SMART PLUG

Team

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***Introduction***

***1.What’s our device…………?***

A smart plug is like a power-point adapter – it fits between your power socket and the appliance you wish to plug in. At its most basic level, it simply turns things on and off. But, when connected to a smart home platform, it becomes a very nifty device.

Our device connects to your home WiFi network and send’s statistical data of your electrical appliances to our database centers. From there your data can be monitored through website and mobile application on your phone.

***2.Why do we need it…….?***

Smart Plug is a device that makes your regular a smart home with a very affordable price. With this device you can control your regular electrical appliances much better.

In our day-today busy life smart plug will be a life savior. With this device your day could be more efficient as this can save time of turning on and off things.

If you are a kind of person who like to have things in control then this device will be your helper.

***Usage:***

1. Energy Usage Monitoring from anywhere in the world.
2. Turn your appliances on and off with your finger tips.
3. Schedule your electrical appliances.
4. Eliminate vampire draw from your house.
5. Control the outlets that where your hand can’t reach.
6. Set timer to your devices.
7. Control Your devices with voice commands.
8. Predict your device lifetime.

***Working:***

Usually, in our household we connect our electronic appliances to the socket but they won’t be able to know how much power was consumed ,the solution for this problem is our SMART PLUG , It collects the data from the appliances and send this data through internet to our servers , this whole data can be accessed through website and an android application, here the user can monitor the data through statistical graphs and not only monitoring , also operates the appliances through a remote area over a network connections.

PROJECT LIFE CYCLE

Node-MCU

MySQL Database

Web Application

Mobile Application

CT Sensor

Relay

Your Device

1. Physical Layer :

a)Current Transformer:

At this stage the current consumed by your device is calculate by using Current Transformer sensor which works based on the principle of Hall-Effect. The sensor sends the calculated current value to the micro controller, where the data is further processed.

b)Node-mcu:

Node-mcu micro controller acts as a brain to the smart plug. It collects the data from the CT Sensor and processes it and determines the energy consumed by it.

It then sends the calculated data to our data base using network connection.

c)Relay:

Relay is a programmable switch which acts as a gate way, and is again

connected to Node-Mcu. Node-Mcu uses it to on and off your device.

2.connectivity Layer:

This layer acts as a mediator between the physical and application layer. The data sent from the physical layer is stored here and which is accessed in the

application layer.

3.Application Layer:

This layer is visible to the end user from where he can monitor and control his electrical appliances.

It comes in two parts, a web application and an android application.

***Features:***

1. Calculates the energy consumption to electrical appliances.
2. Can control your device from anywhere ,at anytime.
3. Can be scheduled to a specific time period.
4. High accuracy (approx:96%).
5. Cost Effective.

***Technologies Used:***

1. Arduino-Programming Language

2.Flask-Web Framework

3.Jinja

4.HTML

5.Css

W3.css

Bootstrap

6.Java Script

7.MYSQL Database

8.Python

9.PythonAnywhere-Web Hosting

10.Android Studio

***Conclusion:***

. Living in the cities we all been habituated to a busy life , sometimes we forget to on and off things. So this device helps you to make your life easier, smarter and even more comfortable.

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