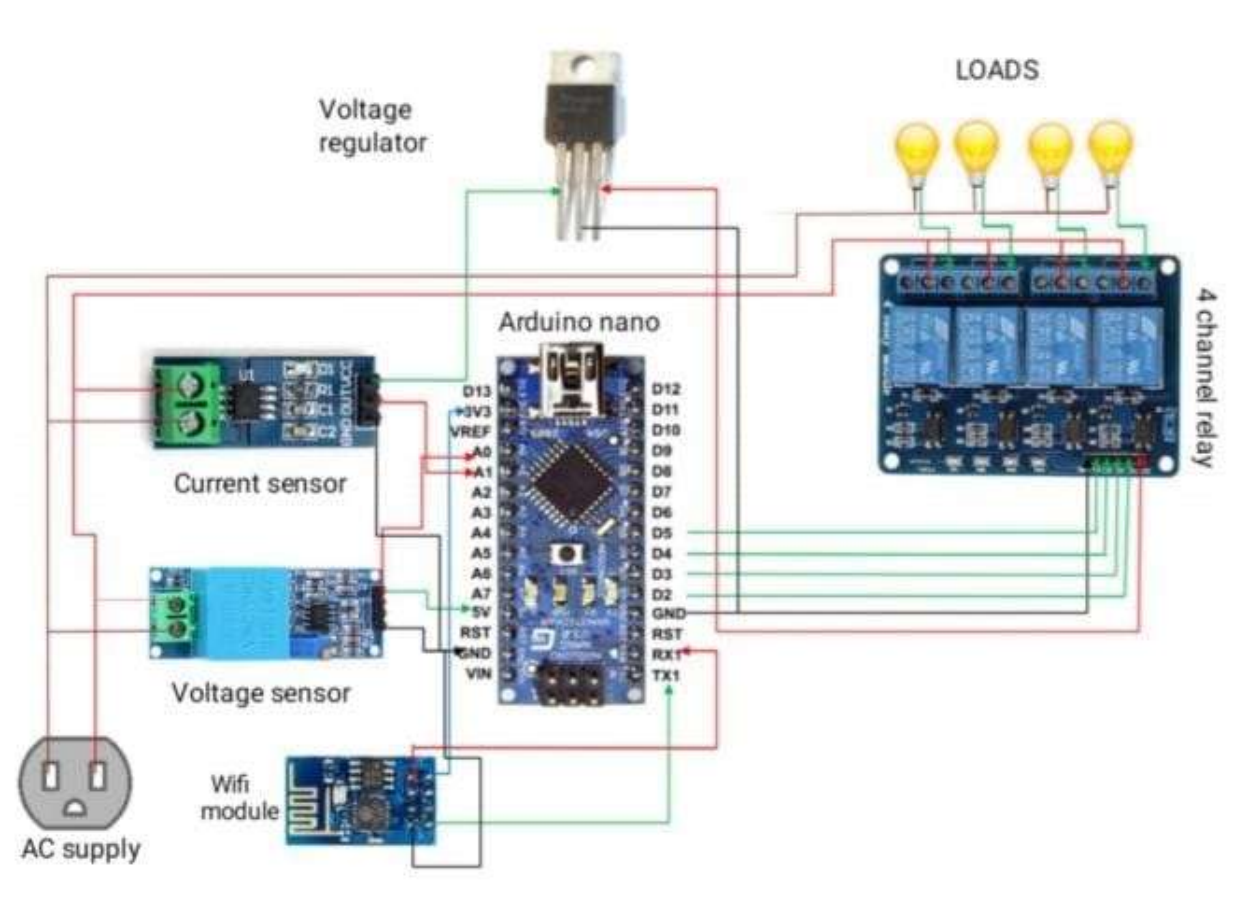

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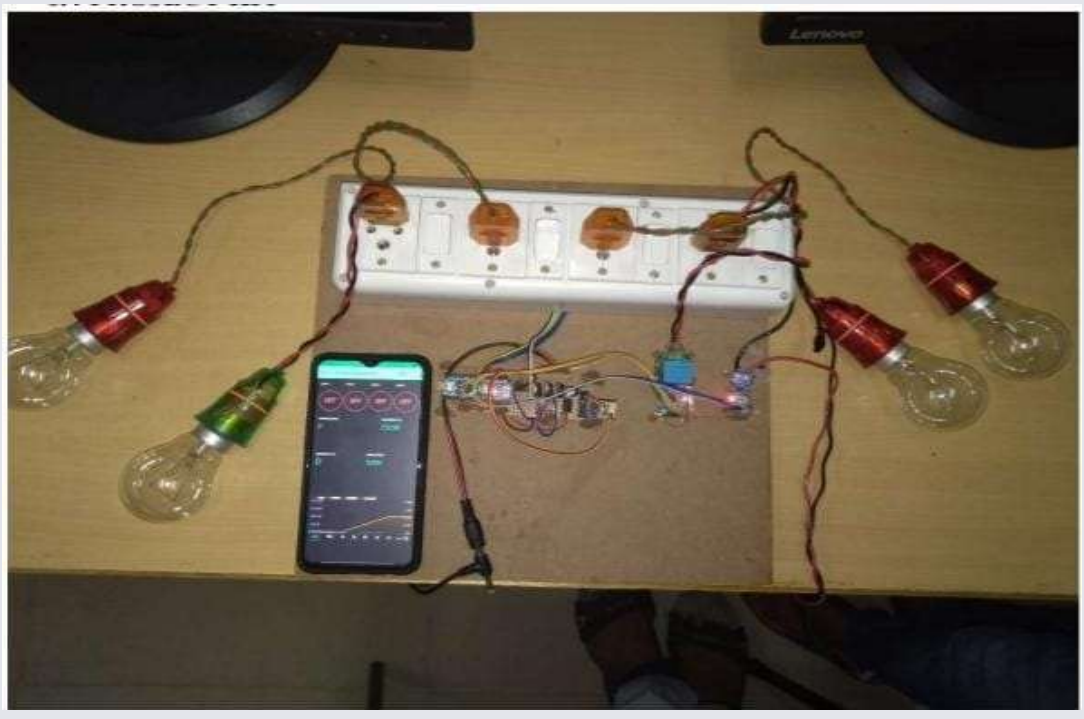

CONCLUSION:

With the help of this project we can give a clear idea to the customer about the four parameters of energy consumed by customer are

1. Current
2. Voltage
3. Total Power consumed by loads
4. Total Energy consumed by loads

By observing all the above factors in the display the consumer can have a chance of control his utilization. This smart system gives detailed information on our energy use day- by day. With the help of this methodology households can make informed decision on their energy use based on accurate and real-time information. It shows the information of an hour or a day or a weak or a month according to our requirement. It is user friendly device, because user can easily understand the power consumed, energy consumed and number of loads currently working on display

LPG GAS LEVEL DETECTION AND AUTOMATIC BOOKING USING IOT

J.ANJI BABU, M.DILEEP, G.AVINASH, K.PRASANNA KUMAR
SUPERVISOR: Mr.KNS.DURGA PRAKASH M.tech

OBJECTIVE OF THE PROJECT:

This consists of the GSM-based automatic booking of a new LPG cylinder and also detects the gas leakage. Usually, the capacity of LPG in the Cylinder is not determined, so we are going to display the level of LPG. The level of LPG is measured using the load sensor. The output of the sensor is connected with Arduino R3. By the use of the GSMModule, the information is sent to the user by SMS and also automatic booking is done by dialing the registered gas booking number. Then the gas leakage is detected by the gas sensors (MQ-6). By use of GSM, the user is alerted by giving the message to their mobile phone when the LPG level is critically low (below 20%). Automatic booking of new LPG by auto-dialing of gas booking number and by this we prevent pre-booking and late booking. Then by detecting the gas leakage, we can prevent the LPG gas burst accidents in the home. Gas booking is a major requirement in every individual's life. The need of this project is to save time while booking of gas. When we call the gas agent our request may not be recorded or call cannot be connected. If gas completion is identified message to the lawful candidate or family member through the usage of the cloud, it alerts the lawful candidate or family member by sending the notification to refill the cylinder.

