

Smart Energy Management and Overload Control Of Hostel Room Using IOT

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ABSTRACT

In current situation, some students of hostel rooms uses excess device like geyser, Electric Iron which are not allowed to use in hostel room. In that case, MCB trips only in the short circuit condition. But rector is not known that which rooms student uses a heavy load. So, we are developing one smart device which will detect the extra load consumed by consumer and get notified consumer as well as hostel rector via message. Generally, we are developing a system which detect the extra consumption of electricity using IOT. Whenever extra electricity is consumed by consumer system shows extra load consumed by user with the help of sine waveform, and send notification of extra consumption of load via SMS to student as well as hostel rector. And after third notification the electricity supply get automatically cut.

Keyword: - *Energy consumption of all our appliances is huge in level, To, keep watch on all hostel rooms' power utilization*

1. INTRODUCTION

In this project we introduce energy management and automatic controlling system for hostel Rooms using IOT technology. We see in hostel user needs to utilizes common load. But many times, some student may use extra power for their unnecessary uses like ironing, water heater, home theaters, induction etc. so common load & respective light bill may increase due to use extra load. So, to overcome this scenario we introduce a smart energy system which place on each room to monitor load consumption. And units of all rooms will be monitor on IOT web server.

When any one uses overload equipment's then 2 warning SMS send on respective room owner mobile number. & After 3rd warning supply automatically breaks and automatically send message to the Hostel Control Room. Smart Power Monitoring and Analysis is aimed at developing a solution to keep track of every electrical appliance and monitor the energy used consumed by a Users. As mentioned, this study's main problem statement is that most of the power meters installed in any hostel showed the total consumption of the electricity used. So, with the upcoming of machine-to-machine communication where devices can be connected wireless leading to IoT, we here have developed an IoT based Smart Energy system.

2. LITERATURE SURVEY

In this section, we would be discussing briefly on various literature available pertaining to Energy Management and Smart Home System.

In one of the research projects reported, IoT Based Automated Temperature and Humidity Monitoring and Control system developed [1] using raspberry pi. Pi receives the temperature as well as humidity values sensed and the same sent to the internet. This project however has resulted in prototype development of automated temperature and humidity control with good feasibility.

Research also been carried out towards Smart Home Control and Monitor System using IoT [2] where a User-Friendly GUI been developed which can be accessed globally from any device that has internet connectivity.

In addition to the above-mentioned research, Smart Home Monitoring prototype developed by employing Android mobile handset and Wireless Sensor systems [3]. This system monitors the usage characteristics of electrical power at the socket outlet in real time. This system measures the Voltage Current and temperature of socket outlet periodically from each room and monitored data sent to the system towards computing the threshold violation for action by the user before circuit breaker gets tripped or fire breakout happens.

When we finding that overloading problem in hostel, for confirming that problem is really genuine or not we conduct one survey about that problem , for that survey we created one Google form in which we include hostel rector name, mail id ,hostel name which appliances they are allowed in hostels and which are not , after that in that Google form we asked them about whenever overloading is happen due to that appliances which are not allowed, is there any system is available to prevent this overloading .

At the end of this survey one thing is confirm, that in hostels there is no system available for reduce malpractices happened regarding to overloading.

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2.1 Google form Survey

We created google form and took survey from hostel Rectors the survey is as shown below

Table -1: Excel Sheet of Google Form

3.

Timestamp	Hostel Name	Rector Name	Mail Id (Rector)	Does hostel authority allow following electrical or electronics appliances in hostel room? 1) Electric Kettle 2) Water Heater 3) Electric Iron	If no, Does hostel authority have control over excess use of above said appliances?	If Yes, how do you keep control over it? Explain in brief.	If No, would you like to install any kind of system to get control over it?	Do you think, there should be any energy management system for this?	If yes, How would you like to implement it?	Would you like to install energy management system kit for every room in hostel?	Do you find our BE project matches your requirement?	Any suggestions would you like to share?	How would rate our idea?
2022/11/21 10:47:10 am GMT+5:30	Krushnavanti	Pushpa Landge		-No	No		-Yes	Yes	To make such a device which would detect the overloading.	Yes	Yes	No	*****
2022/11/21 10:49:28 am GMT+5:30	Kalsubai	Savita punekar	savitapunekar2@gmail.com	No	No		-Yes	Yes	Using smart energy meter	Yes	Yes		*****
2022/11/21 11:24:52 am GMT+5:30	Sajjangad	Arjun dighe		-No	No		-Yes	Yes	Using smart energy metering system	Yes	Yes	No	****
2022/11/21 11:27:32 am GMT+5:30	Sinhgad Hostel	Vishal Chauhan	vishalchauhan2017@gmail.com	No	Yes	If Overloaded condition happens then MCB gets trip.	Yes	Yes	By using Plc like software	Yes	Yes	No	*****
2022/11/21 11:32:14 am GMT+5:30	Sajjangad Hostel	Vilas ubale	vilasubale2011@gmail.com	No	Yes	MCB	Yes	No		Yes	Yes	No	*****

PROPOSED SYSTEM

In proposed system we are developing one smart device which will detect the extra load consumed by consumer/hostelers, and get notified consumer as well as hostel rector via message. Generally, we are developing a system which detect the extra consumption of electricity using IOT. Whenever extra electricity is consumed by consumer system shows extra load consumed by user with the help of sine waveform, and send notification of extra consumption of load via SMS to student as well as hostel rector. And after third notification the electricity supply get automatically cut.

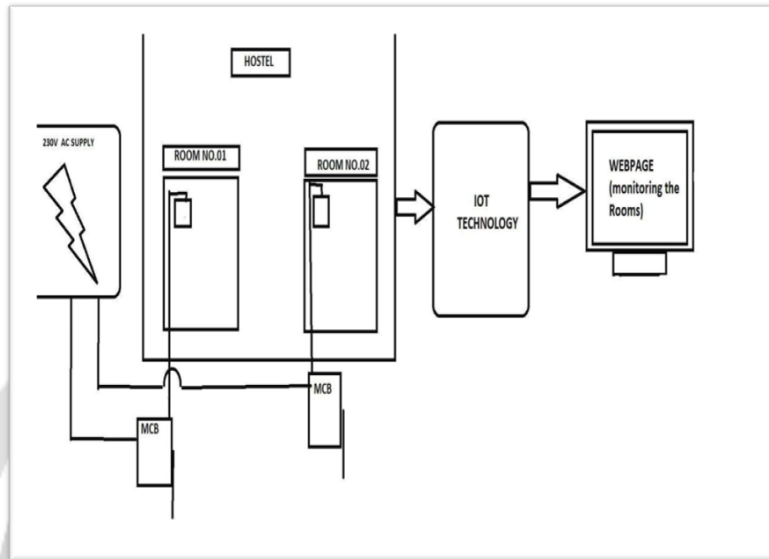


Fig -1: Block Diagram of Overloading of Hostel Management System

4. CONCLUSIONS

Smart Home and Energy Management is current trend with the development of IoT. Lot of work been reported in regards to controlling the appliances of home and also on monitoring the electrical parameters towards hazard. Also work reporting in controlling the appliance for energy consumption. So, with all these works reported, we here have developed a better IoT system for Energy Management

5. REFERENCES

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