E-CHALLAN BILLING SYSTEM USING GSM

A GSM modem provides the communication interface. It transports device protocols transparently over the network through a serial interface. A GSM modem is a wireless modem that works with a GSM wireless network. This GSM Modem can accept any GSM network operator SIM card and act just like a mobile phone with its own unique phone number. Advantage of using this modem will be that you can use its RS232 port to communicate and develop embedded applications. Applications like SMS Control, data transfer, remote control and logging can be developed easily. The modem can either be connected to PC serial port directly or to any microcontroller.

Due to the drastic changes in technology in the last decade, so many advancements were introduced in electricity departments. The present system is like, a person from electricity department has to go to each and every house to take the readings from the digital meter and present these details to the billing department and after all their processing, they generate a bill and another person comes and gives the electricity bill to us and finally we have pay the bill.

To eliminate this long process and to make the work easy and also make the system totally an automated one, we have designed this project. Since the meter that reads the number of consumed units is actually a digital meter, it contains a controlling unit in it. To this unit, a GSM modem will be interfaced. Whenever the electricity department wants to generate the power bill for a month , it sends a predefined message to the GSM modem. This system containing the energy meter calculates the power consumed by the house and sends the total number of units consumed and the amount to be paid for the consumed units, for a month, to the electricity department and also to the user. The user has to pay the bill within the due date. If the user did not pay the amount within the due date, the electricity department sends a predefined message to the system containing the energy meter. Thus, this system shuts down

completely and the user cannot use the power from the energy meter until he clears the bill amount. A16x2 LCD is also provided to display the status of the device.

This project uses regulated 5V, 500mA power supply. . Unregulated 12V DC is used for relay. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac output of secondary of 230/12V step down transformer.

TECHNICAL SPECIFICATIONS:

HARDWARE:

- Micro controller : AT89x series
- Crystal : 11.0592 MHz
- GSM modem
- Load
- Relay
- LCD : HD44780
- Energy meter

Power supply

- Transformer : 12V step down
- Filter : 1000uf/25V
- Voltage Regulator : 7805

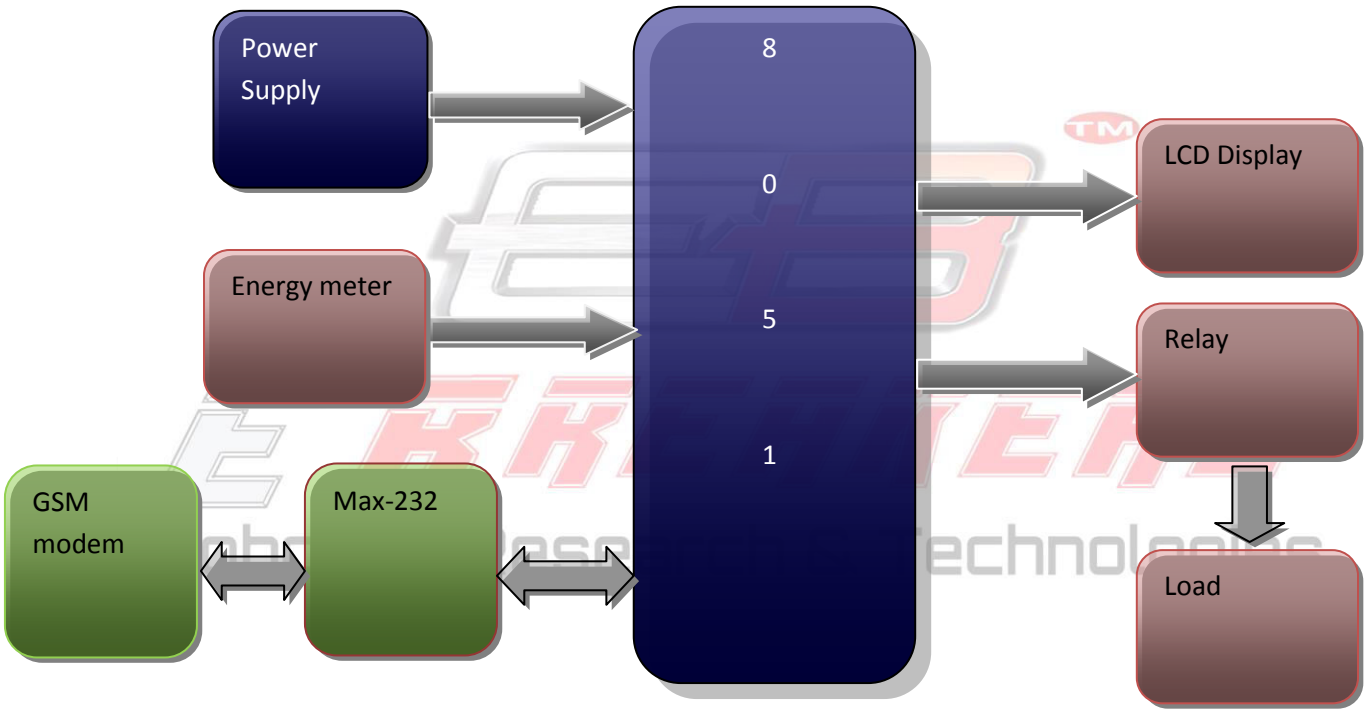
SOFTWARE:

- Keil IDE
- UC flash
- Proteus

APPLICATIONS:

- Industrial applications
- Automatic control systems
- Household applications

BLOCK DIAGRAM:



POWER SUPPLY BLOCKDIAGRAM: