

Power Meter Design

<https://www.youtube.com/watch?v=LD9HVVhbmMM>

The project aims in designing a system which helps in continuous monitoring of the Domestic Energy meter readings using microcontroller. In this project energy meter, optocoupler and LCD with microcontroller are used.

The design of this system is very much sensitive and should be handled with utmost care because the microcontroller is a 5 volts device and it is employed to monitor the house hold power consumption per day where it should be interfaced with a 230 volts Energy meter. So every small parameter should be given high importance while designing the interfacing circuit between the controller and the Energy meter.

The controlling device of the whole project is a Microcontroller. Energy meter, Optocoupler, LCD display is interfaced to the Microcontroller. Energy meter continuously feeds the meter readings to the Microcontroller through an optically isolated device (Optocoupler) and stores this information in its permanent storage. This information or energy meter readings are displayed on LCD display.

Objectives:

- ☐ To design and develop a microcontroller-based energy meter monitoring system.
- ☐ To continuously acquire energy meter readings using an optocoupler interface.
- ☐ To provide electrical isolation between the energy meter and the microcontroller for safe operation.
- ☐ To store the energy consumption data in the microcontroller's permanent memory.

- To display real-time energy meter readings on an LCD display.

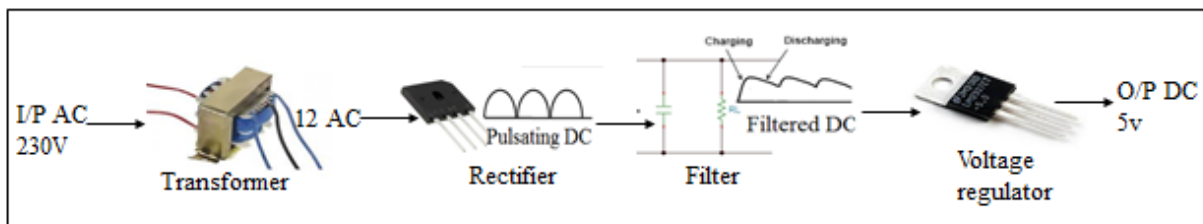
The major building blocks of this project are:

1. Regulated Power Supply.
2. PIC Microcontroller.
3. Energy Meter.
4. Optocoupler.
5. LCD display with driver.
6. Reset.
7. Crystal oscillator.
8. LED indicators.

Software's used:

1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.

Regulated Power Supply:



Block Diagram:

