SRI VENKATESWARA
COLLEGE OF ENGINEERING AND TECHNOLOGY

Thirupachur-631203, Tiruvallur TK & DT
Approved by AICTE New Delhi & Affiliated to Anna University, Chennai
(A Telugu Minority Institution)

1.3.2 List of Students Under taking Project/ Mini project For the Academic Year 2022-2023

Program Name: ELECTRICAL AND ELECTRONICS ENGINEERING

PROJECT BATCH LIST 2022-2023

BATCH	REG NUMBER	STUDENT NAME	PROJECT TITLE	INTERNAL GUIDE
I	112419105006	RAKESHKUMAR J	Iot based smart energy meter with Theft Alert	V.SUPRIYA AP/EEE
	112419105007	SNEHA N		
	112419105306	NARESHKUMAR V		
	112419105309	RAMAMOORTHY L		
II	112419105005	PREMAVATHI C	Three phase transmission line fault detection ground to line fault	V.SUPRIYA AP/EEE
	112419105010	SUNILKUMAR B		
	112419105307	PARTHIBAN S		
	112419105310	SANTHOSH R		
III	112419105001	BALAJI M	Design and implementation of automatic fire extinguisher on road vehicles based on fault secure multi detectors	S.S.DIVYA AP/EEE
	112419105004	PRAVEENKUMAR D		
	112419105008	SONIYA K		
	112419105011	THULASIRAMAN B		
IV	112419105009	SRIDEVI K	Full- bridge dc-dc converter and boost dc-dc converter with resonant circuit for plug - in hybrid electric vehicles	S.S.DIVYA AP/EEE
	112419105302	DEVANATHAN R		
	112419105305	KALANITHI R		
	112419105311	SURENDHAR A		
V	112419105002	HARISHKUMARAN A	Electric vehicles battery Monitoring system and fire protection	S.GEETHA AP/EEE
	112419105303	GURUMOORTHY R		
	112419105304	JOTHIRAJAN T		
	112419105308	PRADEEPRAJ R		
	112419105312	VIJAY M		

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DESIGN AND IMPLEMENTATION OF AN AUTOMATIC FIRE EXTINGUISHING SYSTEM BASED ON FAULT SECURE MULTI DETECTOR & ROADVEHICALS

PROJECT REPORT

Submitted by

BALAJI. M	112419105001
PRAVEEN KUMAR	112419105004
SONIYA. K	112419105008
THULASI RAMAN. B	112419105011

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING
IN
ELECTRICAL AND ELECTRONICS ENGINEERING

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BONAFIDE CERTIFICATE

Certified that the project report title **DESIGN AND IMPLEMENTATION OF AN AUTOMATIC FIRE EXTINGUISHING SYSTEM BASED ON FAULT SECURE MULTI DETECTORS AN ROAD VEHICALS** is the bonafide work, **K.SONIYA(112419105008),B.THULASIRAMAN(112419105011), M.BALAJI (112419105001), PRAVEEN KUMAR (112419105004)**. who carried out the research under my supervision. Certified further that to the best of my knowledge the work reported here does not form part of any other project report or dissertation based on which a degree or award was conferred on an earlier occasion on this or any other candidate.

17/05/23

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ACKNOWLEDGEMENT

I thank god for giving such excellent facilities and support the way **SRI VENKATESHWARA COLLEGE OF ENGINEERING AND TECHNOLOGY** and empowering me with wisdom, courage and strength to complete this project successfully.Mrs. S.S.DIVYA,.

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I fell happy to thank our HOD **Mrs. S.GEETHA,A.P,**for giving valuable suggestions and encourage during the course for implementing the project.

I specially thank my internal guide **Mrs.S.GEETHA,A.P**, assistant professor for her timely and valuable inputs which enable me to complete my project on scheduled time.

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ABSTRACT

Automatic Fire Extinguishing System are installed in car where the fire hazard is comparatively high. This paper deals with designing and implementing a fire extinguishing based on a microcontroller.

Automatic fire suppression is a system that can detect and extinguish, or contain, a fire without having to rely on human intervention. The system implements an early fire detection mechanism and communicates with the sensors.

According to the methodology, wired fire extinguishing uses temperature sensors to monitor its surrounding environment and alert the system and its cases it detects smoke, fire or the temperature has gone outside the normal parameters.

This system consists of a smoke detector and a temperature sensor whose output are connected to the controller. This system considers the density of smoke and thus the probability of false alarms can be avoided.

