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Smart Energy Meter Using GSM for Home Automation

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ABSTRACT

Electrical energy is very important form of energy source in day to day life. Consumers have complaints regarding Energy Meter readings in their monthly bill. The development of a fully Automated Energy Meter which is having capabilities like automatic monitoring and controlling of energy meter. Automatic Meter Reading system (AMR) will continuously monitors the energy meter and sends the data to a service provider through wireless communication. The bill amount automatically debit from the customer account and also the bill details and debited bill amount sent to the customer via SMS. Global System for Mobile communication (GSM) technology is used to communicate between the service provider and the customer. This system avoids the human intervention in power management. If the customer does not have sufficient money in account at the billing time, SMS is sent to the server with the help of GSM. If still customer does not pay the bill, one alert message will be sent then the power supply is automatically disconnected. This developed system provides efficient monitoring of energy meter reading avoids the billing error and also reduces the cost of maintenance.

Keywords: Automatic Meter Reading system (AMR), Global System for Mobile communication (GSM) and Monitoring.

1. INTRODUCTION

Now-a-days Electricity is a major requirement for human life. With the rapid developments in the wireless communication technology, there are many improvements in various industrial aspects which reduce the human efforts. The traditional manual meter reading was not suitable for longer operating purposes as it requires much human and material resource.

Going to each and every consumer's house and generating the bill is a risky task and requires lot of time. If any customer did not pay the bill, then the operator needs to go to their houses to disconnect the power supply. It causes corruption at the EB meter reading is noted by EB employee. This results in inaccurate and inefficient.

In this project, automatic meter reading (AMR) will continuously monitor the energy meter and sends data to a service provider through wireless communication.

The facility of wireless communication media has made the exchange of information fast, secured and accurate. The bill amount is automatically debited from the account and also the bill details send to the consumer through SMS.

If consumer does not have sufficient money in their account at the billing time, the SMS is sent to the consumer. If consumer does not pay the bill before the last date then as per late consideration automatically the power supply will be disconnected.

This system is developed to provide efficient monitoring and accuracy in the EB bill payment.

2. BLOCK DIAGRAM

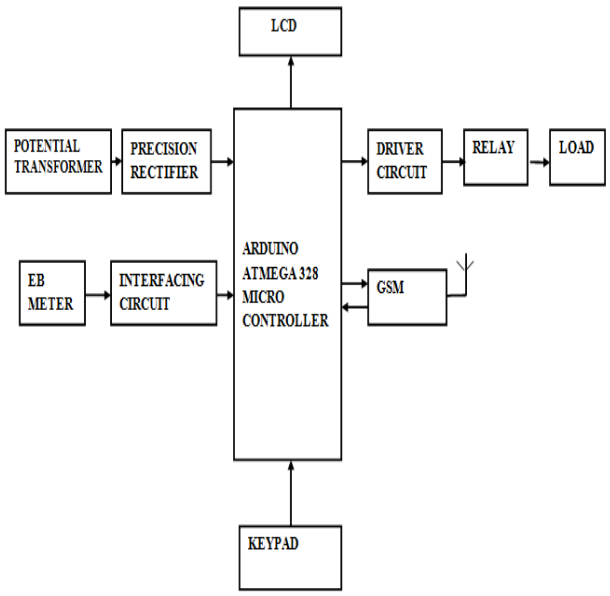

Fig.1. Block diagram of transmitter

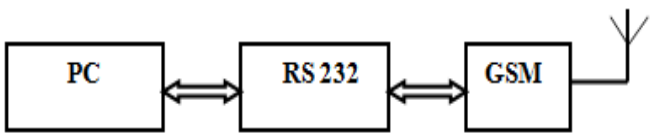

Fig.2. Block diagram of receiver

Year	Author	Title	Summary
2007	B J Beggs, E I Djazairy, I F Steward	SMART ENERGY METER READING WITH INSTANT BILLING	➢ GSM network as low cost, global carrier of digital telecommunication signal provides exciting opportunities for novel applications. ➢ GSM use of telephony becomes more widespread.
2009	P.K. Lee and L L.Lai	ENERGY METER READING USING GPRS	➢ This project deals with the way to adopt the cost of effective GPRS applications. ➢ Lots of theories and concepts on GPRS applications are used but the real applications applying to a large network, distributed power generation or building energy/power distribution monitoring are limited.
2011	H.G.Rodney Tan, C.H.Lee, V.H.Mok	THE DEVELOPMENT OF GSM AUTOMATIC POWER METER READING SYSTEM(GAPMR)	➢ It consists of GSM digital power meters installed in every consumers and an electricity E-billing system at the energy provider side. ➢ The power usage reading is delivered to consumer by using SMS and back to the service provider wirelessly.
2013	Md.Vvasi-ur-Rahman, SM.Lutful kabir, Mohammad Tanvir Rahman	DESIGN OF AN INTELLIGENT SMS BASED REMOTE METERING SYSTEM	➢ Meter readings are automatically from a remote place without any human intervention. ➢ Information regarding unavailable power supply to home is not automatically sent to the EB station.
2014	Maity.T, Das P.S	INTELLIGENT ONLINE MEASUREMENT AND MANEGEMENT OF ENERGY METER DATA THROUGH WIRELESS NETWORK	➢ User friendly system because it contains data entry window. ➢ For wireless communication Zigbee is used but still Zigbee in developmental stage. ➢ It will not help the service provider of power to offload.

3. CONCLUSION

The proposed real time system which works on wireless communication is highly efficient because every process from taking meter reading to sending it to the service provider, updating the data in the database, generating bills to the customer through SMS. The automatic bill generation at the beginning of each month is informed to customer via SMS. The progress in technology about electrical distribution network is a nonstop process. In the present work wireless meter reading system is designed to continuously monitor the meter reading and to shut down the power supply automatically whenever the consumer fails to pay the bill. It avoids human intervention, provides efficient meter reading, avoids the billing error and reduce the maintenances cost. It displays the corresponding information on LCD for user notification. The advantages of this project is it requires less man power, there is no need to chase payments, when the bill is send to the consumer with due date. As there is no human intervention in the entire process, so there is no chance of human error and corruption.

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