

Energy Meter monitoring and control system using SMS technology

The purpose of this project is to design a system which helps in remote monitoring and control of the Domestic Energy meter through simply sending an SMS. This system enables the Electricity Department to read the meter readings regularly without the person visiting each house. This can be achieved by the use of Microcontroller unit that continuously monitors and records the Energy Meter readings in its permanent (non-volatile) memory location. This system also makes use of a GSM modem for remote monitoring and control of Energy Meter.

The modules in the project are: GSM modem for establishing communication between system at house and electricity department, Energy meter which continuously gives usage details, LCD to display current reading of meter, Relay to disconnect the power in case of nonpayment of bill.

The Microcontroller based system continuously records the readings and the live meter reading and will be sent to the Electricity department on request. This system also can be used to disconnect the power supply to the house in case of non-payment of electricity bills. A dedicated GSM modem with SIM card is required for each energy meter. The Microcontroller which acts as a controlling unit of the whole system is loaded with intelligent software programmed using Embedded C language.

Features:

1. Provides user friendly remote energy meter monitoring.
2. Supports controlling of meter.
3. Can be controlled anywhere in the world.
4. Non-volatile memory based energy-reading storing.
5. Auto disconnect feature.

The project provides the following learning's:

1. Energy meter interfacing to Microcontroller.
2. Relay working principle.
3. GSM modem interfacing to Microcontroller.
4. Embedded C programming.
5. PCB designing.

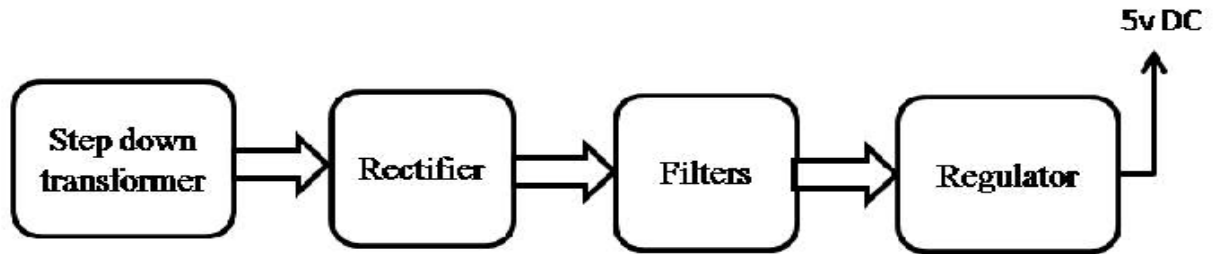
The major building blocks of this project are:

1. Regulated Power Supply.
2. Microcontroller.
3. GSM Modem.
4. Relay with driver.
5. Digital Energy Meter.
6. Optocoupler.
7. LCD display with driver.
8. Crystal oscillator.
9. Reset.
10. 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.
4. Proteus for hardware simulation.

Regulated Power Supply:



Block Diagram:

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