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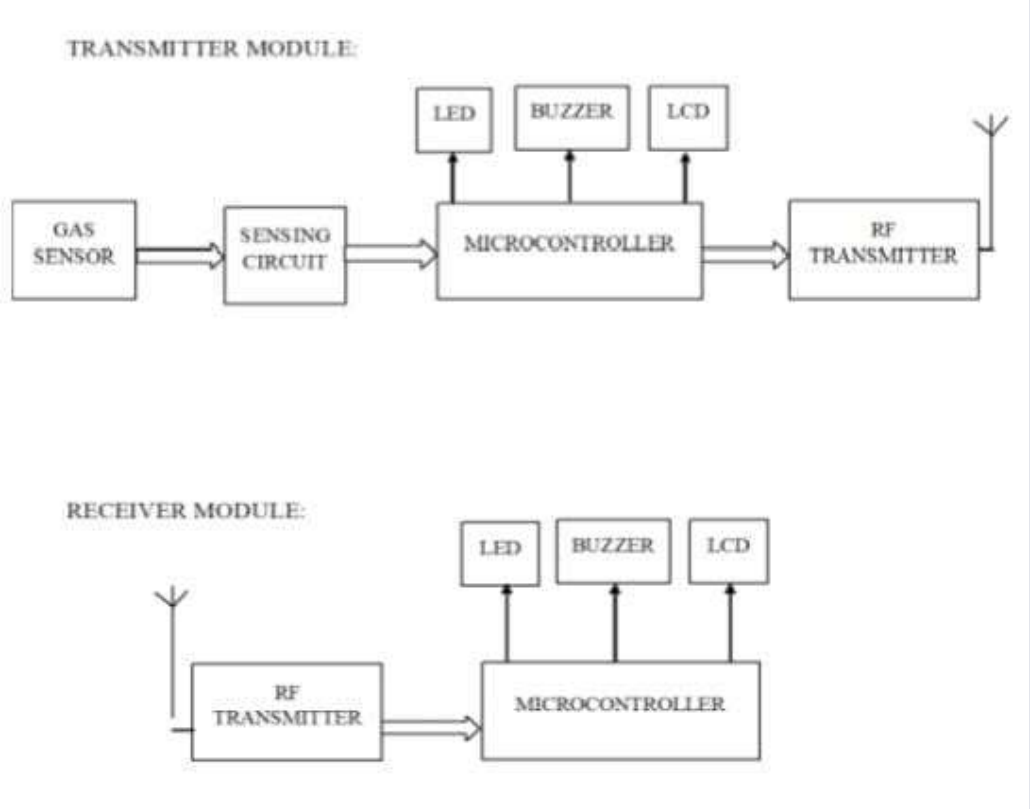

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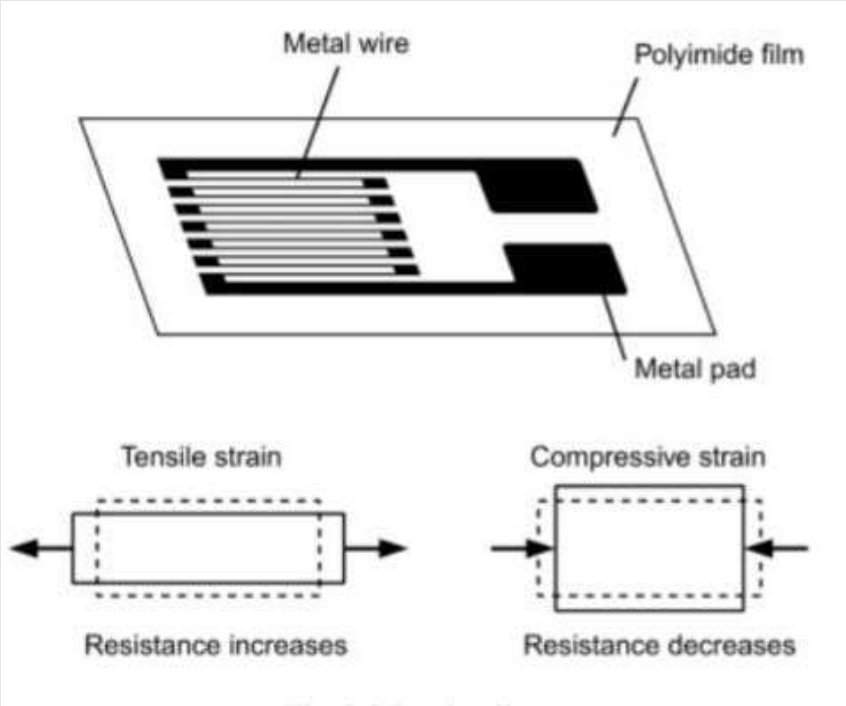

