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## International Journal of Intellectual Advancements and Research in Engineering Computations

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### Remote watt hour meter reading cum robbery identification framework

R.Kiruthika<sup>1</sup>, R.Pavithra<sup>2</sup>, S.Santhosh Kumar<sup>3</sup>, M.Vijaysharangan<sup>4</sup>

Assistant professor<sup>1</sup>, Department of Electrical and Electronics Engineering, Info Institute of Engineering,  
Kovilpalayam, Coimbatore, Tamilnadu, India,

UG Student<sup>2,3,4</sup>, Department of Electrical and Electronics Engineering, Info Institute of Engineering,  
Kovilpalayam, Coimbatore, Tamilnadu, India.

krithirajendaren@gmail.com, radhapavi39@gmail.com, santhoshkumar0076@gmail.com,  
vsvijaysharangan@gmail.com.

9578270810, 7373833610, 7200711174, 8754841243.

**Abstract**—Electrical vitality is exceptionally basic for consistently life and a spine for the business. power is indiscipline to our day by day existence with expanding needs of power the power burglary is additionally expanding power robbery is an issue that keeps on plaguing power part over the entire nation the target of this venture is to outline a framework to maintain a strategic distance from the dismay for the clients from burglary charge independent of the utilization of power because of burglary utilizing GSM Module. The proposed framework is mimicked in the Proteus programming. This proposed framework is a simple approach to recognizes the robbery and charging framework.

**Index Terms**— Power Theft, Billing System, GSM, Alert, Current Sensor.

#### I. INTRODUCTION

Era, transmission and circulation of electrical vitality include numerous operational misfortunes. While, misfortunes ensnared in era can be in fact characterized, yet transmission and dispersion misfortunes can't be definitely evaluated with the sending end data. This showed the contribution of non specialized parameter in transmission and circulation of power. General specialized misfortunes happen normally and are brought about in light of influence dispersal in

transmission line, transformers, and other influence framework parts.

Specialized misfortunes are registered with the data about aggregate load and the aggregate vitality charge. While innovation in on the raising slant and furthermore take note of

the expanding corrupt initiates. With a specialized view, Power Theft is a non unimportant wrongdoing and in the meantime it specifically influenced the economy of the nation. Manual count electrical bill has turned out to be more illicit and blunder framework now days. Now of mechanical improvement, electrical charging can be made Automatic way. The usage of this framework will spare vast measure of power and there by power will be accessible for more no of purchaser than prior, in exceptionally populated nation, for example, INDIA.

#### II. RELATED WORK

This proposition venture is in the household appropriation territory of power sheets has more units of force robbery. What's more, till now customary electro-mechanical meters where used to gauge the vitality utilization. Here human mistake is the principle burden. So this proposition manages planning remote shrewd watt-hour meter and in addition charging framework. It is utilized to identify control burglary at the correct household area. It gives straightforward approach to distinguish electrical power burglary with no human interface. And furthermore offers caution to the customer to pay the bill on time (By SMS), to show the power burglary happens in the household zone

### III. LITERATURE SURVEY

In past, various methods had been introduced to detect the power system. A brief survey of various solutions is presented.

Daisuke Mashima [1] found new way To reduce electricity theft, electric utilities are leveraging data collected by the new Advanced Metering Infrastructure (AMI) and using data analytics to identify abnormal consumption trends and possible fraud.

T.B. Smith[2] proposed a constituency to be created through effective communication with the important stakeholders, institutionalization of new business processes that adopt modern technology, and improvisation of management information systems.

S.K.A. Zaidi[3] stopped illegal consumers from using their energy meter in the reverse direction to reduce their utility bill. Installation of a prepaid energy meter can be a solution to monitor the distribution system and control electricity theft.

Bandim C.J. [4] proposed utilization of a central observer meter at secondary terminals of distribution transformer. The value of energy read by the central observer meter is compared with the sum of energy consumption values read by all energy meters in range. These two values of the current are compared to estimate the total electricity that is being consumed illegally.

Jamil M. [5] gives utilities the ability to monitor and control the power supply of its spatially distributed consumers. This meter acts as a check meter that helps detect meters that have been tampered.

### IV. SCOPE OF THE PROJECT

It is a troublesome employment for the power load up authorities to physically discover the power robbery and in addition take perusing and ascertained bill as it is tedious and required labor. So as to stay away from the vitality burglary we are utilizing current sensor to distinguish the power robbery in household range. This venture will give a ready message to close-by substation when any undesirable power burglary happen in the residential zone. Charging purchaser for vitality utilization is not uniform. It is dull occupation for power board authority to physically go and take meter perusing of all household houses. Consequently considering these components it is conceivable to outline a vitality burglary discovery framework and brilliant vitality meter. This vitality burglary location framework comprises of current sensor close to the conveyance post and also local house which is associated with it. The present sensor in the dispersed shaft will create the present esteem that follow in it. The esteem which get from every one of the houses are included to contrast and circulated post esteem. These qualities are contrasted and some resistance which incorporates the appropriation misfortunes. At the point when the thought about qualities are not equivalent, the microcontroller will

send the ready sms to substation through GSM module. Brilliant vitality meter which will give bill to customer through SMS. The proposed vitality meter used a GSM module to Exchange vitality expended to the expert side (purchaser and in addition substation).