Keywords: DHT11 Temperature sensor, Microcontroller (Arduino nano revision V3), Flame sensor, Relay, IRFZ44n, 10k Resistor, DC Socket, 12v Adapter, 6v Pump.

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CHAPTER 4

4 CONCLUTION:

The microcontroller based adjustable fire extinguishing system has been introduced. Experimental results showed that the microcontroller is a reliable instrument to control the fire extinguisher. This system is applicable to different sizes of fire extinguisher and high controlling capability over them. The simple design of it allows minimum of maintenance work. There is a greatly reduced of malfunction, as no moving parts the risk of false alarm is also reduced. The price performance relationship is cost effective. The overall performance of microcontroller-based fire extinguishing system is determined by following factor:

MCU speed

MCU timing granularity

MCU I/O features

Accuracy and stability of the fire sensor used.

Despite having a narrow range of difficulty, the popularity of microcontroller-based system design is increasing day by day; besides improved and advanced technologies are replacing the older versions which keep enhancing the system efficiency.

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FULL- BRIDGE DC-DC CONVERTER AND BOOST DC-DC CONVERTER WITH RESONANT CIRCUIT FOR PLUG - IN HYBRID ELECTRIC VEHICLES

A PROJECT WORK REPORT

submitted by

SRIDEVI.K	**(112419105009)**
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BONAFIDE CERTIFICATE

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ACKNOWLEDGEMENT

My wholehearted and sincere thanks to the "ALMIGHTY" for enabling me to do my research successfully.

First and foremost, I express my hearty sincerity to our chairman **Dr. S.K. PURUSOTHAMAN** and our Principal **Dr. S. PALANI** for providing their appreciation and facilities which made the experience a pleasant one.

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I would like to express my sincere thanks to **Mrs. S.GEETHA,** Assistant Professor, and Head Of the Department in the Electrical and Electronics Engineering department for his encouragement, guidance, and support during this research work.

I would like to express my sincere thanks to **Mrs.S.S.Divya,** Assistant Professor, and all faculties in the Electrical and Electronics Engineering department for his encouragement, guidance, and support during this research work.

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ABSTRACT

In this paper, the analysis and simulations of a a Boost DC-DC Converter with Resonant Circuit (BCRC) for Plug-in Hybrid Electric Vehicles (PHEVs) are presented. Simulations are carried out using MATLAB-SIMULINK software and the results show that both the converters are able to boost the input voltage of 220V to an output voltage of 440V, and 480V respectively, which is required to control the motor. The outputs of these converters are then applied to a 3-phase 180° mode voltage source inverter (VSI) fed permanent magnet synchronous motor (PMSM). The converters, which are connected to a 3-phase 180° mode VSI fed PMSM, are also simulated and presented in this paper. The input ripples of the converters are reduced by connecting the inductor in series with the input DC source. The output voltage ripples are also removed/reduced by connecting a capacitor based filter at the output side of the converter.

KEYWORDS:

PIC Controller, Driver Circuit, MOSFET, Capacitor, Inductor, Diodes, MPLAB, MATLAB

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CHAPTER 7

CONCLUSION

A Full-Bridge DC-DC converter and a Boost DC-DC Converter with Resonant Circuit boost the input voltage (220V) to 440V and 480V respectively, which is sufficient enough to control a motor load. The DC voltage output is converted into AC voltage by using a 3-phase 180° mode Voltage Source Inverter. The VSI is then fed to PMSM, which gives a speed response of 160rad/sec. The speed attains its steady state after a period of 0.1s. In both the converters, the input ripples are reduced by the series connection of the inductor with the input DC source and the output voltage ripples are removed/reduced using a capacitor-based filter which is connected at the output side. Thus, a Full-Bridge DC-DC Converter and Boost DC-DC Converter with Resonant Circuit can be used for Plug-in Hybrid Electric Vehicles.

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TRANSMISSION LINE FAULT DETECTION

GROUND TO LINE SIMULATION

PROTECTION

Submitted by

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Signature of the supervisor with

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Signature of the HOD

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ACKNOWLEDGEMENT

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ABSTRACT

This paper focused on identification of simple power system faults using wavelet based analysis of transmission line parameter disturbances.

The major faults in transmission lines are line to ground fault, line to line fault and three phase faults. These faults can be identified and classified using discrete wavelet transform.

During the occurrence of faults, the grid current and voltages undergoes transients. These transients can be analyzed using discrete wavelet transform and the fault can be classified.

The maximum detail coefficient, energy of the signal and the ratio of energy change of each phase currents are calculated from the transients produced by each phases due to faults using discrete wavelet transform (DWT) and thus detecting and classifying transmission system faults.

