

Data logger for energy meter with time and KWH Readings

Data logging is the mechanism of storing data received from a transmitting module. The main purpose of data logging is to avoid the loss of data. The purpose of this project is to log the energy meter readings to the permanent memory location. The data is sensed using electrical sensor and processed by micro controller. The processed data is stored in MMC memory stick connected to the micro controller board this data can be downloaded to the computer for further processing.

The MMC is an acronym for Multimedia memory card, which is a storage device with some memory. The device is designed such that the sensor will be connected to the input of the Microcontroller. This sensor will sense the electrical data and sends to the control unit; the control unit writes this data into the memory card. The data written into the memory card can be transmitted to the Personal computer. For this the control unit has to access the MMC card and read the data and sends the same to the PC.

Micro controller forms the controlling module and it is the heart of the device. The controller can be operated in two modes depending on the user input. In order to interact with the user the controller is provided with few control buttons. The controller takes the input from the user and depending on that it either operates in write mode or read mode. In write mode it writes the data into the MMC card, while in the read mode it reads the data from the memory card. It also makes use of one more control button to format the data in the memory card.

The major features of this project are:

1. 2 GB Memory available for storing the data.
2. Electrical data logger.

This project provides us learning's on the following advancements:

1. SPI protocol implementation.
2. Initializing ADC module.
3. Accessing the MMC card.
4. Interfacing electrical sensor with the micro controller.
5. Real time Clock.
6. Embedded C programming.
7. PCB design.

The major building blocks of this project are:

1. Regulated Power Supply.
2. Electrical Energy Meter.
3. Memory Card Interfacing Circuitry.
4. Micro controller.
5. Personal Computer.
6. LCD Display to display the real time wattage readings.
7. LED indicators.
8. Real time Clock.
9. Buzzer.

Block diagram:

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