Trinity College of Engineering & Research,Pune
Department of Electrical Engineering
PROJECT REPORTS BE Sem II 2023-24
Class:BE Electrical

Sr.No	Roll No	Name of Student	Project Title
1	EL4049	RATHOD SACHIN RAMESHWAR	Speed & Direction Control of DC Motor through bluetooth using Ardino
2	EL4050	RATHOD TUSHAR NAVNATH	
3	EL4019	JADHAV AVINASH ULHAS	
4	EL4036	NAVALE PRATIK SANJAY	
5	EL4035	MORALE SHRIRANG GOVIND	IOT based Railways Track fault detection System
6	EL4046	PAWAR PRATHMESH RAJU	
7	EL4011	BORKAR KRUNALI DILIP	
8	EL4061	SHINDE HARSHADA MAHESH	Generation of eletcricity with E bicycle with regeneration braking system
9	EL4059	SHINDE AADITYA CHANDRASHEKHAR	
10	EL4055	SANAP SIDHESH MHASU	
11	EL4016	GAUL RUSHIKESH SACHIN	
12	EL4045	PAWAR ADESH RAJENDRA	Intelligent Solar water pump
13	EL4051	RAUT ABHIJEET BHAGWAT	
14	EL4040	PAGARE ANMOL DILIP	
15	EL4052	RAUT SNEHAL SAUDAGAR	Design & development of blind turn alert signal
16	EL4021	JADHAV SAYALI VIKAS	
17	EL4038	NIKAM YASH CHANDRAKANT	
18	EL4024	KADAM SWARAJ SUNDAR	Design of BLDC motor for E-bicycle
19	EL4044	PATIL SUMIT SANJAY	
20	EL4032	LIMKAR PRUTHVIRAJ SAUDAGAR	Electric vehicle charging station
21	EL4012	BORKAR RAHUL BALASO	
22	EL4058	SHIKALGAR MUIN RAHIMTULLA	
23	EL4064	SURYAWANSHI PRADEEP VAIJANATH	
24	EL4053	RAWOOL SHUBHAM VITTHAL	Battery management system(MBS)
25	EL4018	GORE SACHIN BABAN	
26	EL4048	POKHARKAR DHANASHRI LAXMAN	
27	EL4069	SYED AFZALUDDIN SYEED V	Hybrid Solar Inverter
28	EL4056	SHAIKH SADIYA MOULA	
29	EL4063	SONKAMBLE DHANASHRI BALIRAM	
30	EL4070	SHELAR GAJANAN RAJENDRA	
31	EL4009	BHOSALE BHUVANESHWARI ABHIJEET	Regeneration of Electricity through heat dissipated with Li-ion battery in EV vehicle
32	EL4029	KOLEKAR PRANAY NARESH	
33	EL4043	PATIL SHUBHAM SHRIHARI	
34	EL4068	WAGHMARE OMKAR BAJIRAO	

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SPEED AND DIRECTION CONTROL OF DC MOTOR THROUGH Wi-Fi USING ARDUINO

Project Report

Submitted in the partial fulfillment of the requirements

For the Degree of

BACHELOR OF ENGINEERING

IN

ELECTRICAL

By

Mr. Tushar Navnath Rathod	**B190652533**
Mr. Sachin Rameshwar Rathod	**B190652538**
Mr. Avinash Ulhas Jadhav	**B190652517**
Mr. Pratik Sanjay Navale	**B190652527**

Under the guidance of

Prof. Punam M. Chabukswar
(Assistant Professor)

TRINITY COLLEGE OF ENGINEERING & RESEARCH, PUNE
DEPARTMENT OF ELECTRICAL ENGINEERING

YEAR 2023 – 2024

TRINITY COLLEGE OF ENGINEERING & RESEARCH, PUNE

DEPARTMENT OF ELECTRICAL ENGINEERING

CERTIFICATE

Certified that the Project report entitled, "**Speed and Direction Control of Dc Motor Through Wifi Using Arduino**" is a bonafied work done under my guidance by Tushar Rathod B190652533, Sachin Rathod B190652538, Avinash Jadhav B190652517, Pratik Navale B190652527 in partial fulfillment of the requirements for the award of degree of Bachelor of Engineering in Electrical.

Date: 30/05/24

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ABSTRACT

The Android-is the most popular mobile platform, which is very useful in creating much real time application which is useful in our day-to-day life. The DC motors are widely used for variable speed drive system in industrial applications such as industrial automation, electric traction, aircraft, military equipment, hard disk drives because of their high efficiency, silent operation, compact, reliability and low maintenance. Due to the advancement of wireless technology, there are several connections introduced such as GSM, Wi-Fi, ZIGBEE and Bluetooth.

Each of the connection has their own unique specifications and applications. Among these wireless connections, Bluetooth technology is often implemented. The speed control was implemented using Wi-Fi technology to provide communication access from smart phone. On the other hand we have ARDUINO UNO platform that we can use to quickly prototype electronic systems. Android mobile act as a transmitter and the received by Bluetooth receiver interfaced to Arduino which send data to the wifi module and which in-turn run the motor.

