



ELECTRICITY THEFT DETECTION USING GSM

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Abstract

There is always a contract between the consumer and the supplier that the consumer will pay for the electricity consumed by him. But in India near about 32 % of the electricity is consumed but not paid for it i.e. it is being stolen by the consumer hence the need of a system arises that would overcome this theft of electricity. Electrical power theft detection system can be used to detect an unauthorized tapping on distribution lines. Working area of this system is a distribution network of electrical power supply system. Existing system can't identify the exact location of tapping. This system finds out on which electrical line there is a power theft. Wireless data transmission and receiving technique is used. This will provide an additional facility of wireless meter reading with the same technique and in same cost. This will protect network from power theft done by tapping.

Index Terms: PIC16F877A, GSM, Relay, Electricity Theft.

1. INTRODUCTION

Electricity theft is a very common problem in country, where population is very high and the uses of electricity are ultimately tremendous. In India, every year there is very increasing number of electricity thefts across domestic connection as well as industrial supply, which results in loss of electricity companies' energy and because of which we are facing the frequent problems of load shading in urban as well as rural areas so as to overcome the need of electricity for whole state.

2. OBJECTIVES

- This system would provide easy way to detect an electrical power theft without any human amalgamate.
- It would show exact zone and distribution line on which abolish tapping is done in real time.
- It would be time saving if distribution company personnel take reading by this wireless technique.

3. PROPOSED METHODOLOGY

In proposed method GSM technology is used to get the message of theft of Electricity. The grey strip shown in the fig is considered to be theft. When it gets on, an alarm or buzzer activates and starts sounding and within that time message is sent to the authorities.



Fig-1: [jhsghjg](#)

3.1 Hardware Requirements

- PIC16F877A.(+5V/500mA)
- LCD Display.(+5V/500mA)
- D.C Load(+5V/20mA)
- GSM Module.(+12V/1A)
- Buzzer.(+5V/500mA)

4. BLOCK DIAGRAM

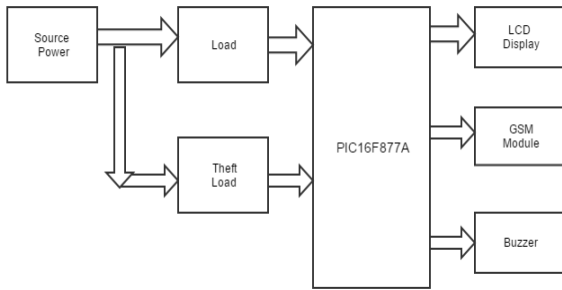


Fig-2: Block Diagram

4.1 Power Supply

The input to the circuit is assign from the regulated power supply. The AC input i.e., 230V from the mains supply is step down by the transformer to 12V and is fed to a rectifier. The output get from the rectifier is a pulsating DC voltage. So in order to get a pure DC voltage, the output voltage from the rectifier is provide to a filter to remove any AC components present even after rectification. Now, this voltage is providing to a voltage regulator to obtain a pure constant dc voltage.

4.2 Current Transformer

Current Transformers (CT's) can be used for monitoring current or for transforming primary current into reduced secondary. Current used for meters, relays, control equipment and other instruments. CT's transform current separate the high voltage primary, permit grounding of the secondary, and step-down the magnitude of the measured current to a standard value that can be safely handled by the instrument.

4.3 GSM Technology

GSM was intentional with a restrained level of service security. The system was designed to authenticate the subscriber using a pre-shared key and challenge reply. The development of UMTS innovate an optional Univ Subscriber Identity Module (USIM), that uses a longer authentication key to give immense security, as well as reciprocally authenticating the network and the user whereas GSM only authenticates the user to the network (and not vice versa).



Fig-3: gfdshj

confidentiality and authentication, but limited authorization capabilities, and no non-repudiation.

4.4 PIC Process of The System

The PIC is the main part of theft control. It is based on low power 16bit PIC16F877A processor. PIC consists of high performance and low cost of network technology. The memory organization of PIC consists of three memory blocks. The program memory organization consists of 13bit program count memory space. Data memory split into number of banks and it consist of GPR and SFR. The general purpose register file can be accessed in a straight line or in some way through the file select register. SFR is used in the processor and peripheral for controlling the system.

5. WORKING

To overcome the problem we had provided a solution which has a buzzer and GSM module for alerting. The theft load which is directly attached from the source increases the consumption greater than the load which was provided. This comparison shows the excess wattage on LCD and using GSM we send the message to light house and buzzer is alarmed.

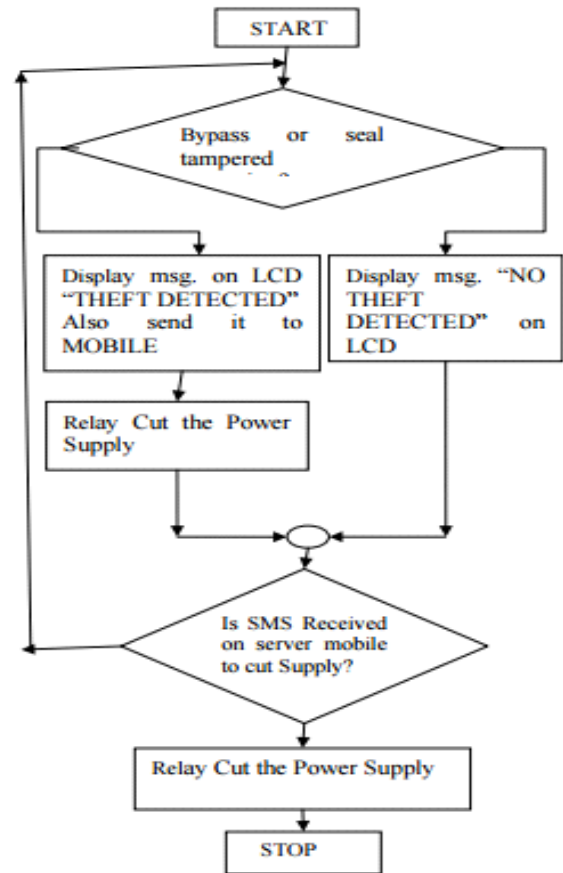


Fig-4: khfvsdh

Communications between the subscriber and the base station can be encrypted. The security model therefore offers

6. CONCLUSION

The project model reduces the manual manipulation of electricity and thefting. Use of GSM in our system provide fastest alert to the authorities numerous. The government saves money by the control of theft in transmission or distribution line and also more beneficial for customer side and the government side.

REFERENCES

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