ZIGBEE BASED ENERGY METER READING SYSTEM

AIM:

Design and Development of Zigbee based Energy Meter reading system.

PURPOSE:

Energy meter are widely used in power sector to know power consumption. But all power meters are static and they display reading on static display. Every time person should go and get readings. This has lot of manual work and time taking. To solve this kind of problems we come up with solution like zigbee based energy meter reading system.

DESCRIPTION:

This project includes Zigbee module (HC12), which is connected to Arduino through UART interface. Energy Meter pulse taken by LDR sensor which is connected to Arduino digital pins. Relay controls output load which is connected to Arduino digital pin.

WORKING:

In this project we can monitor energy meter readings through Zigbee. It has two parts one is transmitter which consists of Arduino, Energy meter and Zigbee. Other part is receiver which consists Zigbee and it's connected to PC (laptop) serial port. Energy meter gives pulses based on power consumption of load. Each pulse consider as unit. For each unit amount will increase. This information send to receiver side Zigbee and displaying on serial monitor. Also displaying n 16X2 LCD. We can control load from serial monitor.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
Zigbee Module	:	HC12 - 433MHZ or 2.4Ghz
Energy meter	:	230VAC
Relay	:	12V DC
Power Source	:	12v 2 DC Adaptor

SOFTWARE:

Arduino IDE

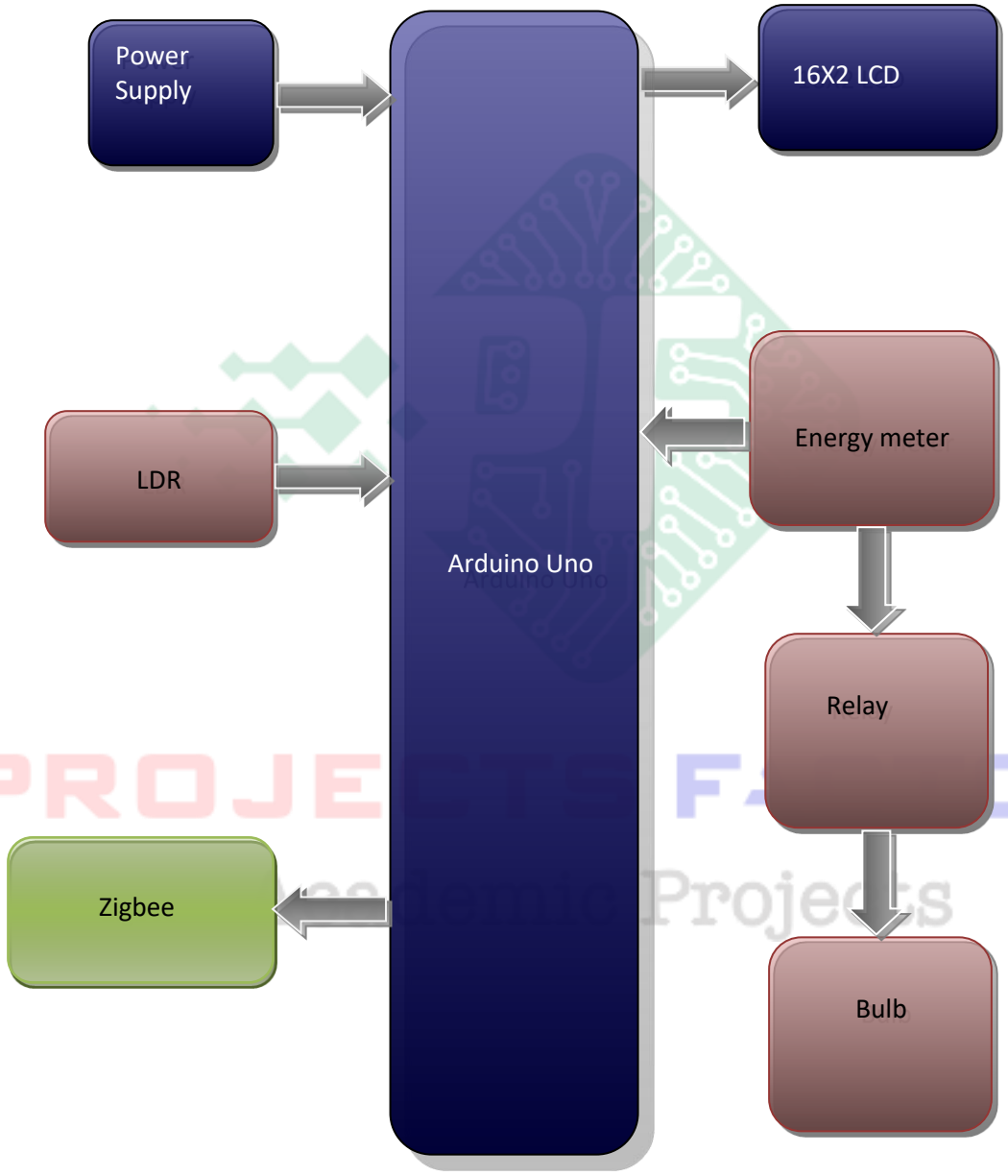
Proteus based circuit diagram

APPLICATIONS:

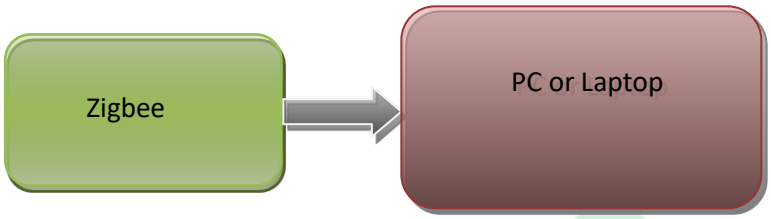
- Smart Meters
- Power meter billing applications

BLOCK DIAGRAM:

Transmitter:



Receiver:



POWER SUPPLY BLOCKDIAGRAM:

INTERFACES COVERD:

- We have covered Zigbee (433Mhz or 2.4Ghz – HC12) module interfacing
- Energy meter interfacing