# Instant Electrical Load Survey Using Bluetooth Module and Android App for Home/Industries

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**ABSTRACT**
This project deals with calculation of instant electrical load for industries or home. A microcontroller calculates the amount in rupees consumed by the loads as per the input given and displays it on a 16X2 LCD interfaced with the microcontroller. This project is powered by an on-board power supply that takes AC power and converts it into a DC power, which is fed to on-board devices and integrated circuits.

## 1. INTRODUCTION

In our project, we have decided to demonstrate a system which will have an Energy meter and an embedded system which will measure the load consumption with the help of load blinking LED on the Energy meter. The system will measure the number of LED blinks and display the units consumed and also calculate the power consumed by the load. Also, we have introduced a bill payment and status generation system in our project using which we can check the current units consumed and also the current bill summary. More so, we will have a settable timer which will demonstrate the end of billing cycle. The user can make payments with his android phone on pairing with the System and sending some commands via an Android App to pay the bill and also show the current units.

## I. SYSTEM DESIGN

- Energy Meter is used to calculate the amount of load consumed and accordingly the bill is generated.
- With the help of Bluetooth module and android app the bill of the load is monitored and with the help of android app we can pay the bill after every month.
- The programming of whole process is done on arduino uno because in the model timers are used.
- A voltage regulator is used to maintain the voltage of 5V.
- Led is used which blips and the number of blips are counted.
- LDR counts the blips of LED.
- Arduino uno is used.
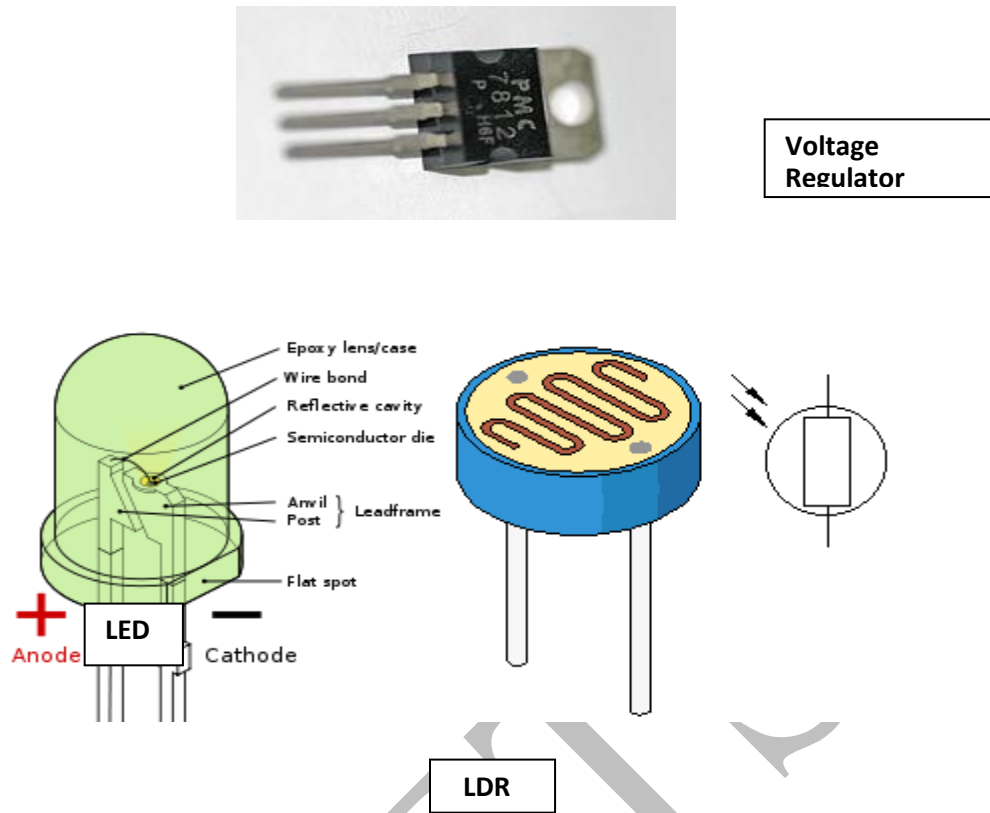- LCD displays the amount of load consumed and the units.

