

AN EFFICIENT AUTOMATIC ENERGY METER SYSTEM WITH POWER THEFT DETECTOR USING WIRELESS TECHNOLOGY

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Abstract: Within the recent technology development everything became machine-driven .automatic energy meter (aem) is one in every of them. During this automatic energy meter amount of power consumption is calculated on monthly basis and therefore the calculated knowledge (amount of power consumption) is send to the electricity board for asking and eb once more remit the bill quantity to the each user. This energy meter conjointly alert the eb just in case of any detection of power larceny .this system uses atmega microcontroller for assortment and manipulation of knowledge and therefore the technology used here for communication is gsm technology.

Keywords: Automatic energy meter (AME);Global System Monitoring;

INTRODUCTION

Electronic metering technology greatly reduces the person power and time and conjointly created straightforward for remote space individuals for paying the bill[1]. It conjointly reduces the non payment of the bill and avoids the error as a result of manual calculation. Power larceny is one in every of the best issues that our country is facing and with the assistance of this ame power larceny will be greatly reduced. This energy meter continuously have predefined worth of quantity of electricity that the user goes to use .if there's associate immense distinction between the quantity of power transmitted (including technical losses) and amount of power being beaked then it involves the conclusion that there exist an power larceny .this power larceny will be greatly reduced with the assistance of AME.

EXISTING METHOD

A. WIRELESS ENERGY METER

The good automatic energy meter uses blue tooth for causing the recorded to the near device is also the private pc however it's helpful just for little distance communication. Some technique energy meters uses zigbee for causing the recorded knowledge and it conjointly covers a tiny low space.

B. WIRED ENERGY METER

Wired energy meter uses power cable communication for causing knowledge and a few of the energy meter uses phone lines for communication .the main disadvantage of this strategies is that the communication get loss if there's any disconnection within the lines.

PROPOSED METHOD

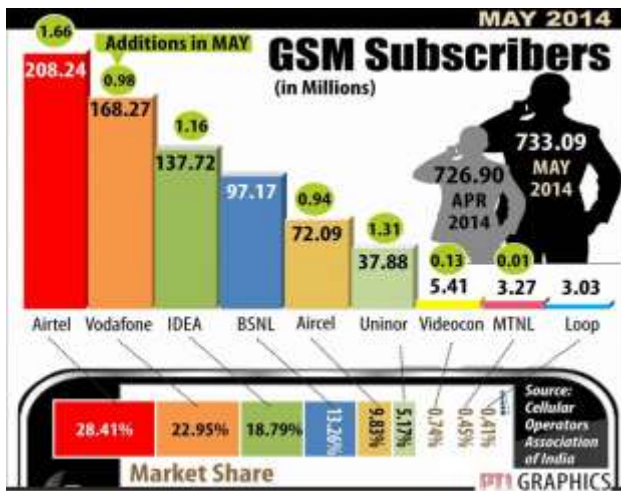
The projected technique uses gsm(global system for mobile communications) for causing and receiving the information from the energy meter to the bottom station. The explanation why we have a tendency to area unit going for gsm technology is since it's an enormous coverage space. It will even covers an overseas space wherever the manual measuring of power by men is extremely tough.

OVER VIEW OF GSM

In gsm the information transfer will created the speed up to nine.6kbps .it even have short message service(sms) facilities. It operates in 900mhz and one.8ghz europe and one.9 gigacycle and 850mhz in us[3].the gsm capabilities in india is gsm 900 and gsm 1800[4].in india there area unit concerning 733 million gsm subscriber[5].the

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figure shows the amount of gsm subscribers on might 2014[5]



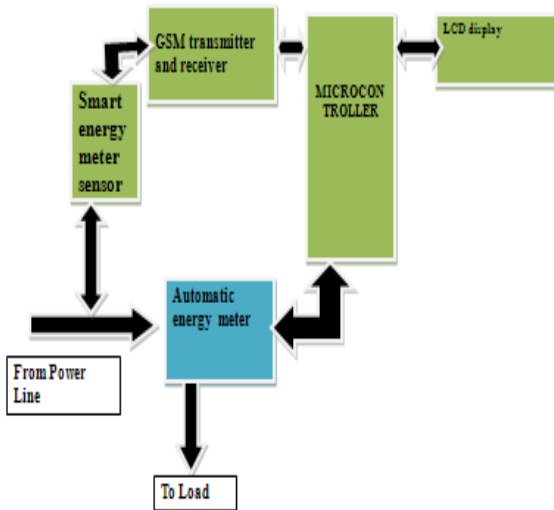
computer {architecture|architecture} architecture .it has one hundred thirty powerful directions and most of them area unit single clock cycle execution. It's thirty two x eight general purpose register. It has8kbytes of in-system self programmable non-volatile storage and 512 bytes of eeprom. It has 2 8bit timer/counter with separate prescaler and one 16bit timer/counter with separate prescaler and it's twenty three programmable i/o lines .it has the in operation voltages from four.5v-5.5v and speed up to 0-16 megacycle per second [2].

B.SMART ENERGY METER SENSOR

Good energy meter device is connected between the ability lines and automatic energy meter via microcontroller and gsm module. This energy meter unceasingly monitor the quantity of power drawn although that power cable by the user. And stores the worth within the non-volatile storage and compare the worth with the energy meter value .if the each the worth area unit same means that there's no problems however if there's associate amendment in value means that then there's an power larceny happens and it'll send the message to electricity board that there is also the prevalence of power larceny in this explicit energy meter. smart energy meter sensor is connected between the power lines and automatic energy meter via Microcontroller and GSM module.

BLOCK DIAGRAM

The steup incorporates automatic energy meter and therefore the embedded unit .the embedded unit incorporates microcontroller .lcd show ,gsm module for causing and receiving the information.



C.GSM TRANSMITTER AND RECEIVER

This block incorporates gsm module for causing the meter knowledge to the electricity board and conjointly it's accustomed alert the electricity board just in case of any prevalence of power larceny. It can send the information that is manipulated by microcontroller. The information is also electricity usage data or it's going to be notification message concerning power larceny. The user will receive the sms concerning the bill quantity sent by the electricity board to their mobile variety .

SIMULATION

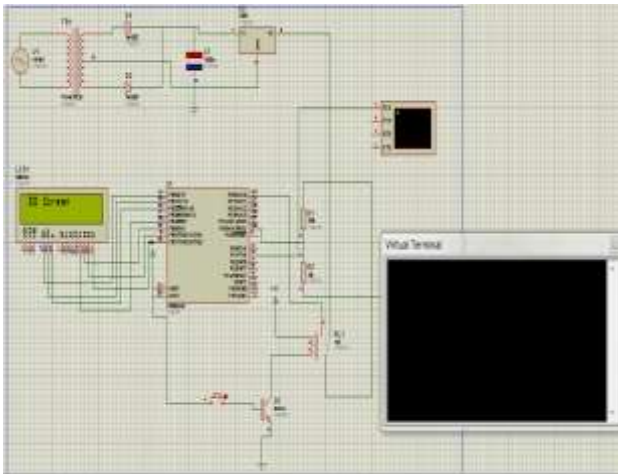
The simulation of the proposed method is done using proteus and the following diagram shows the simulation of automatic energy meter with power theft

A.MICROCONTROLLER

it uses atmega microcontroller may be a low power high -perormance8 -bit microchip .and relies on advanced

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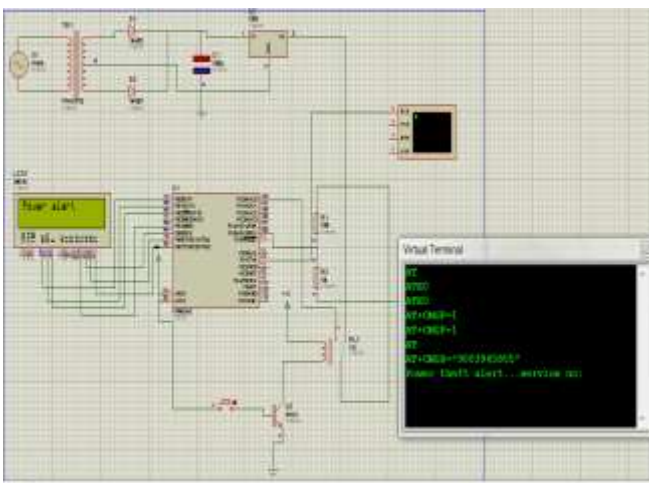
detector



[3] <http://www.gsma.com/aboutus/gsm-technology/gsm>

[4] <http://www.gsmarena.com/networkbands.php3?sCountry=INDIA>

[5] <http://ibnlive.in.com/news/733-million-gsm-subscribers-in-india-airtel-leads-with-2841-market-share/480165-11.html>



CONCLUSION

This paper deals about the automatic energy meter billing and power theft detection using GSM technology. The drawback of this system is there may be a chance of missing SMS so that user may be in the position of nonpayment of electricity bill. The future work may be done to reduce the chance of this missing SMS

REFERENCE

[1] GSM Based Automatic Energy Meter Reading

System with Instant Billing

[2] www.atmel.com/devices/atmega8.aspx