

## Talking Energy Meter

The purpose of this project is to build a KWH (Kilo Watt Hour) meter that can alert the users with voice messages. An Energy meter or KWH meter is a device that measures the amount of electrical energy supplied to or produced by a residence, business or machine. Electricity is a clean, convenient way to deliver energy. The electricity meter is how electricity providers measure billable services.

The most common type of meter measures kilowatt-hours. When used in electricity retailing, the utilities record the values measured by these meters to generate an invoice for the electricity. They may also record other variables including the time when the electricity was used.

The idea behind this project is to construct the Energy Meter that is useful for illiterates and the busy people who cannot concentrate on the energy meter readings because of their busy schedule. This system helps the users by alerting them about the peak loads (max energy consumption), power status (ON/OFF), billing status etc. The voice alerts could be in any local language. Hence this system can be used across the world. The typical voice alerts are “Over load”, “Pay electricity bill”, “Turn off the lights” etc.

This system also consists of a LCD display that continuously displays the energy meter readings in real-time. This consists of Real-time clock for calculating the average, max and minimum readings with respect to time. This information is display on a LCD display.

This can be achieved by the use of microcontroller unit that continuously monitors and records the Energy Meter readings in its permanent (non-volatile EEPROM) memory location. Microcontroller also drives the voice module to play the voice messages based on the energy meter readings.

This system also implemented for a single push button based load control for turning ON or OFF the loads.

**The major building blocks of this project are:**

1. Microcontroller based control system with regulated power supply.
2. Voice Module for storing and playback of messages.
3. LCD display to display the Energy meter readings.
4. Real-time clock for display of time.
5. Digital Energy Meter.
6. Electromagnetic Relay to disconnect the power supply with single push button.
7. Relay driver.

**Advantages of talking energy meter:**

1. This energy meter alerts the user in case of over usage of electricity.
2. Announces the power supply status. This is very useful for blind people too.
3. Announces about the bill payments.
4. This can be customized to any language. As we need to store the voice message before using this.
5. Very helpful for illiterate people. They can know the bill and meter reading-using announcement without taking help from literates.

**Block Diagram:**

