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Energy Scrutinizing Using GSM Module

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Abstract: *This paper deals with the scrutinizing of the electricity theft and triggers it. The electricity theft in industries has been increased nowadays, which seems to be a great hindrance to the Indian economy. The main objective of this project is to indicate electric power theft to electricity board. To overcome this problem we are designing the microcontroller based system to detect power theft. Our paper provides a complete and comprehensive tool to power theft which is very simple to understand and easy to implement. A brief study is done on the particulates and the technology which we are going to use in our project.*

Keywords: Current transformer, GSM, PIC16F877A Microcontroller, LCD display.

INTRODUCTION

Electricity theft is a common problem in countries like India, where population is extremely high and the users of electricity are ultimately tremendous. In India, every year there is a very increasing no of electricity theft across domestic electricity connections as well as industrial electricity supply, which result in loss of electricity companies energy and because of which are facing the frequent problems of load sharing in urban as well as rural area so as to overcome the need of electricity for whole state.

Literature Review

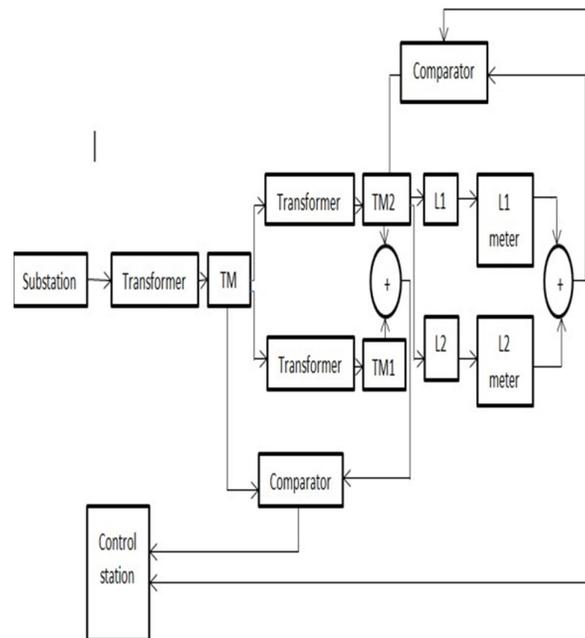
In the existing techniques wireless communication of energy meter utilized with Zigbee, transfer relay control and GPRS. The security writing technique is utilized to secure the communication channel and Zigbee for the transmission of information in a serial procedure.

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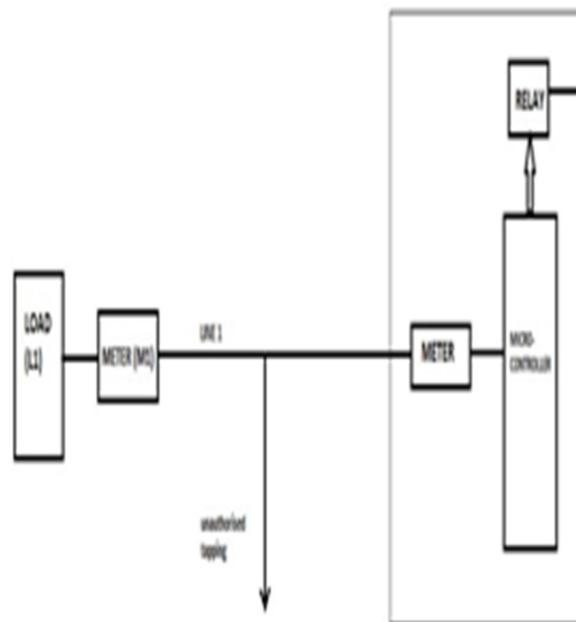
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Working of Proposed Model



Block Diagram of Power Theft



Description of Components

Power Supply

The input to the circuit is applied from the regulated power supply. The AC input i.e., 230V from the main supply is step down to 12V and is fed to a rectifier. The output of the rectifier is a pulsating DC voltage. In order to get a pure DC voltage, the output voltage of the rectifier is fed to a filter to eliminate AC components present even after rectification. Now, this voltage is given to a voltage regulator to obtain a pure constant DC voltage.

Current Transformer

Current Transformers (CT's) can be used for monitoring current or for transforming primary current into secondary current. These current transformers are used for meters, relay, control equipment and other instruments. CT's transform current isolate the high primary voltage, permit grounding of the secondary and step-down the magnitude of the measured current to a standard value.

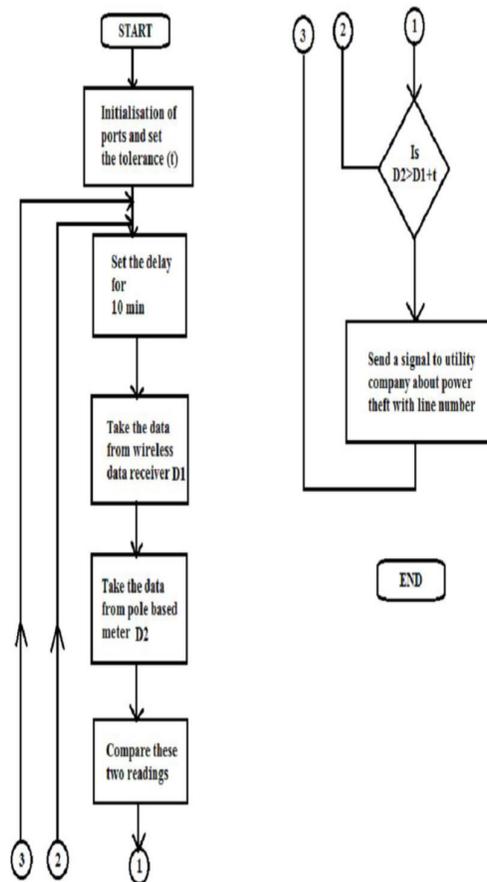
GSM Technology

GSM was outlined with a moderate level of administration security. The framework was intended to confirm the supporter utilizing a pre-shared key and test reaction. The improvement of UMTS presents an optional Universal Subscriber Identity Module (USIM), that uses a longer verification key to give more prominent security, and additionally commonly verifying the system and the client - though GSM just authenticates the client to the system (and not the other way around). Correspondences between the supporter and the base station can be scrambled. The security demonstrates thus offers confidentiality and authentication, however constrained approval abilities, and no non-denial.

PIC Microcontroller

The PIC is the fundamental piece of burglary control. It is based on low power 16bit PIC16F877A processor. PIC comprises of superior and ease of system innovation. The memory association of PIC comprises of three memory squares. The system memory association comprises of 13bit program tally memory space. Information memory split into number of banks and it comprise of GPR and SFR. The broadly useful register document can be gotten to in a straight line or somehow through the document select register. SFR is utilized as a part of the processor and fringe for controlling the framework.

Flow Chart



Conclusion & Future Scope

This project simply minimizes the human work and looting of electricity. Using GSM technology in our model provides us various advantages in the field of wireless network and systems. As a result Government can save money in huge margin by controlling the theft in electricity at industries and in other hand it is also more beneficial for the accurate amount of the power being consumed. While seeing the cost it is very low when compared to any other kind of device without automatic meter reading and triggering. As a result this project better suits for the beneficial of the Government and common consumers within the electricity coverage area.

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