A Review on: GSM Based Electricity Theft Detection System

Chaitali P. Bidkar
(chaitalibidkar2@gmail.com)

Pallavi R. Devale
(pallavidevale123@gmail.com)

Pooja D. Gawali
(poojagawali96@gmail.com)

Mayuri M. Bhond
(mayuribhond22@gmail.com)

Roshan S. Bawane
(roshannacho12@gmail.com)
UG Students, Suresh Deshmukh College Of Engineering, Selukate (Wardha)
(Electronics Engineering)

Abstract-This paper presents a detection of power theft in every houses and in industry for different methods of theft. Electrical energy is very imperative for everyday life and a spine for the industry. With technical view, "Power Theft" is a non- ignorable crime that is highly prevalent and at the same time it directly affects the economy of a nation. The objective of this project is to design a system in order to avoid the displeasure for the users from theft bill irrespective of the use of the electricity due to theft using GSM module. Here wireless method is used to find out the electric theft. In order to integrate the various parts together. The proposal in this paper is to monitor the power consumed by a model organization such a household consumer from a centrally located point. Monitoring the power means calculating the power consumed exactly by the user at a given time. The power consumed by the user is measured and communicated to the controlling sub-station whenever needed by the person at the sub-station. In this system we are looking forward to implement temperature sensor to avoid the short circuit in the system.

Keywords- *GSM modem, digital energy meter, microcontroller ATmega16(AVR)*

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1. Introduction

Power theft is the biggest problem in recent days which causes lot of loss to electricity boards. In countries like India, the situations are more often, if we can prevent these thefts we can save lot of power. Electrical power theft detection system is used to detect an unauthorized tapping on distribution lines. Implementation part of this system is a distribution network of electrical power supply system. Theft also may occur by rewiring circuits to avoid an electric meter, or by tapping into another customer's electrical lines. This will provide an additional facility of wireless meter reading with the same technique and in same cost. We propose an electricity theft detection system to detect the theft which is made by the most common way of doing the theft and that is bypassingthe meter using a piece of wire, people simply bypasses the electricity meter which is counting the current units by placing a wire before and after the meter reading unit Electricity theft is at the center of focus all over the world, but electricity theft in India has a significant effect on the Indian economy. Electricity power theft takes place in a variety of forms and thrives with the support of people from different walks of life: utility staff, consumers, labor union leader, political leaders, bureaucrats and high level utility officials. The proposed system will be hidden in such meter and as soon as an attempt is made for the theft, it will send an message to control unit of electricity board. This will protect distribution network from power theft done by meter tampering, tapping etc.

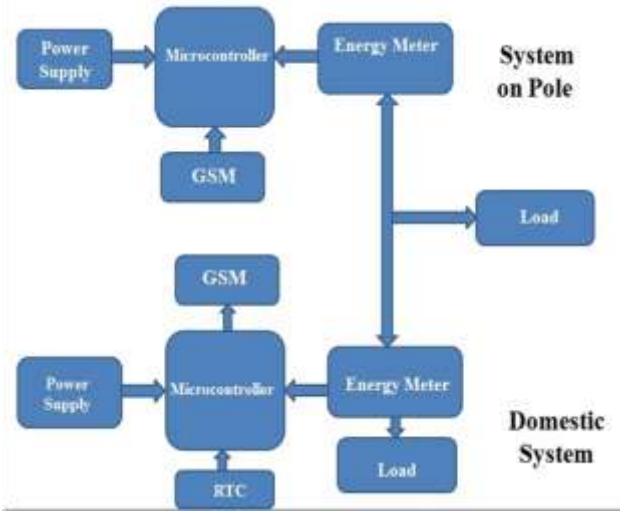
2. Literature Review

In this paper, [1] G. L. Prashanthi, K. V. Prasad had proposed with GSM modules helps company to monitor the amount of usage by this specified costumer and generate bill periodically and send it to costumer via SMS, thus saving lot of labor work, time and cost of reading .The proposed found to be little bit complex as far as distribution network is concerned, but it's an automated system of theft detection. It saves time as well as help to maximize profit margin for utility company working in electrical distribution network.

In this paper,[2] S.Anusha, M.Madhavi,R.Hemalatha had done the project model to reduces the manual manipulation work and theft. Use of GSM in our system provides a numerous advantages of wireless network system. The government saves money by the control of theft in energy meter and also more beneficial for customer side and the government side. The metering IC ensures the accurate and reliable measurement of power consumed. Cost wise low when compared to other energy meter without automatic meter reading and theft control.

In this paper,[3] Kalaivani. R, Gowthami. M, Savitha.S, Mohanvel.S had done the system, in which service provider can collect the bill any time with a single message. The data collection and manipulation task becomes fast and easier. Any modification can be made to the code in less time. Changes in rate or unit calculation can be done very effectively. The project model reduces the manual manipulation work and theft. Use of GSM in our system provide the numerous advantages of wireless network systems. The metering IC ensure the accurate and reliable measurement of power consumed. Hence we are trying to manipulate cost wise low when compared to other energy meter without automatic meter reading and theft control.

3. Proposed Methodology



Consider a distribution system shown in block diagram. Two single phase loads are supplied from two different phases. There are two energy metersthat measure power consumed by these loads over a period. Pole based system have been installed to detect power theft. Meter is installed on load side to measure a power consumed by load over a time. Also it has an additional feature of transmitting that data to receiver using wireless technique. One energy meter is installed in a pole based system. This meter is capable to measure a power sent over each line connected to that pole. It consists of Wireless data receiver, Micro-controller, Digital energy meter. Digital energy meter will measure power sent over each line for a certain time period. The same data transmitter installed in a load side energy meter is used for wireless meter reading. This system of wireless meter reading is based on the same principle of wireless data transmission that is used in power theft detection. Utility company personnel will have a device consists of wireless data receiver with microcontroller and display.

1. Power Supply

The input to the circuit is applied from the regulated power supply.

2.GSM Modem

TheGSM modem is a specialized type of modem which accepts a SIM card operates on a subscriber's mobile number over a network, just like a cellular phone. It is a cell phone without display.

3. Microcontroller

Microcontroller has an input device in order to get the input and an output device such as LED or LCD display to exhibit the final process

4. Conclusion

In this paper we are going to proposed GSM based Electricity theft detection system. The system would provide a simple way to detect an electrical power theft without any human interface. This project can be implemented and validated in remote areas. In this system we are looking forward to implement temperature sensor to avoid the short circuit in the system.

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