CONCLUSION:

Hence, a cost effective gas level detection system is proposed, designed and implemented successfully, the system explains a fully automated approach towards the booking of the gas and alert the user when any gas leakage is detected and also when the gas level is critically low that is below 20%. The level of the cylinder measured from load cell and the gas leakage in system is displayed on the 16*2 LCD displays, the GSM modem sends a message to the user when there is any leakage detected in the system or the gas level is critically low. The cost involved in developing the system is low when compare to other gas monitoring systems available in the market.

STAR-DELTA STARTER AND MONITORING OF THREE PHASE INDUCTIUION MOTOR PARAMETERS BY USING PLC AND HMI

GRANDHI VIJAY KUMAR, GUTTULA VENKATA PRUDHVI, BOKKA RAHUL, KANNA SAI MOULI KRISHNA
SUPERVISOR: Dr. S. PRAGASPATHY, M.E., Ph.D.

OBJECTIVE OF THE PROJECT:

Star or Delta starters are the most common reduced voltage starters in the 50 Hz industrial motors. They are used in an attempt to reduce the starting current applied to the motor during start. The Star/Delta starter is generally manufactured using three contactors; a timer and a thermal overload for operating a 3-phase motor at 440 volt at AC mains supply of 50 Hz. Induction motors are widely used in industries and most times get burnt upon the start of the motor. The voltage is reduced if the induction motor is started as star. In delta connection the voltage is same as that of phase voltage so full voltage is applied if we run the motor as delta connection. In this project, an automatic star-delta starter was designed using electrical relays and an electronic timer. By feeding the motor with (58%) of the full load current to limit the starting current surges by starting the motor at reduced voltage and then have full supply voltage reconnected when they run up to near rotated speed. This method is commonly referred to as "Soft starting" the motor. Since the acceleration of the motor is high (fast), the copper losses i.e. loss due to heat, which is calculated using I2 x R, is considerably low. This type of motor starting is applicable for small motor i.e. motors that are rated up to 5HP. But the same starting technique can’t be applied for higher capacity motors.

