ELECTRICITY METER ALERTING SYSTEM USING IOT

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ABSTRACT

Nowadays, people are unawareness of the cost of energy consumed by various appliances. To make the end user awareness and to control the excess power consumption, It will display the total units of power consumed and how many units has been left with, in order to be in a minimum slab rate of current consumptions being for a period of time. This project aims to design a circuit which used to the end user in taking care of the electrical energy consumption and the extra charges incurred due to minor changes in slab categories, even though these changes are small they affect the end user's bill severely. In this way, the end user can be made awareness of the power consumed and can hence make the end user use the power accordingly. Daily usage is updated to the end user periodically notified through a mobile SMS and E-mail. Advantages of this project for reduced the electric bill.

Keywords: Short Message Service, E-mail, Electricity, Node MCU.

INTRODUCTION

In the beginning of family unit innovation, conveyance of power is totally relied upon customary energy meters. These electric energy meters play a key job in estimating the consumption of electrical energy in individual families. The use of these meters has been gradually declining with the improvement in innovation as quick changes has been made to experience the issues happened by the conventional meters. Future monetary development basically relies upon the long haul accessibility of energy from its sources. The IOT based Electricity Meter Warning for the most part goes for the working class and the lower center class family to carry their power bill down with the employments of the power consumption warning framework. Energy meters being conveyed at homes are utilized for perusing the power that is being expended. Each end client may fix end client edge esteem (unit). Regardless of the considerable number of accomplishments here, regularly, the electric power utilities give just the all-out energy consumption spent on a living arrangement and don't offer, for instance, support for remotely dealing with the power consumption of electronic gear. This implies more expenses for organizations. What's more, it's anything but a straightforward assignment to figure out which bit of electronic gear has the best impact on the power bill. At the point when energy reserve funds amid specific periods are wanted, a few meters may gauge request, the most extreme utilization of power in some interim. At the Time of day metering enables electric rates to be changed amid multi day, to record utilization amid pinnacle mind-boggling expense periods and off-top, lower-cost, periods. Likewise, in a few regions meters have transfers for interest reaction load shedding amid pinnacle load period. On the off chance that the esteem comes to over the edge, the power is cut off with an earlier warning to the end client. The chart or the measure of power devoured can be imagined with the assistance of a portable SMS and E-mail. where the report is given to the client occasionally. This framework can be introduced at wherever where the energy consumption ought to be routinely observed and controlled. The end clients can fix their own edge unit esteems and can be effectively altered dependent on their necessities. Power Meter is utilized to persistently screen the meter perusing and give when the unit accomplish 400 units that time send data about the quantity of units devoured to the end client.

PROPOSED SYSTEM

The 230 volt power supply given to the Bulb and Current sensor. If current sensor Read the Analog value from the power consumption for Bulb .the Ardiuno is a small sized minicomputer and acts as a fast processor system. It is the central unit of this project and is connected to NodeMCU and OLED (organic light-emitting diode) Display,
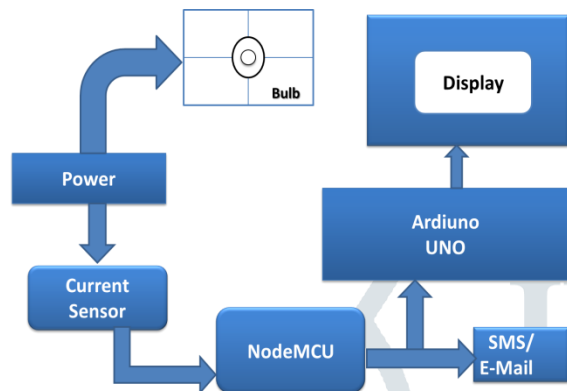

Fig 1 Proposed system Architecture

Why Ardiuno is used for get the information via NodeMCU with help of IFTTT(IF This Then That) web app and that information displayed with OLDE display(Figure 1) then the result of output is every day consumed power will be display in OLED(organic light-emitting diode) Display and send through a SMS.Finally when the electric unit achieve 400 unit the end user get the SMS and E-mail.
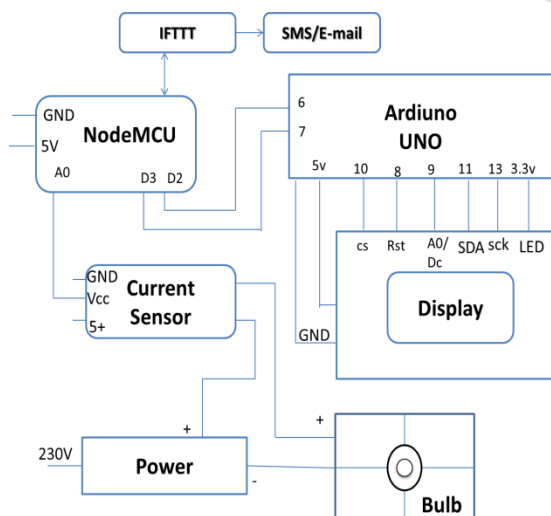
Working flow of ELECTRICITY METER ALERTING SYTEM

