**Topic: Power Monitoring and Controlling for Electric Home Appliances**

**EXISTING SYSTEM**

The electricity consumption rate increases by 7% every year. With the increase in dependency on electrical appliances, the consumer doesn’t know why his electricity bill is being too high than expected. An obvious reason for this being that most of the appliances are still consuming power even though it’s not required. Many units of power are being wasted due to negligent usage of electric home appliances. The answer for these problems is to keep a track of the consumer’s electricity consumption.

**PROPOSED SYSTEM**

By using this technology, electric home appliances can be controlled and monitored through domestic power lines. It measure the power consumption of plugged-in electric home appliances. We have also designed an embedded home server which supports the Web page user interface, thus allowing the user to easily control and monitor the electric home appliances by means of the Internet. The current system has hardware and software components. The hardware consists of the device to monitor electricity usage and the circuit for powering off the devices when they are not in use. The software part of the system consists of a mobile application which shows the data regarding the electricity consumption by different appliances.

Advantages of proposed system

* Energy saving
* Maintenance Cost Reduction
* Wireless Communication
* Reduction of manpower
* Less electricity cost

**SYSTEM STUDY**

**FEASIBILITY ANALYSIS**

The feasibility study concern with the considerations made to verify whether the system fit to be developed in all terms. Main objective of feasibility study is to test the technical, social and economic feasibility of developing a system. This is done before developing a system. This is done by investigating the existing system in the area under investigation and generating ideas about the new system. The feasibility study to be conducted for this project involves:

* Technical Feasibility
* Operational Feasibility
* Economic Feasibility
* Behavioral Feasibility

**TECHNICAL FEASIBILITY**

The system must be evaluated from the technical view point first. The assessment of this feasibility must be based on an outline design of the system requirement in terms of input, output, programs, procedure and staff. Having identified the outline of the system, the investigation must go on to suggest the type of equipment, required method of developing the system, and the method of running the system.

In existing system the consumer doesn’t know why his electricity bill is being too high than expected. An obvious reason for this being that most of the appliances are still consuming power even though it’s not required. Many units of power are being wasted due to negligent usage of electric home appliances. We use a device to monitor electricity usage and the circuit for powering off the devices when they are not in use and a software system consists of a mobile application which shows the data regarding the electricity consumption by different appliances.

We are using Arduino because it is energy efficient i.e. it consume less power and it is fast. The use of Wi-Fi module provides a feature of notification through internet. One can easily access the monitoring through web page that we designed.

**OPERATIONAL FEASIBILITY**

This test of feasibility asks if the system will work when it is developed and implemented. It also measures how well a proposed system solves the problems, and takes advantage of the opportunities identified during scope definition and how it satisfies the requirements identified in the requirements analysis phase of system development.

There is no difficulty in implementing the system. The ‘Power monitoring and controlling of electric home appliances’ is effective and user friendly. To ensure success, desired operational outcomes must be imparted during design and development. These include such design-dependent parameters such as reliability, maintainability, supportability, usability and others.

**ECONOMIC FEASIBILITY**

In the economic feasibility the development cost of the system is evaluated weighting it against the ultimate benefit derived from the new system. This project ‘Power monitoring and controlling of electric home appliances’ is economically feasible because IDE used for developing the software is free of cost.

The proposed system uses Embedded C as the front end which is a free and open source software therefore it can be downloaded easily from the internet. Also, the Embedded GUI and all the other datasets are downloaded from the internet with free of cost. And some hardware objects are bought online which has limited cost and long term life.

**BEHAVIORAL FEASIBILITY**

The behavioral feasibility depends upon whether the system performed in the expected way or not. Behavioral Feasibility study is a test of system proposal according to it workability, impact on organization, ability to meet user’s need and effective use of resources. However, a feasibility study provides a useful starting point for full analysis. ‘Power monitoring and controlling of electric home appliances’ is behaviorally feasible because of the effective use of the resources and also the system satisfies user needs and is user friendly.

**REQUIREMENTS**

**HARDWARE SPECIFICATION**

Microcontroller

Wi-Fi Module

Current Sensor

Resistors

Capacitors

Transistors

Cables and Connectors Diodes

PCB and Breadboards

LED

Transformer/Adapter

Switch

IC Sockets

**SOFTWARE SPECIFICATION**

Arduino Compiler

Programming Language C

**GITHUB ACCOUNT**

User name: rahulsp70

**SCREENSHOT**