

SYSTEM FOR BURGLARY AND TAMPER PREVENTION IN DISTRIBUTION OF ELECTRICITY

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Abstract-Electrical energy is very important for ever day life and a spine for the industry. Electricity is indisciplined to our daily life with increasing need of electricity the power theft is also increasing power theft is a problem that continues to plague power sector across the whole country the objective of this project is to design a system in order to avoid the displeasure for the users from theft using GSM module. A brief study is done on the components and the technology which we are going to use in our project.[1]. This paper deals with automatic meter reading theft detection system in energy meter. Current transformer is used to measure total power consumption for the house and industrial purpose. This system will be helpful for the electricity board to monitor the entire supply and the correct billing accordingly without any unfortunate. This model reduces the manual manipulation work [2].

INDEX TERMS- GSM MODEM, DIGITAL ENERGY METER, PC INTERFACE, MICROCONTROLLER

I. INTRODUCTION

The electricity is needed to be protected for efficient power delivery to the consumer because electricity is indispensable to domestic and industrial development activity. There are two types of losses technical and Nontechnical losses. Every year the electricity companies face the line losses at an average 20-30%. T&D losses have been a concern for the Indian electricity sector. Since these have been very high when compared with other developed countries. The present T&D losses including unaccounted energy are about 30% and there is need to reduce these losses through efficient management the best operation and maintenance practice of the transmission and distribution. When we talk about T&D losses it also includes the theft of electricity, although it is the part of commercial loss but there is no way to segregate theft from the T&D losses. In practice, we know the energy billed and the input energy the difference between these two is T&D losses obviously the theft is included in this loss. 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 [1] The theft of the electricity is measure concern of transmission and distribution losses in the supply of the electricity worldwide [3]

II. LITERATURE SURVEY

In et al [1] S. S. R Depuru, Electricity can be produced through many ways which is then synchronized on a main grid for usage. The main issue for which we have written this survey paper is losses in electrical system. In et al [2] M.V.Ramesh This design incorporates effective solutions for problems faced by India's electricity distribution system such as power theft and transmission line fault. In et al [3] ZHOU Wei, electricity-stealing prevention became a big problem to the electricity board. Based on the kind of electricity-stealing and actual demand of prevention of stealing electricity, realizes the behavior of electricity-stealing with remote monitoring. In et al [4] H.G.Rodney, this paper presents of design and development of Automatic meter reading (AMR) system. AMR system is a boom for remote monitoring and control domestic energy meter. In et al [5] Amin S. Mahmoud, This paper deals with automatic meter reading and theft control system in energy meter.

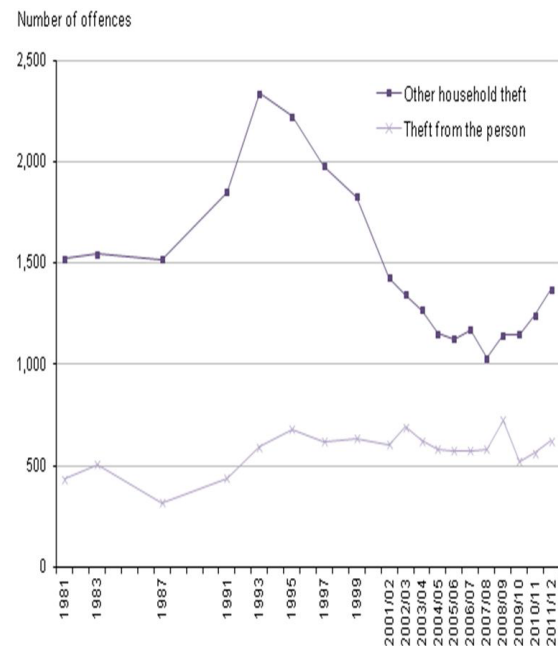


Figure 1: statistics of electricity theft in India Electricity power theft takes place in a variety of forms and thrives with the support of people from different walks of life: utility staff, consumers, labour union leader, political leaders, bureaucrats and high level utility officials. The problem challenging power utilities worldwide is the electricity, in other words using

electricity from utility company without the company's consent [1].