A PROJECT REPORT

ON

"Battery Management System"

Submitted to the Savitribai Phule Pune University, Pune in the partial fulfillment for the award of the Degree

Of

Bachelor of Electrical Engineering

By

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Shubham V. Rawool	(B190652537)

Under the guidance of

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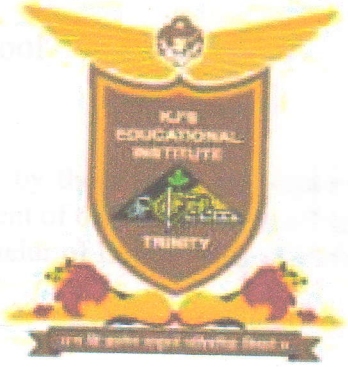

DEPARTMENT OF ELECTRICAL ENGINEERING

KJ'S EDUCATIONAL INSTITUTES

TRINITY COLLEGE OF ENGINEERING AND RESEARCH, PUNE

2023-24

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This is to certify that the project stage-II report entitled

"Battery Management System"

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Is a bona-fide work carried out by them under the supervision of **Dr. J.V. Satre** and it is approved for the partial fulfillment of the requirement of Savitribai Phule Pune University for the award of the Degree of Bachelor of Engineering (**Electrical Engineering**)

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ABSTRACT

The rapid growth of electric vehicles (EVs) has brought significant attention to the critical role of Battery Management Systems (BMS) in optimizing battery performance and ensuring safety. As EVs become increasingly prevalent in the automotive industry, the demand for efficient and reliable BMS technology continues to rise. This project aims to provide a comprehensive overview of the importance of BMS in EV batteries, exploring various aspects such as state-of-charge estimation, cell balancing, thermal management, and fault diagnosis. By examining existing literature and industry practices, this paper identifies key challenges and opportunities in BMS design and implementation, while also discussing emerging trends and future directions for advancing BMS technology. Battery Management Systems play a crucial role in maximizing the efficiency and lifespan of EV batteries. One of the primary functions of a BMS is state-of-charge estimation, which involves accurately determining the amountof charge remaining in the battery. This information is essential for drivers to monitor their vehicle's range and plan their journeys accordingly. Additionally, state-of-charge estimation helps prevent overcharging or deep discharging, which can degrade battery health and reduce its lifespan.

Regeneration of Electricity Through Heat Dissipated by Li-Ion Battery in EV Vehicles

Project Report

Submitted in the partial fulfilment of the requirements
For the Degree of
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Session: 2023–2024

Trinity College of Engineering & Research, Pune

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Certified that the Project report entitled, **"Regeneration of Electricity Through Heat Designated by Li-Ion Battery in EV Vehicles"** is a bonafied work done under my guidance by Bhosale Bhuvaneshwari (B190652561), Kolekar Pranay (B190652581), Patil Shubham (B190652595), Waghmare Omkar (B190652607) in partial fulfilment of the requirements for the award of degree of Bachelor of Engineering in Electrical

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ABSTRACT

A Thermoelectric Generator (TEG) and Thermoelectric Cooler (TEC) battery cooling system is a cutting-edge technology designed to optimize the performance and lifespan of batteries in various applications, such as electric vehicles and renewable energy storage systems. This system leverages the thermoelectric effect, where temperature differentials are harnessed to generate or dissipate heat. In the context of battery cooling, TEGs efficiently remove excess heat generated during charging and discharging processes, thereby preventing overheating and thermal degradation. Conversely, TECs enable precise temperature control by either heating or cooling the battery cells as needed. This innovative approach not only enhances battery efficiency but also extends their operational life, making it a crucial development in the field of energy storage and electric mobility.

Self-driven thermoelectric cooler-thermoelectric generator (TEC-TEG) systems have recently attracted a great deal of attention. The single-stage and two-stage TEC-TEG systems have been developed and extensively studied. However, a serial electric current configuration between the TEC and TEG leads to a low cooling capacity or/and a small temperature drop across the TEC, and hence seriously restricts applications of TEG-TEC systems. In this work, a new design of combined TEC-TEG systems is proposed, where two single-stage TEGs are employed to separately power the hot stage and cold stage of the TEC. The advantage of the new design lies in the separate electric current configuration. A three-dimensional thermoelectric model is developed to compare the performance of the new and original designs for various thermocouple number ratios and operating conditions. The comparison demonstrates that the new design not only enhances the cooling capacity of the system but also increases the maximum temperature drop across the TEC. The present predictions provide a useful guidance for the design of combined TEG-TEC systems. Moreover, the experimental test shows that the battery surface temperature drops around 43 °C (from 55 °C to 12 °C) using TEC-based water-cooling system for a single cell with copper holder when 40 V is supplied to the heater and 12 V to the TEC module.