Fig:2 Flow Diagram of Electricity Meter Alerting System Using IoT

In this proposed electricity meter alerting system using Microcontroller Ardiuno design to give a SMS and E-mail notification for monitor the Current energy usage. The 230 volt Power supply directly given to the Bulb and the Current sensor ACS712 have enough for 5v+ but it main function for Read the Analog current value consumption of Bulb and The current sensor used to analyze the current unit .when the current sensor read the 400 unit electricity at a particular unit end user receive the message and E-mail in the mobile through the help of NodeMCU which is act as a Wi- Fi module Each and every unit reading can be viewed through OLED Why Ardiuno is used for get the Display which is constructed by which help of ardiuno atmega234.NodeMCU the Analog Value from current sensor and it will calculate the Watts is multiplied by Voltage and Ampere. If the power energy is measured by which 1000kw(kilo watts) is equal to 1 unit when the current consumed 400 unit power that time send a SMS and E-mail via IFTTT(IF This Then That) with help of NodeMCU and the nodeMCU send a data to the Ardiuno for OLED display the power unit value. If the day by day Bulb consumed how much power will be display in OLED Why Ardiuno is used for get the Display then send SMS to end user mobile (Figure 2).

RESULT AND DISCUSSION

In this proposed electricity meter cautioning framework trial result get effectively. Arduino board utilizing get the yield of electricity unit 400 from NodeMCU with the assistance of IFTTT Then it will show in OLED. The Arduino is utilized to get the Display. IFTTT utilizing made the Webhooks Applet successfully.it will permit every single client can go into the Applet with the assistance of Username and Password and afterward the client entered utilizing separate Url (https://maker.ifttt.com/trigger/{energymeter}/wi th/key/gUi_hGyLOESAJLXsZ3zO3rES0S6uEG BYeFtntQFm7n3) with help as to SMS and E-mail Applet. SMS Applet utilizing every single end client special telephone number. Every single day control consumption happened that will be shown in OLED Display. How much electrical vitality will be devoured in consistently at a specific timeframe that will send through SMS and OLED show. How much electrical

vitality will be expended in consistently at a specific timeframe that will send through SMS(Figure 3). The mobile number using each end client gets the SMS for when the electric unit achieves the 400 unit. Each end client go into the webhooks applet with the assistance of approved username and secret word then it will naturally produce API key then we will make the URL interface contain
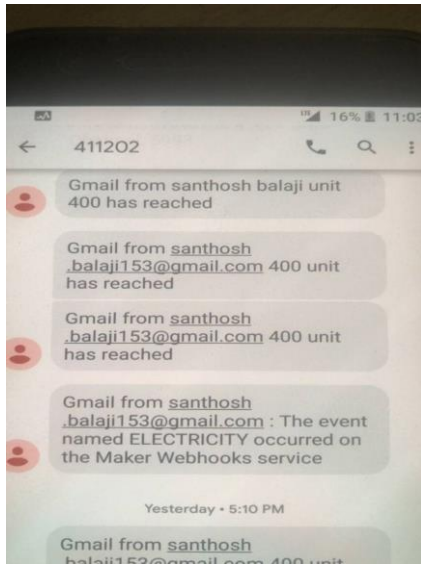

Fig: 3 Output for SMS Notification

Occasion name and API key. (Figure 4)The E-mail utilizing each end client gets the E-mail for when the electric units achieve the 400 unit.
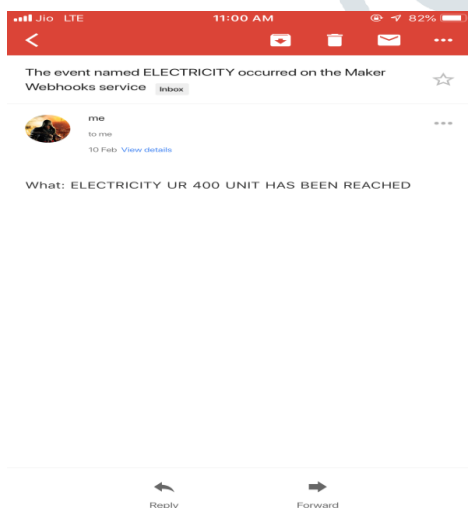

Fig:4 Output for E-Mail notification

CONCLUSION

In our proposed system reduced the electrical energy with help of receiving warning. End user receives the notice SMS and E-mail through IFTTT. Each and Every day receive the SMS for at a specific time period how much unit will be consumed the power energy in home appliance and other places. When the electric energy reach the 400 unit at the time current sensor read that the Analog value that will be send through the NodeMCU. The NodeMCU receive the Analog value then it sends a SMS and E-mail with help of IFTTT webhooks Applet successfully. The Analog value will be show in OLED show for every day specifically time period once show then it will send SMS with help of NodeMCU successfully.

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