### V. BLOCK DIAGRAM

The schematic diagram that shows below is Smarting Watt-Hour Cite For Indication Cum Tension Stealing Revelation System. This diagram explicates the power theft indication and bill method. The supply from the distributed pole is injected to the energy meter and output is connected to load through current sensor. In the most of the energy meter, LED is connected to show the number of units consumed by consumer in the form of blinking. Based upon the blinking, it is easy to calculate the power consumption. So the opto coupler is connected with Watt-Hour meter to sense the output of current sensor. The output of opto-coupler and current sensor are given to arduino for comparing. After the comparing output of both sensor, the arduino will generate an error signal. Based upon the signal, it will send the message to consumer and nearby substation through GSM module.



Figure 1.1 Block Diagram

The supply is given to energy meter through distribution pole. The distribution pole has an output value of 230V, 50Hz single phase AC supply. This supply is given to energy meter for measurement of electricity consumption. In the analog meter, unit consumption is displayed by the means of rotation of disc between the winding. The disc will rotate when two opposite flux linked each other. Disc rotation is based upon the electrical energy consumed by consumer. The energy consumption can be seen by the blinking of LED interfaced with the disc. The LED is designed in the manner that it will blink when one unit of power consumed. It is coupled with opto coupler to sense the LED blinking in the energy meter.

Based on this output value, power can be calculated. The output of energy meter is connected to load through current sensor. The current sensor will sense the current value consumed by the load. Based upon this value another power can be calculated. These two power value are compared in the arduino. Based upon the comparison, the arduino will produce an error value. This value will help to send the message to consumer or nearby substation through the GSM c connected with arduino.

VI. SIMULATION

The simulation is carried out to check whether the proposal model can withstand in real time application. The proposed Circuit Contains of AC main supply, energy meter, opto-coupler, current sensor, fuse, MAX232, GSM Module, load and oscilloscope. The AC main is connected to the energy meter. LED present in the energy meter is coupled with Opto coupler. The output of opto coupler is connected with the Arduino. The current sensor which senses the current flow in the circuit is connected with Arduino. The output of these two sensor help to find the Electricity theft by comparing their output which some formulas.

The simulated model of proposed system is shown below

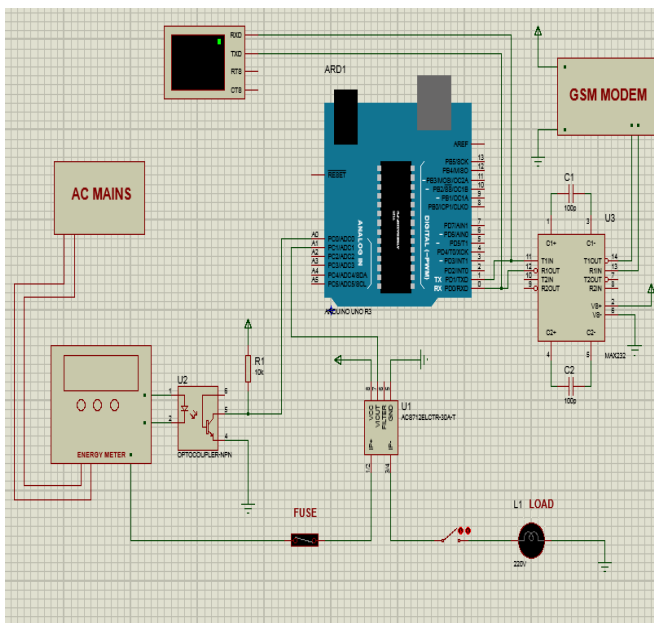


Figure 1.2 Simulation Diagram

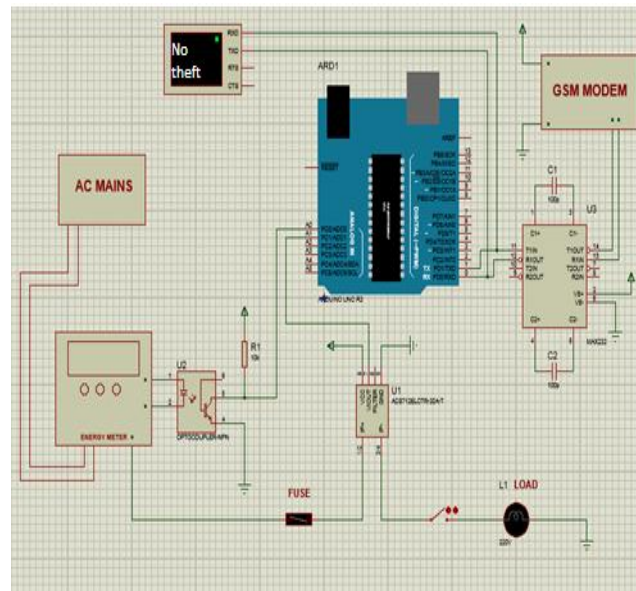
Thus, the proposal model is simulated and output is shown below. The result appears as no theft as the no external theft occurs in the simulation model. The simulation output shows no theft in the proposal model has the connection is made in

the proper manner. The simulation is designed in such way that, if the connection bypasses any one of the devices it will show the theft occurring in the domestic home. This shows the

Figure 1.3 Simulation Result

Proposal model working in real time world.

VII. REFERENCE



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