PROJECT REVIEW

ARATHY C P

ROLL NO – 33

S4 MCA

SMART HOME ENERGY MONITORING AND MANAGEMENT SYSTEM

DESCRIPTION OF THE TOPIC

- To develop a system such that it will be capable to keep a track of each and every appliance in the home and the user will be able to acquire all appliance energy consumption parameters.

- Along with this, the energy consumption parameters of each individual appliance will be sent to gateway where an intelligent algorithm will be running to manage all the appliances as per user requirements.

- The user can monitor the energy parameters of each individual load using an android smartphone which will also work as a data setter to set various user programmable parameters like high/low cut-off voltage, etc.

RELEVANCE OF THE TOPIC

- In light of the increasing cost of electricity and the Global Warming campaigns to reduce general electricity usage, there is a growing interest in analyzing power consumption in households.

- By analyzing the electricity usage of each individual appliance separately, more accurate conclusions can be drawn on their efficiency and need for replacement.

- Furthermore this can also determine whether an appliance is drawing unusually high amounts of power when turned off and whether it should rather be unplugged.

- In this way electricity consumption and cost can be reduced.

OBJECTIVE

- Reduce Energy Consumption
- Remote monitoring of House-hold loads
- Remote control of ON/OFF of loads using Mobile App
- Reduce Electricity Bill

EXISTING SYSTEM

- Most conventional prepaid power meters currently installed in households only display the total real time usage of its power and the amount of electricity available.

- There is no way to see what the day's, week's or month's consumption was on these meters and often these power meters are placed in an inconvenient location which makes regular viewing somewhat difficult.

- These power meters also lack the ability to monitor appliances individually; thus hiding vital information about individual appliances.form suitable for segmentation.

PROPSED SYSTEM

- A Smart Meter System is required which can analyze multiple appliances in a household getting readings.
- With the help of IoT connection, the device can connect to a central gateway User.
- The data can then be displayed on the platform's graphical android-based user interface. The platform allows users to access the data from any android enabled device.
- To reduce cost the system requires energy metering nodes that can communicate with the gateway wirelessly or in wired way in such a way that only one Wi-Fi access point is needed for a household containing many monitored.

MODULES

(1)MONITORING SYSTEM

- A power monitoring system can help users or consumers to monitor their usage of electricity efficiently.
- Current sensor (ACS712) equipped with the node mcu module can automatically monitor the energy consumption of connected load.
- Using Blynk - IoT based mobile app, user can monitor the energy consumption.

(2)CONROL SYSTEM

- A power control system can help the user manage their electricity more effectively as everything can be contolled.

- Using IoT controls in Blynk App, user can remotely turn ON/OFF the loads in house connected to microcontroller via relays.

(3)IMPLEMENTATION OF IOT

- Thing-speak has been used for the devlopment of IoT which is compatible with NodeMCU module. And it helps to store data publicaly or privately in the cloud.

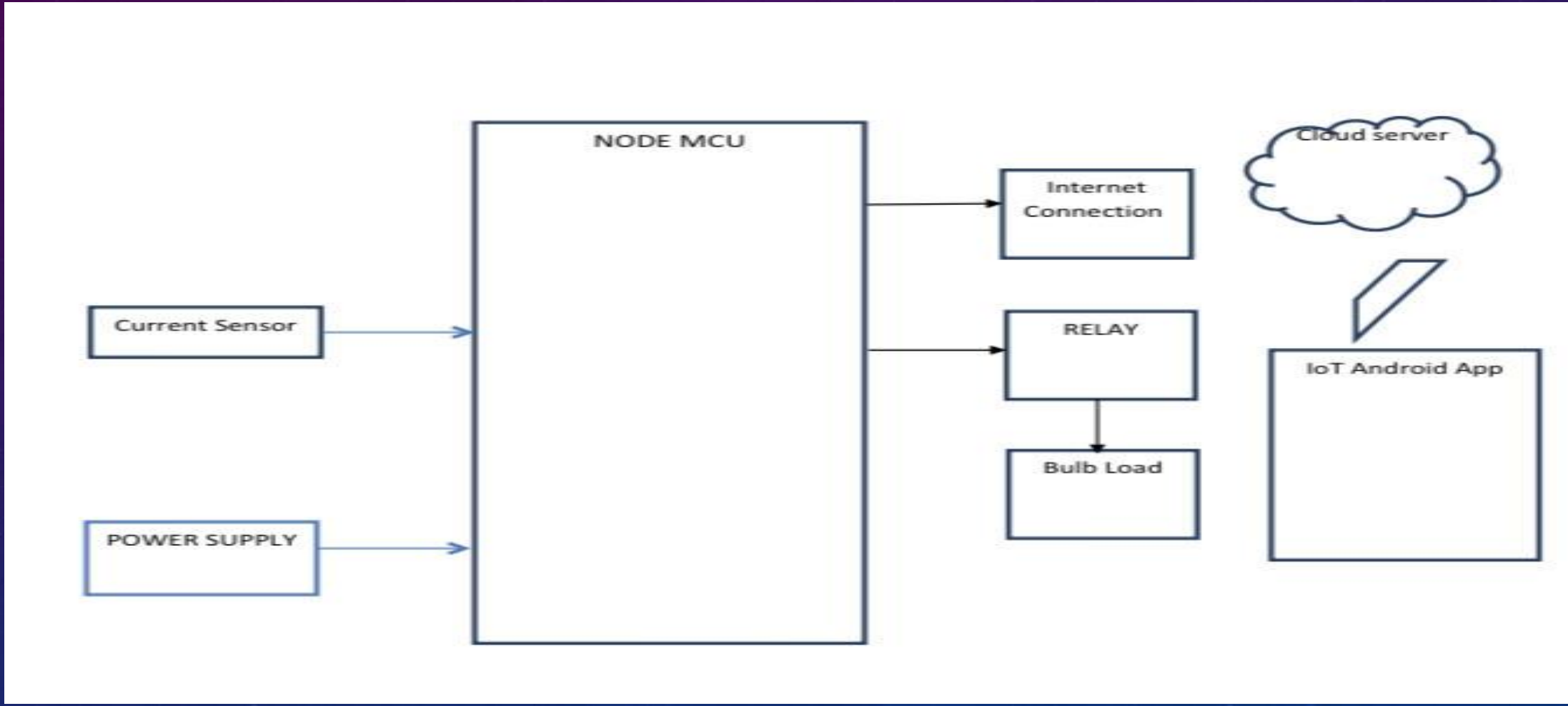
- It can be analyzed remotely via either laptop or cellphone as long as wiFi is attached. To integrate Thing-speak with Arduino and the NodeMCU some prerequisites need to be done.

- Only authorized persons can access the IoT application through Arduino and NodeMCU WiFi module using the account created.

HARDWARE REQUIRMENTS

- Current Sensor – ACS712
- Micro conroller (NodeMCU)
- Relay
- Bulb Load
- Mobile phone with IoT Android Application
- Power Supply Unit

BLOCK DIAGRAM



THANK YOU