MATLAB Simulation results presented here validates the component models and the chosen fault detection scheme. Fault in a power network is any failure which interferes with the normal operation of the system.

The normal operation of the power system at steady state is affected, sometimes dramatically, by the occurrence of such disturbances as overloads and short circuits.

Electrical fault can also be defined as the deviation of voltages and currents from normal values or states.

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CONCLUSION

The simulation and analysis of three phase fault to achieve results of the transmission line parameter is convenient by using MATLAB software.

In this paper system is design to show the Variations of voltage and current when single-line-ground fault, double-line-ground fault and three-line-ground fault occurs in transmission line in this dissertation.

IEEE 14 bus system with 3 phase fault observe and TCSC FACTS controller is use to limit the fault and improve the voltage stability and power flow control in power system network. We reach at the conclusion that TCSC is one of the fast acting power electronic controller which can provide a smoothly variable series capacitive reactance.

This is a new approach 14 bus system with TCSC to improve the voltage stability, limit fault and power flow control in power system network. IEEE 14 bus system with and without TCSC, comparative result and simulation result waveform show that, using TCSC we can improve the voltage stability and power flow control in power system network and also limit the three phase fault.

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IOT BASED SMART ENERGY METER WITH THEFT ALERT

A PROJECT WORK REPORT

submitted by

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Certified that the project report titled **"IOT BASED SMART ENERGY METER WITH THEFT ALERT"** is the bonafide **J.RAKESH KUMAR (112419105006), N.SNEHA (112419105007), V.NARESH KUMAR (112419105306), L.RAMAMOORTHY (112419105309)** who carried out the research under my supervision. Certified further that to the best of my knowledge the work reported here in does not from part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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INTERNAL EXAMINER

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ABSTRACT

The IoT based smart energy meter is based on ESP32. In this system we reduce the human participation in electrical energy maintenance. The theft of the electricity increases the costs paid by customer. Hence this system is used for the detection of theft. The Arduino checks the main meter and sub meter reading. If the difference between the main meter and sub meter is occurred then that theft has occurred message will be display on the LCD display and also display on the IOT Screen. Customer can be access the used units from anyplace. By using the Blynkapp it can be access on the globe at the anytime.

KEYWORDS: Energy Meter, ESP32,Current Sensor,GSM,LCD

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CHAPTER 10
CONCLUSION AND FUTURE SCOPE

CONCLUSION

IOT power meter based on ESP32 Module. In this project we reduce human participation in energy conservation. Electrical theft increases customer costs. Thisprogram is therefore used to detect theft. ESP32 tests the readings of the main and sub meters. If there is a power difference between a main meter connection and a sub meter connection occurs when theft occurs a message will be displayed on IOTScreen. Customer can access Blynkapp from anywhere. By using the customer's email id can be accessed worldwide at any time.

FUTURE SCOPE

The proposed hardware method can be improvised using RTOS (Real Time Operating System) which runs the energy meter functions and commands in real time clock which ultimately reduces the error present in the billing process. Other features like online monitoring systems can be implemented in this system in order to make active participation of the consumers in the grid system.

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ELECTRIC VEHICLES BATTERY MONITORING SYSTEM AND FIRE PROTECTION

Submitted by

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Certified that this project report titled "ELECTRIC VEHICLES **BATTERY MANAGEMENTSYSTE AND FIRE PROTECTION"** is the bonafide work Of **A . HARISHKUMARAN (112419105002) R.GURUMOORTH(112419105303)T.JOTHIRAJAN(112419105304) M . VIJAY (112419105312) R . PRADPEEPRAJ (112419105308)** who carried out the project work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

Signature of the Supervisor with date

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R . GURUMOORTHY

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ABSTRACT

The Main objective of this project is to detect the any abnormal fault in the lithium-ion battery. The purpose of our research is to use ATmega328P and sensors like, temperature module W1209 sensor to monitor the parameters like temperature of Lithium-ion battery of Electric vehicle. And protect it from unwanted situations occur during charging and discharging also with the help of bldc cooling fan , the condition of hazardous fire can be stoped .

Key Words: PCB Board, LCD (Liquid Cristal Display), Arduino uno , temperature sensors, Digital Display, BMS and Lithium-ion battery.

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CHAPTER 7
CONCLUSION

The final approach for making this hardware modules is to give a easy way of protection. .

We tried to fulfil almost all the missing requirement for these types of platforms make this hardware modules as much as:

Flexible ,User friendly ,User interactive,Latest use of technology .

After all this feature there is lot, more scope left in this platform so the development will continue.

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