

Supply Monitoring using IoT

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ABSTRACT

This paper describes the digitization of load energy usage readings, over the internet. The proposed system design eliminates the involvement of human in electricity maintenance. The user can monitor energy consumption in watts from a webpage by providing a channel for the load. The wi-fi unit performs IOT operations by sending energy data of the load to webpage and it can be operated by the relay of our hardware system so that we can monitor and control the load time to time. Here, we also use BLYNK app other than the hardware components through which the IOT module called NODE MCU is linked

KEYWORDS: Node MCU, IOT

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I. INTRODUCTION

IOT is one of the most convenient and effective way for monitoring of power consuming in our home at industries in order to reduce manpower and hence we come up with this process. User can monitor from a webpage by providing device IP address .Now what does our project do? When load is connected it continuously reads the power values consumed and display it on our mobile phone which is connected through BLYNK app by the IOT module and once it exceeds the power than expected the relay makes the load off and once it went to correct reading it again switches on. And hence it avoids high powers at any situation and this can be kept as a safety measure for protection

BLOCK DIAGRAM:

Arduino gets an input voltage and the load gets power supply . Arduino gets input from current sensor and gives it output to lcd display and relay again arduino gives them to IOT module thereby to our mobile through Blynk app

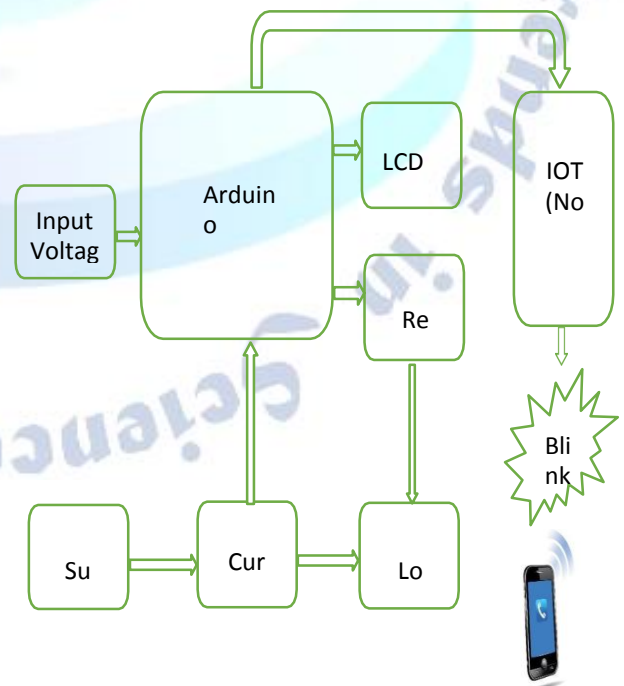


Fig: Block Diagram

II. HARDWARE COMPONENTS

ARDUINO UNO:

Arduino is considered as the brain of the project. It takes the input voltage of 5v DC and it takes input from the current sensor and gives it to LCD display, relay and IOT module. Here, we use arduino uno 328 microcontroller.

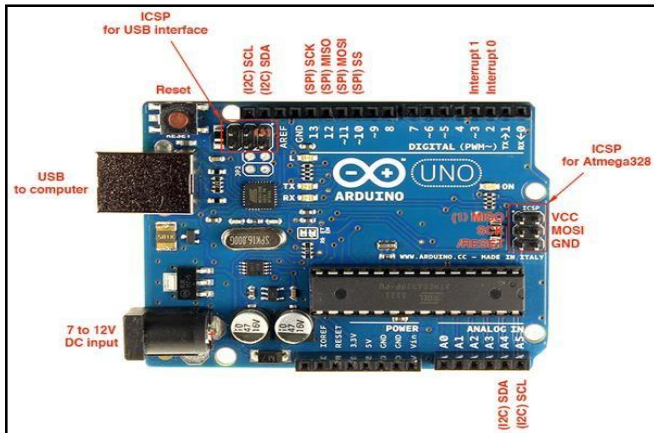


Fig:Arduino UNO Board

CURRENT SENSOR:

Current measurement is of vital importance in many power and instrumentation systems and it is mainly for circuit protection and control. Here we use ZHT103 current sensor which the major component of our project.