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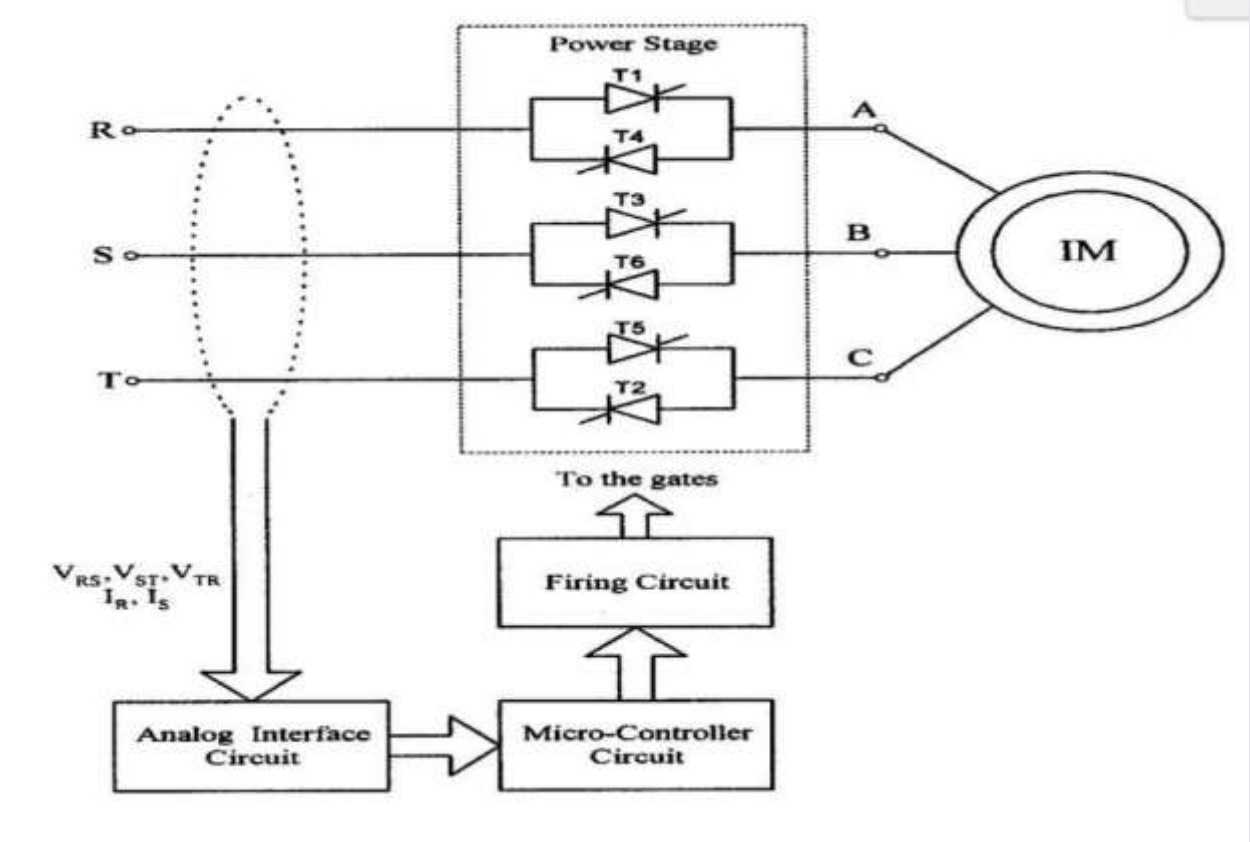

PROTOTYPE:

CONCLUSION:

Simply in Star connection, supply voltage to motor will be less. So we use star connection during starting of the motor, after motor running we will change the connection form star to delta to gain full speed of the motor. It can be seen that in star connection, one end of all three windings are shorted to make star point while other end of each winding is connected to power supply. In delta configuration, the windings are connected such that to make a close loop. Main contractor is used to supply power to the windings. It must be turned on all the time. Initially the star contactor is closed while delta contactor is open It makes the motor windings in star configuration. When the motor gains speed, the star contactor is opened while delta contactor is closed turning the motor windings into delta configuration.

PERFORMANCE ANALYSIS OF HIGH-VOLTAGE GAIN DC-DC CONVERTER FED VOLTAGE-FOLLOW CONTROLLED WATER-PUMPING SYSTEMS

CH. MOHANA KRISHNA, A. HARITEJA, M. SRI HARSHA, B. ROHIT SAINAG

SUPERVISOR: Mr.P.Naveen, M.Tech

OBJECTIVE OF THE PROJECT:

Efficient, cost-effective, and simple structure of water pumping system for irrigation application is utilized by the erotic power conditioning stages with assisted knowledge of closed-loop controllers. Based on the summarized merits & demerits of existed high-voltage gain DC-DC converters, a dual-switch high voltage gain converter is greatly suitable for water pumping system due to high voltage gain, low switch stress, low EMI issues, and low complex design. In a PV power system, the output voltages of the PV panels are usually low and vary widely under the influences of weather and environment. In this work, a new High-Step-Up DC-DC Converter has been used and powered by solar-PV system for water pumping application. The provided topology includes a boost converter using coupled inductors to increase the voltage gain. This converter uses hybrid switched inductor technique to enhance its overall voltage gain. The inductors of the gain extension network are all charged together in parallel and get discharged simultaneously in

Series to obtain the high voltage gain (>10). Resultantly, the voltage stress experienced by the switches of the proposed converter is reduced to 55% of the desired output voltage. The main objective of this work is proposing a novel dual switch high step-up DC-DC converter fed VSI based induction motor (I.M) drive is controlled and powered by solar PV system with voltage follower control scheme.

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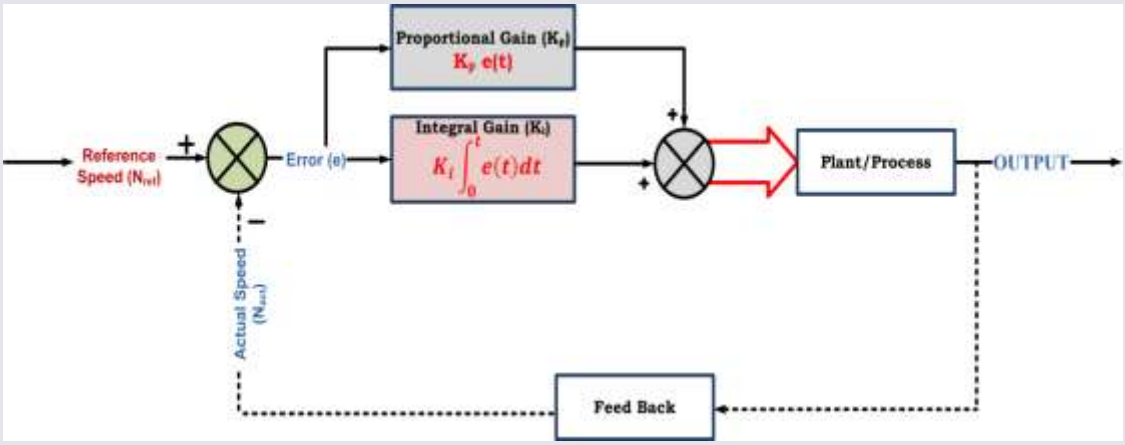

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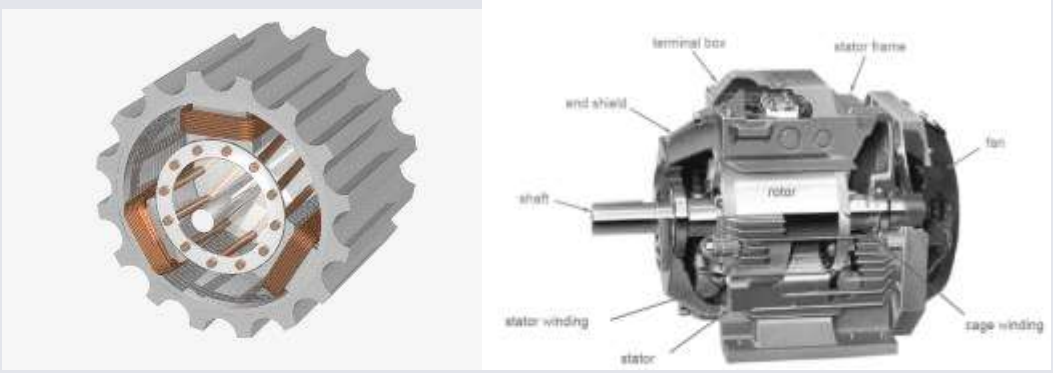

CONCLUSION:

This work presents a high gain DC-DC converter based onmodularswitched-inductor network for solar-PV integrated induction motor drive system. Each SI cell in the proposed converter used 3 inductors which stored energy in parallel and discharged in series. Resultantly, the converter yielded a voltage gain of 10.8 at full load power rating of 210W. Due to the switched-inductor cells, the current stress on the individual inductors was reduced. Consequently, the stray Loss due to the inductors was less and resulted in good operating efficiency. Considering the high voltage gain ability, reduced voltage stress on the switches and the facility to scale up, this proposed converter is more preferred for solar-PV fed induction motor drive system under sudden load conditions.