PREPAID ENERGY METER USING SMART CARD

ABSTRACT

In general, a smart card is an integrated circuit card with memory capable of making decisions. A smart card, chip card or integrated circuit card (ICC), is defined as any pocket-sized card with embedded integrated circuits which can process information. In this project, we are using a contact smart card where the information inside the card is communicated with the card reader by inserting card into the card reader. The card reader in this project used is an SR-90 SDK of 1KB memory size.

This project is built on 8051 micro controller, which is interfaced with a smart card reader through serial communication. The concept of the project is to replace the conventional post paid energy meter system with the prepaid energy meter system like the mobile phone prepaid connection. To accomplish this we use smart cards which are issued by the electricity department to individual users, the card is unique with a code in it and an amount of user flexible recharge. When the user wants to use the system he needs to insert the card into the reader, then the unique code inside the card is recognized by the reader, and starts deducting the amount as per the quantized unit charge, when the usage completes the amount present in the account then the energy meter stops power supply to the user. An LCD is interfaced to the project to display the status of the system.

In this project 7805 is a regulator and it avoids noise spikes in power supply. Smart card reader is connected microcontroller through serial port. These smart card readers works under 9600 or 4800 baud rates. 16X2 LCD connected to microcontroller through digital I/O lines.
APPLICATIONS:

- Electricity departments
- Homes
- Commercial
- Domestic
- Industrials
- Offices
- Corporate organizations

BLOCK DIAGRAM:
POWER SUPPLY BLOCK DIAGRAM:

Step down Transformer ➔ Bridge Rectifier ➔ Filter ➔ Regulator ➔ Output