ENERGY METER PER HOUR AVERAGE MAX AND MIN LOAD DISPLAY ON LCD

Now days there is rapid increase in the power consumption, which has given rise to the scarcity in the power generation. There should be an immediate change in this situation are else the results cannot be even imagined. This not only results in scarcity but also imposes burden on the common man. This problem can be solved by monitoring the average power consumption with max and min load which can help the user to monitor the health status of his load devices as well as to have a control over the power being consumed daily. This system also helps Transco department to impose tax if the average power consumption per hour is more than the prescribed level by which we can control the consumer from wasting the power.

So our aim in designing this device is to fulfill the multiple purposes of the consumer and finally impart a control over the power consumption so that there will not be any hazardous results in the near future due to the power scarcity. The device input and output modules are controlled with help of a micro controller, which can be termed as a control unit for the entire system. The energy meter is interfaced to the microcontroller with the help of an interfacing circuit. This interfacing circuit is something similar to a counter, which is capable of counting the pulses with respect to the power consumed by the user. The microcontroller takes the responsibility to count these pulses and derive the equivalent average, Min and Max loads for that hour duration. The amount of power consumed is displayed on this LCD. In addition to this the controller is also interfaced with few LED indicators.

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 household power consumption per hour where it should be interfaced with a 240 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 major advantage of this system is its reliability to operate and a user-friendly output.

This project provides us with the learning's on the fallowing aspects:

1. Interfacing Energy Meter with Microcontroller.
2. Counter module implementation.
3. LED and Buzzer Interfacing.
4. LCD Display Interfacing.
5. Embedded C program for controller.
6. PCB layout design.

The major building blocks of this project are:

1. Regulated power supply with voltage regulator.
2. Energy meter.
3. Microcontroller.
4. LCD.
5. LED indicators.
6. Buzzer.

Block Diagram:

Energy meter per day average, max and min load display on graphical LCD