

# Power Theft Identifier

Shekhar Y Khot<sup>1</sup> Dr. Hari Kumar Naidu<sup>2</sup> Prof. Pratik Gutke<sup>3</sup> ABC<sup>4</sup> ABC<sup>5</sup>

<sup>1</sup>M.Tech Student <sup>2</sup>Professor <sup>3</sup>Assistant Professor

<sup>2,3</sup>Department of Electrical Engineering

<sup>1,2,3</sup>XYZ, India

**Abstract**— The Power Theft Identifier introduces the concept of preventing the illegal usage of the electrical power. GSM modem used for interfacing between mobile and microcontroller (89S52). It acts as transmitter and receiver. It receives command and transmits internal reading to the state electricity board officer by using GSM modem. When there is difference between internal reading and energy meter reading, Electricity officer identify that theft is being occurring. Electricity board officer takes action by sending OFF command to cut off the power supply.

**Key words:** Power Theft Identifier

## I. INTRODUCTION

GSM and GPRS based Designs have developed another innovative and public utility product for mass communication .The purpose of this project is to remote monitoring and control of the Domestic Energy meter. 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 micro controller 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 Microcontroller based system continuously records the readings and the live meter reading can 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 main aim of the project will be to design a SMS electronic ENERGY METER toolkit which can replace the traditional ENERGY METER. The toolkit send SMS to Electricity Department number, the system is made efficient by SIMs so that the SMS can be received by number of devices boards in a locality using techniques of time division multiple access.

The main components of the toolkit include microcontroller, GSM modem. These components are integrated with the device board and thus incorporate the Wireless features. The GSM modem receives the SMS. The AT commands are serially transferred to the modem. In return the modem transmits the stored message through the wireless link. The microcontroller used in this case is ATMEL AT89S52. SIMCOM 300 is used as the GSM modem. In this prototype model, LCD display is used for simulation purpose. The results presented in the thesis support the proper functionalities and working of the system. The timing diagram suggests the response of the modem to various AT (attention) commands

Electricity use in different sector

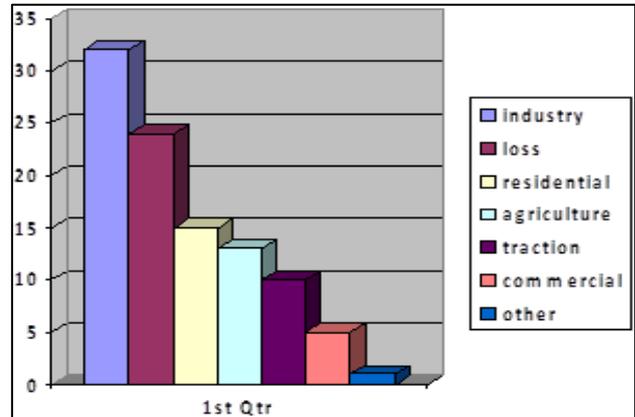


Fig. 1:

GSM (Global System for Mobile communications: originally from GROUPE Special Mobile) is the most popular standard for mobile phones in the world. Its promoter, the GSM Association, estimates that 80% of the global mobile market uses the standard. GSM is used by over 3 billion people across more than 212 countries. Its ubiquity makes international roaming very common between mobile phone operators enabling subscribers to use their phones in many parts of the world. GSM differs from its predecessors in that both signaling and speech channels are digital, and thus is considered a second generation (2G) mobile phone system. This has also meant that data communication was easy to build into the system.

GSM is a complex system and difficult to understand. The Mobile Station (MS) refers to the mobile equipment. The Base Station Subsystem controls the radio link with the Mobile Station. The Network Subsystem performs main functions such as switching of calls between mobile users, mobility management operations, and proper operation and setup of a network. These functions are controlled by the Mobile Services Switching Center (MSC).

## II. CAUSES OF DISTRIBUTION POWER LOSSES

- Power theft  
Defined as a conscience attempt by a person to reduce or eliminate the amount of money he or she will owe the utility for electric energy.
- Illegal Connection
- Meter related problems Meter bypass/ tamper Wrong readings "U- TOUCH" High meter position Faulty meter , meter ratings Over aged meters Incorrect C.T. multiplying factor Meter Transfers
- Billing Problems
- Premises connected but a/cs not set up in System.
- Wrong classification
- Under keying of meter reading
- Customers with zero readings
- Over clocked meter readings
- Un metered/flat rate supplies

- Under estimation
- Unpaid bills

### III. AIM & OBJECTIVE

The proposed project work aims on the design and development of energy theft prevention aspect. The concept of this project to prevent the illegal usage of electrical power this system would provide a simple way to detect an electrical power theft without any human interface.

### IV. SCOPE OF WORK

In this project, liquid crystal display is used for displaying the message; and also use GSM modem (Motorola W220) as an interface between mobile and microcontroller. It will send message to any phone irrespective of the GSM network through the modem connected to the programmable device.



Fig. 2:

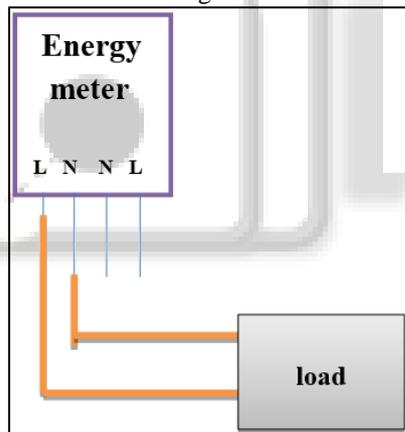


Fig. 3:

### V. METHODOLOGY

The method used to carry out this project is the principle of serial communication in collaboration with embedded systems. analog energy meter shows load reading while microcontroller kit with GSM modem reads actual reading where theft taken into account and that reading will be send by SMS to EB officer . The latest technology used for communication between the mobile and the embedded devices.

System will work like when the user wants to receive a SMS on the energy consumption in houses and offices; the modem sent a message through the subscriber identity module (SIM) which is inserted in the display system MODEM.

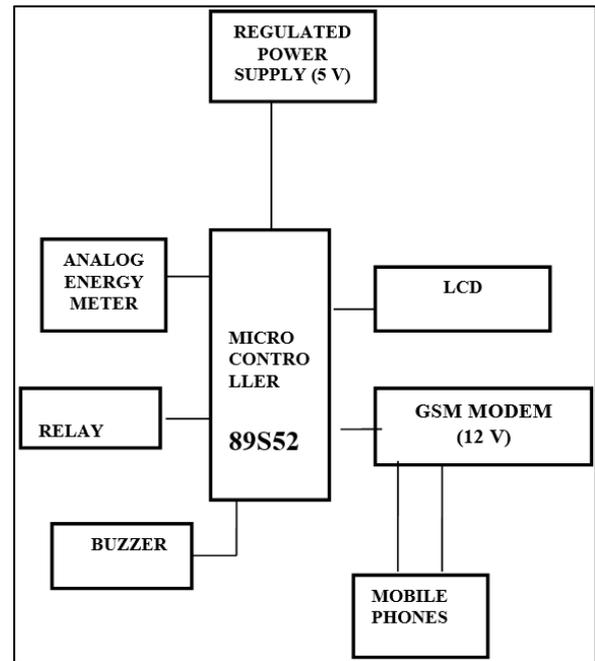


Fig. 4: Block Diagram of Microcontroller Interfacing

### VI. RESULT & CONCLUSION

The hardware model was tested and found to work satisfactory for detecting theft in the energy meter.

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