Voltage Regulator



LED

LDR

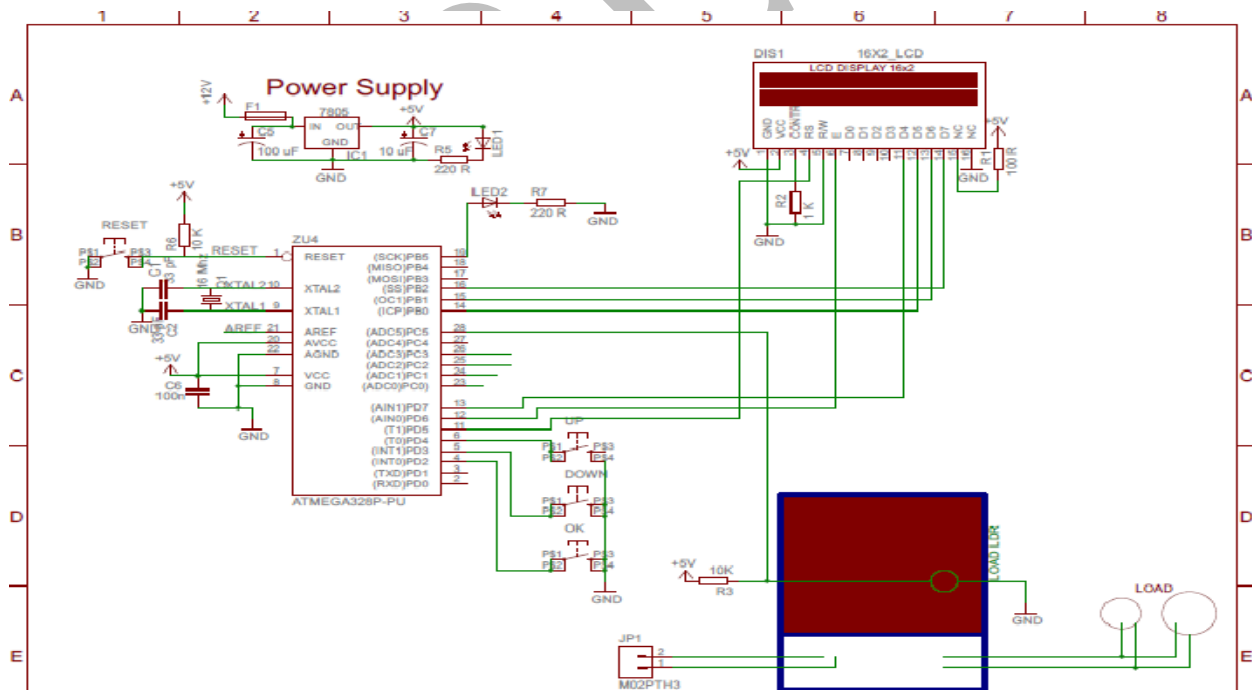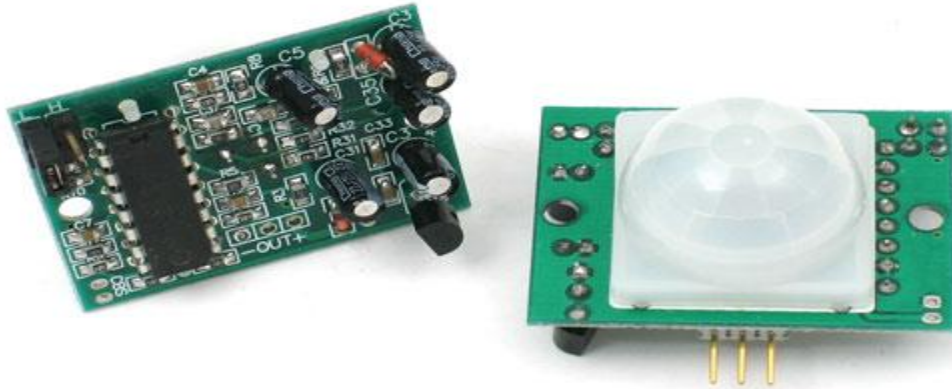**Fig.1.Block diagram of instant electrical load survey**



