VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi –590010

PROJECTREPORTON

DESIGN AND IMPLEMENTATION OF SMART ENERGY MONITORING SYSTEM USING IOT

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

CERTIFICATE

Certified that the project work entitled **DESIGN AND IMPLEMENTATION OF SMART ENERGY MONITORING SYSTEM USING IOT** *is a bona fide work carried out by*

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in partial fulfillment for the award of BACHELOR OF ENGINEERING in **ELECTRONICS & COMMUNICATION ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2020–2021. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Bachelor of Engineering Degree.

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ABSTRACT

Electricity plays a cardinal role in day to day life. The electrical energy consumption in India is the third biggest after China and USA with 5.5% global share in 2016. The per person energy use rate in India is closer to 0.7 KW. India's share with global energy demand will rise to 9% by 2035. In spite of numerous endeavors, Energy emergency is the current day issue and it is deteriorating step by step. To conquer the present circumstance individuals are finding different energy proficient assets. Among them, power is the primary concern which should be observed and controlled. The foremost objective of this project is to create awareness about energy consumption and efficient use of home appliances for energy savings. Due to manual work, our existing electricity billing system has major drawbacks. The system gives the information on meter reading, and the alert systems for producing a Short Message Service (SMS) when energy consumption exceeds beyond the specified limit. The idea is being implemented to reduce the human dependency to collect the monthly reading and minimize the technical problems regarding billing process. This project extends the design and implementation of an energy monitoring system with the pre-intimation of power agenda using ESP-32 and a Global System for Mobile Communication (GSM) module.

Awareness of electricity consumption in the home or building is a first step towards saving power. The combination of sensors and GSM technologies for monitoring and controlling power consumption in real time is a powerful way for reducing power usage. With effective management about power consumption and control of household appliances, users can be motivated and encouraged to change their behaviours on energy use such as turning off lights or reducing heat. These small changes in behaviours can lead to significant energy savings. The proposed system can monitor and measure electricity usage in real-time. With the proposed system, users can automatically, manually, and remotely control real-time electricity usage. Thus, the real-time monitoring of the electrical appliances can be viewed through LCD display and SMS alert. This system is easy to design and consume less power, and provides at low cost.