

Automation of Energy Meter and Building A Network Using IoT

<https://www.youtube.com/watch?v=xQKf2uMvmOk>

The project aim is to design a smart energy meter using IOT. The loads have to switch ON/OFF depending on the type of operating mode.

In the present billing system, the distribution companies are unable to keep track of the changing maximum demand of consumers. The consumer is facing problems like receiving due bills for bills that have already been paid as well as poor reliability of electricity supply and quality even if bills are paid regularly. The remedy for all these problems is to keep track of the consumers load on timely basis, which will help to assure accurate billing, track maximum demand and to detect threshold value. These are all the features to be taken into account for designing an efficient energy billing system.

The controller of the whole project is Arduino. There are two modes of operation. One is Auto mode and manual mode. In auto mode, the devices get ON/OFF depending on the LDR and temperature sensors. When there is no light, the LDR senses that switches ON the light and when there is excess hotness in the surroundings, the fan gets ON. Soil moisture sensor-based auto water pump ON/OFF. Through Wi-Fi, we can get the device status and KWH ratings are displayed on Thingspeak. The device status is displayed on LCD.

The main objectives of the project:

1. To design a smart energy meter
2. To send data to thingspeak through wi-fi.
3. To use Arduino to achieve a task.

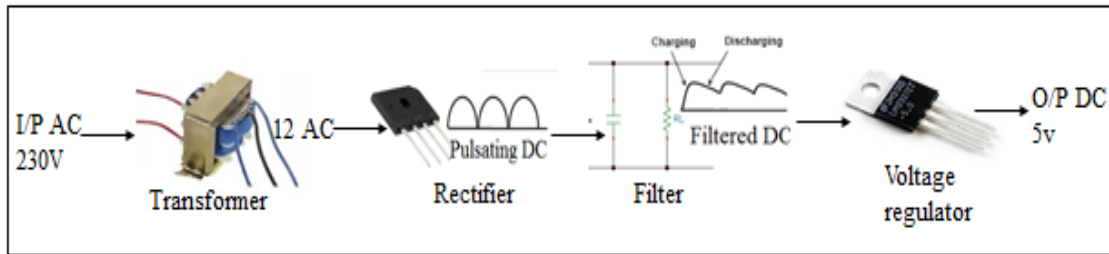
The major building blocks of this project are:

1. Regulated Power Supply.
2. Arduino
3. Optocoupler.
4. Energy meter.
5. Relays.
6. Wi-fi module.
7. Loads.
8. LED indicators.
9. LDR
10. Temperature sensor
11. LCD
12. DC Fan
13. Light.
14. Relays.
15. AC motor.

Software's used:

1. Arduino IDE compiler for Embedded C programming.
2. Express SCH for Circuit design.
3. Thingspeak.

Regulated Power Supply:



Block diagram:

