

Sensor Based Energy Conservation

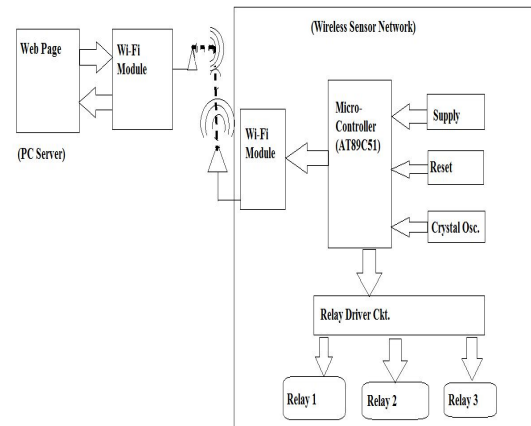
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Abstract- The goal of this paper is to implement a microcontroller based smart energy conservation and control using IOT. This system contains 8 bit micro-controller (AT89C51), ESP8266 Wi-Fi module, Web Site (Using HTML), Rectifier, Power Supply, Relay and Load. It is used to control the electronic appliances present at homes, offices, industries, hotels, etc. The appliances like fans, tube lights, AC's, refrigerators, ovens, etc. can be controlled through the web site or by using an android app.

I. INTRODUCTION

The energy is most important part of our day to day life. Our lives without light would be very incomplete. In our daily activities such as boiling water to preparing breakfast or cooking food, light energy has played a major part. However electricity is a non-renewable source of energy and must be used with utmost care to preserve it for a long time. So we have to find some way to conserve it. Majority of the power loss occurs whenever there is a hard wiring involved in the circuit of electronic appliance. In other cases there is a loss of energy due to human error i.e. Button or switch remains on after its use. After charging our smartphone we simply disconnect it from charger, instead of removing charger from the socket (leaving switch ON) which eventually leads to loss of electricity. In our daily life we forget many things, such as to turn off unwanted electric equipment. In some cases due to lazy ness we purposefully don't turn it off. The best example is the hotel where there are several floors and on each floor there are at least 5-6 bulbs lit, the switches being available at appropriate points. If the servant working there forgets to turn off switch or purposefully keeps the switch ON, then there will be an enormous amount of loss of energy. To overcome this loss of energy and to preserve it for future, the sensor based energy conservation system is developed. This system will help us to turn on or off any electric equipment through the web site and the website can be accessed through smart phones. Since smartphones have become integral part of our lives, a properly designed app for a smartphone can also be used to control electronic appliances. In India average losses have been officially indicated as 23% of the total electricity generated. However, as per sample studies carried out by independent agencies including TERI, these losses have been estimated to be as high as 50% in some states.

Proposed system and working:-



The main purpose of this system is to overcome the loss of energy. Majority of energy loss occurs, when switch remains ON after its use. So to conserve energy we used a website that provides means to turn system ON or OFF. depending on the user system will turn it on or off as per its need. In this system the user can control any electric appliance in range of 0-500m.

1. WEBSITE

The user can't interface directly with equipment so there is need of interface medium. The website provides this interface. The website contains all the means necessary to control the electrical appliances present on the floor. The data which is processed in micro-controller is sent to web page with the help of Wi-Fi module. The data which is sent and received is stored in file format. The protocol used here is FTP.

2. WIFI MODULE

The range of system depends on the type of medium used. If Zig-bee is used then it would have only 10m range. In this system we used a Wi-Fi module version 10 which has 500 m and more range.

To access it, we first have to turn on mobile hotspot. The Wi-Fi automatically gets connected, if user has specific

user id and password of the network. To interact with web page special AT commands are used.

3. MICRO-CONTROLLER

Here, in our proposed system 8 bit micro-controller is used. Majority of the decision making that is all the data which is sent by user through website or the data received by the means of sensor gets processed in micro-controller. Here data is transmitted and received using serial transmission.

II. CONCLUSION

During the course of this system development we have managed to design a system which will help to control the electronic appliances situated at certain distance through website, which eventually leads in conservation of energy.

III. ACKNOWLEDMENT

We would like to thank Mr. S.HIRUKUDE HOD Of ENTC, SGI ATIGRE, Kolhapur and Prof. A.K.RATHOD for providing their valuable guidance and support.

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