Design of GSM Based Power Theft Detection Using IoT

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Abstract- *This paper propose the study of electricity and power theft detection which mainly aim to detect theft that had been occurred in the electricity distribution. Electrical energy is very important in our day to day life it plays a vital in our environment without electricity nothing can be possible. So it is our duty to make sure that the energy will get uniformly distributed without any interruption or not. In our project we mainly aim to avoid the theft occurrence either in the distribution end or at the user end. Here we have use two mechanism one is GSM(Global System Mobile) and the another one is Ardunio module. The GSM is used for making the immediate call and message alert to the control office whenever the third party try to access the excess electricity. And The Ardunio module will be used to check whether there will be any occurrence of electricity theft or not if the theft occur then they sense it update the information in private webpage for the electricity board office. By this immediate indication we can be able to help the government to take the appropriate remedy action immediately without heavy power loss.*

Keywords- SMS Alert , Automatic phone call , Website update .

I. INTRODUCTION

Power theft is the biggest and major problem in recent times which leads to huge loss to electricity. It is very important to take this issue in to consideration and hence to resolve and to overcome these losses prices are increased. So if we can prevent this theft related to electricity then we can save lot of power which will in turn be very beneficial. In our system we have GSM module by which we have been able to process the theft occur the message will be send to the GSM registered model number and also the automatic call alert also given to the last dialed number from the system connected mobile phone then by the use of arduino Uno board we have the automatic webpage indication for our private website.

II. LITERATURE SURVEY

The global positioning system is a satellite based navigation system made up of network of satellite placed in to the orbit. GPS works in any weather conditions and in any part of the world for 24 hours a day. There is no existing system for automatic power theft detection. There are many modern tools that assist in power theft identification like Tamper proof seals and labels, meter leaders, Tamper resistant screws also in it. We can be able to make a decision by looking forward this surveys.

III. EXSISTING SYSTEM

In our exsisting system we have seen that the electricity consumption and third party theft occurrence. In our old system the level of excess usage will be calculated by the manual calculation. Because of the irregular load, *P2* and *Q2* measurement data do not correspond to the actual power consumption at the customer. However, information of voltage magnitude is consistent with reality as it includes the system voltage drop due to the total power consumption – from the irregular and regular loads. To put it simply, by bypassing the smart meter, one can tamper power measurements but cannot tamper voltage measurement. This fact is important as it allows identifying irregularities in meter reading as proposed in this paper. Although the measurement errors in *P*, *Q*, and *V* are assumed to be independent of each other, in a SE process, errors in these measurements result in strongly correlated residuals, as discussed in the sequence. The measurement residual vector **r** is defined as the difference between measurement vector and estimated measurement vector **z***est*.

IV. PROPOSED SYSTEM

In our proposed system we have make an effort to move next step and make the automatic software work will be more than the normal human calculation. This is the major key factor for the enhancement of our project. In our system we make hardware circuit system which had been fixedly fitted with our energy meter. Here we have use the GSM for making the automatic call and message alert to the control office whenever the third party try to consume the electricity more than the allocated level. And also we have maintain the regular records for the user consumption by creating a separate web page for the electricity board office. For the accuracy in clear cut indication in the server page we have to use arduino board. And also an important one which was used here is optocoupler it is very helpful in extending the life of the aurdino board

because the optocoupler makes the resistance in the power which had been supplied to the ardunio board.

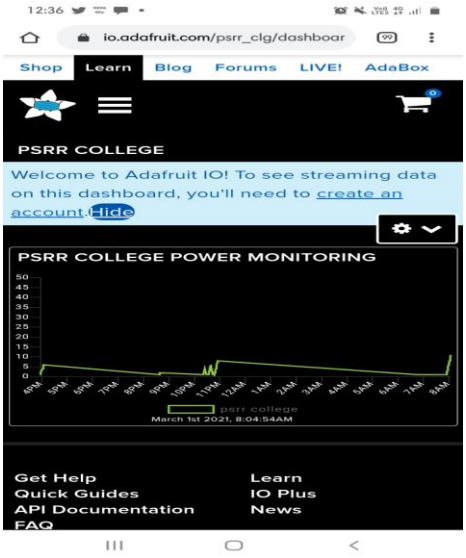
Kit Diagram

Module Used:

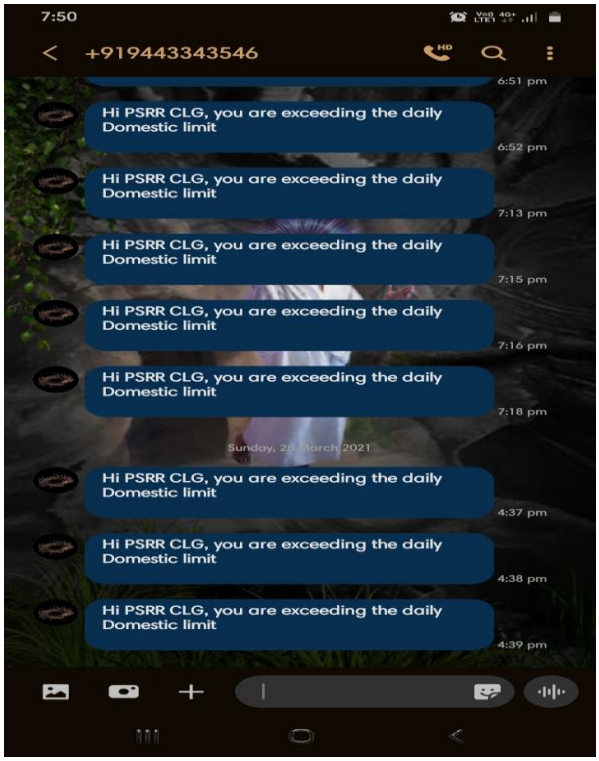
- Energy meter
- GSM
- Ardunio
- Optocoupler
- Relay

Software used:

- Matlab



OUTPUT PAGE



OUTPUT PAGE

V. CONCLUSION AND FUTURE WORK:

Energy meter using GSM and Ardunio module for finding the current theft with immediate intimation will main aimed to safe the electricity for the future use without energy crisis and demand.

In future we must be able to make a public website or may be a individual website for each and every household and for the factory or the industry usuage for the public awareness and individual responsibilities.

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