**Fig. 2. Circuit Diagram**

## II.    HARDWARE PARTS.



### 1.  LCD Screen

We use the lcd is total 16 pin  lcd but here we show only 14 pins of the lcd with detail., Last two pins of the lcd is connected to the back light. Some time they are internally connected and some time they are connected by the power supply.[7]

All the code data , mode option and password option is to be displayed on the lcd during processing.
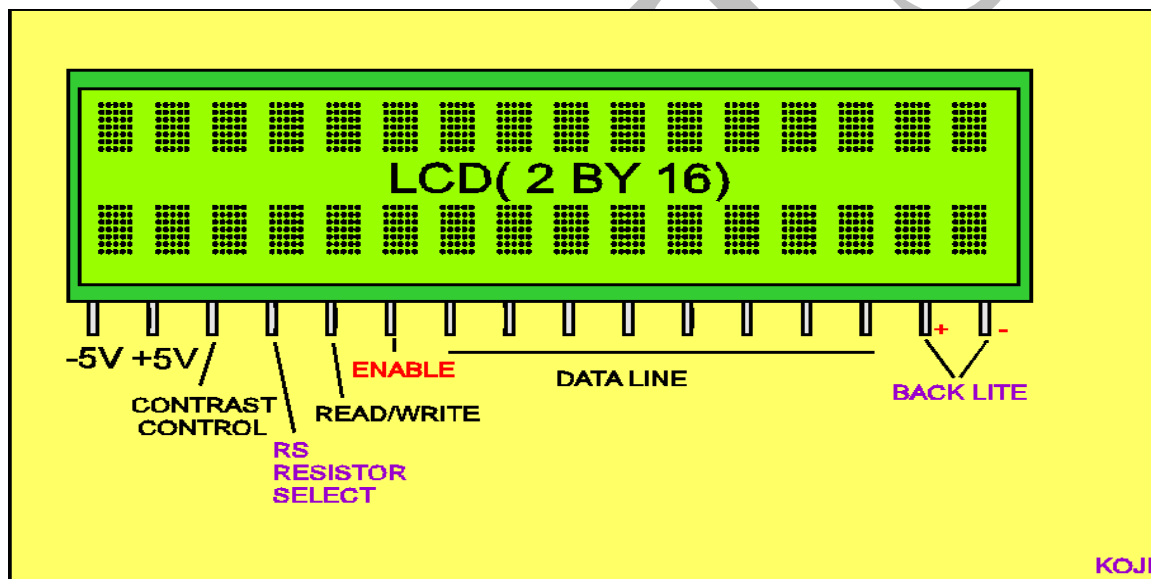


**Fig. 5. LCD Display**

## III.    FUTURE WORKS

Even though the prototype meets all the project specifications, and the device works as expected, there are still several ways to further improve upon it. We can further modify it by changing the Bluetooth module into WIFI which will be connected to your broadband and the bill can be paid electronically via online without any android specifications thereby being a time saving device. Further we can plan to display the amount of billing on n number of devices connected to the WIFI system to pay the bill via debit cards, net banking etc.

## IV.  CONCLUSION

In this paper, calculation of electricity bill is done by using Bluetooth module which is connected to the energy meter from where it calculates the amount of load consumed and generates the bill which can be paid

## REFERENCES:

1.  [Design and Implementation of an Embedded System for Ambulatory Cardiac Monitoring by El Mimouni El Hassan and Karim Mohammed.
2.  design and development of low cost microconoller based ecg system for realtime analysis by arpitchoudhary, mohit kumar, kundan kumar, rachana singh & sapnakatiyar
3.  A Battery Operated Portable Wireless Electrocardiograph: A Bluetooth Wireless and PC Based Design by Mukti Nath Gogoi , Riku  Chutia.
4.  Wireless ECG/EEG with the MSP430 Microcontroller by Tamas Hornos of University of Glasgow
5.   Wearable ECG Recording and Monitoring System based on MSP430 Microcontroller by Asifiqbal Thakor ,Prof. Rahul Kher and Dipak Patel.
6.  Design and Implementation of ECG Monitoring and Heart Rate Measurement System by Naazneen M. G., Sumaya Fathima, Syeda Husna Mohammadi, Sarah Iram L. Indikar, Abdul Saleem, Mohamed Jebran Department of Electronics & Communication Engineering, HKBKCE, VTU, Belgaum