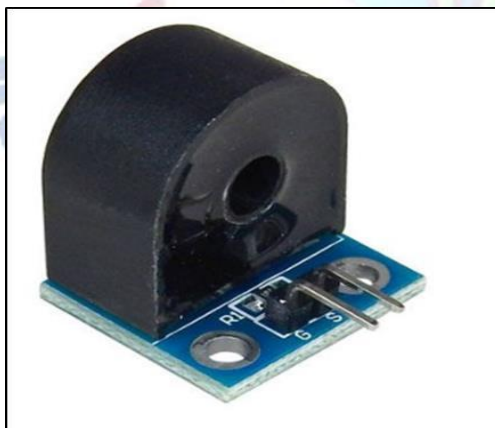


Fig:Current Sensor

NODE MCU:

This is the heart of our project and it is connected with the arduino. This acts as the bridge between hardware setup and our phone to which the webpage is linked with. It has a design based on the ESP-12 module of the ESP8266. Because of this component our project is said as an IOT based project.

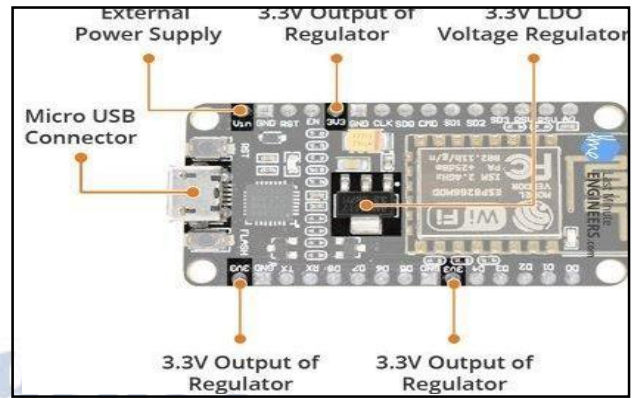


Fig:Node MCU

LCD DISPLAY:

Here we use 16*2 lcd display in order to show the amount of power consumed in load. It means this can display 16 characters in 2 lines. It gets the value of current sensor through the arduino as medium.

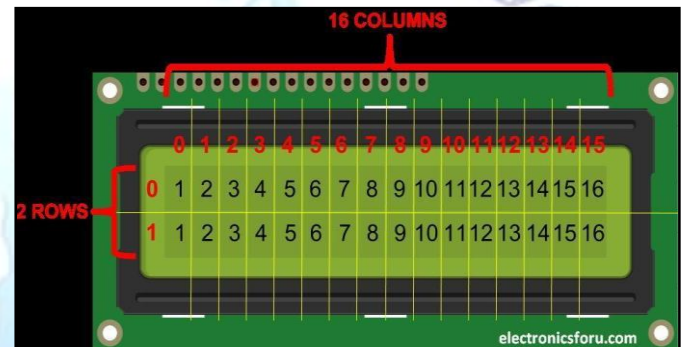


Fig:LCD Display

BLYNK APP:

This is the point where we get that information of power values though we are away from the hardware setup with the help of IOT. So that we can protect that load and system from damages.

RELAY:

This catches the pulse of system and control by on and off operations as soon as it received the exceeded value of the load even in the absence of human.



Fig: Relay

III. WORKING

When the load is connected to the setup our current sensor which has analog output feature can sense upto 0.3-5A starts sensing. And as already mentioned in program this current value is transferred to power values with respective formulae .And this value through ARDUINO UNO board goes to lcd display were the value is displayed, relay which enables the load in ON position unless the value exceed and IOT module through which the value can be seen our mobile and known.In display it is shown as "POWER CONSUMED".



Fig:Working Models

IV. APPLICATIONS

APPLICATIONS:

1. It is easy to monitor.
2. Avoids false readings.
3. We can get live reading .

V. CONCLUSION

It gives the live reading so that we can get instant values without any confusion and problem detection becomes easy.The human interface is avoided and all the values are kept maintained with us.It is user friendly.

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