III. PROPOSED SYSTEM

The power theft monitoring is an important research in electric power system and electricity stealing prevention became a big problem to the electricity. Electricity stealing is a long term problem; however each power supply department has me huge investments of manpower and material, the phenomenon of defending stealing electricity has increased and not abated and the method of electricity stealing is continuously improved. The behaviour of electricity stealing not only makes the power industry suffering huge financial losses but also threatens the main power supply security and reliability [1].

IV. AUTOMATIC METER READING

Automatic meter reading is to increase the accuracy reading and theft control system for customer and government. In the proposed method GSM technology used to transmit the meter reading to the customer and government with the required cost [5].

V. STEALING

The metering of electric energy meter is mainly according to the relationship with voltage, electric current and power factor angle. The behaviour of electricity stealing not only makes the power industry suffering huge financial losses but also threatens the main power supply security and reliability. According to the analysis, there are many electricity stealing trick about electric energy meter, the methods could be approximately divided into under voltage, under current, phase shifted and difference expansion to their principle[1]. We consider the problem of estimating the non technical losses(NTL) in a branch of distribution network consisting of a distribution transformer(DT) connected to a substation.[4]. Smart proposed distribution system to detect illegal electricity consumption , GSM based smart energy meter and a database installed at a station at a central station this helps in theft detection , billing and management purpose the energy delivered by a distribution transformer will be measured by GSM based smear energy meter.[5]

VI. BLOCK DIAGRAM

Current transform sense the current from MSEB. It senses the high voltage current to prevent the bypassing. CT is placed on main line and output is given to home/load and the output of the CT is provided to ADC input of the microcontroller. The output of the CT is analog signal but microcontroller work on the digital data hence we use the ADC 0808 to convert analog to digital conversion. ADC interfaces between microcontroller and CT.

We are providing or putting some program in microcontroller .The microcontroller checks the data and calculate the energy consumption by counting the energy pulses of energy meter and it display on LCD. The energy units consumed is continuously displayed on LCD display. As well as this data is send to GSM module by using MAX 232. MAX 232 establishing a serial communication between microcontroller and GSM module. To detect weather any kind of illegal load is connected to the distribution transformer, energy consumed by all the consumers in a specified interval will sum up and compared with energy delivered by that transformer in that specified interval. any diff found between both value will indicate the energy theft in that particular area

[5]. This paper is aimed to creating a design that will regulate the listed problem as well as increase revenue collection by payment by SMS [6]

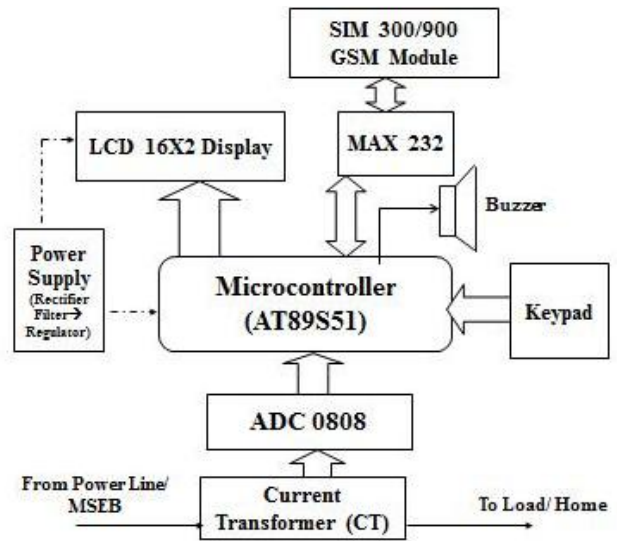


Fig 1: Block Diagram

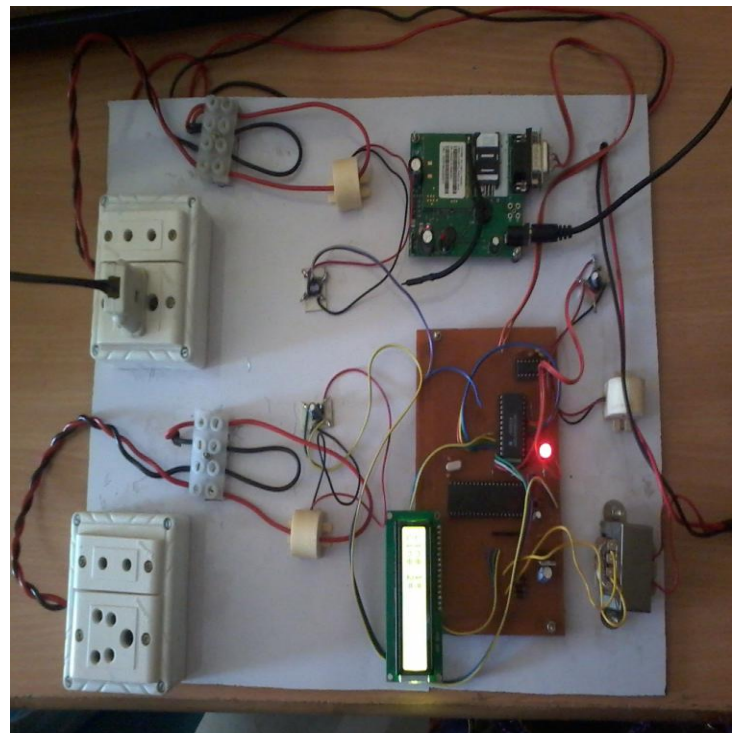


Fig 2 : Experimental Setup

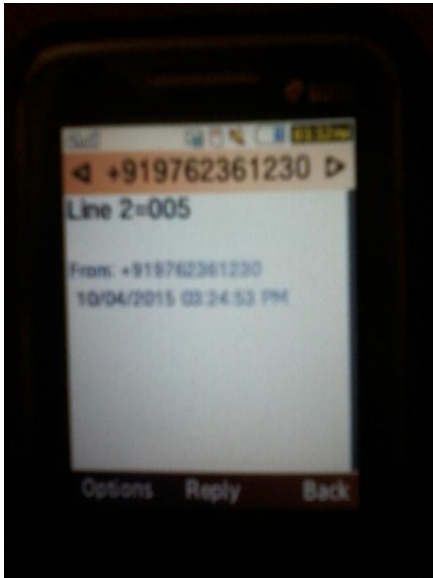


Fig 3 : Energy Unit Displayed On Mobile (In MSEB Office)

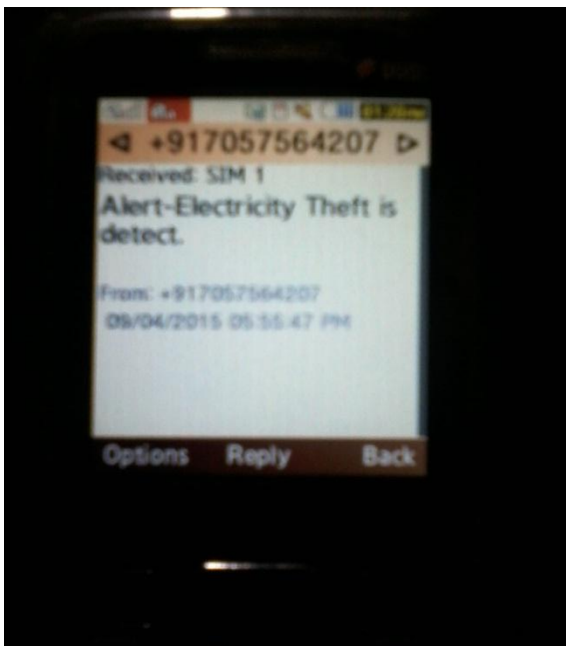


Fig 4: Theft Alert Message Displayed On Mobile (In MSEB Office)

VII. CONCLUSION

In developing countries electricity theft is common practice especially in remote areas as they do not pay utility bills to a government company. This model reduces the manual manipulation work and theft uses of GSM in our system provide numerous advantage of wireless network system.

With this system the service provider can collect the bill any time with a single message. The control of theft in energy meter and also more beneficial for customer side and government side

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