

Design and Implementation of Remotely Located Energy Meter Monitoring with Load Control and Mobile Billing System through GSM

ABSTRACT

Electricity, the most usable form of energy is used widely through the whole world. With the evolution of modern technology, the usage of electricity is escalating gradually. But the production of electricity is confined due to deficiency of resources. So power must be used in a concise way. In many countries, electrical energy is measured by energy meter which is inspected by a human. According to their inspection, the electric bills are prepared and most often these are prepared on the basis of assumption which could be inaccurate, costly, time-consuming as well as error prone. Due to the absence of regular monitoring system, sometimes consumer use electrical energy month after month without paying any bill. Energy meter monitoring and digital billing system is a kind of system which would be able to avoid traditional meter reading, save human resources, improve the accuracy and prevent the power theft. In this paper, a remote monitoring of energy meter and digital billing system is inaugurated through GSM 900. For monitoring server, major programming languages had been introduced to relate the methodologies, execute logical functions, store data in a database and send the monthly bill to the consumer cell phone number and finally disconnect the unpaid consumer.

EXISTING SYSTEM

Electricity, one of the most important sectors for the economic development of a country is used for the various purposes. Generally, in many countries, electrical energy is measured by energy meter which is inspected by a human. According to their inspection, the electric bills are prepared and most often these are prepared on the basis of assumption which could be inaccurate, costly, time-consuming as well as error prone. Maybe the consumer has not utilized the similar amount of electricity in the current month as in the previous months for reasons such as, holidaying elsewhere or being in the hospital, etc. This method of billing is also not suitable for the electricity supply company because it gives an inaccurate account of the overall power consumption in the consumer's area and may ultimately result in errors. Due to the absence of

regular monitoring system, sometimes consumer use electrical energy month after month without paying any bill.

DRAWBACKS

- It doesn't provide accurate data.
- There may be a chance of theft of electricity.

PROPOSED SYSTEM

For proper management of electrical energy as well as to raise the level of consciousness among the people about the usage of electrical power precisely, smart metering is the best solution in this aspect. Regular monitoring of load and digital billing system gives the measurement system more reliability and accuracy. Development of smart metering with the use of GSM technology provides enormous advantages over the previously developed system. The system data transmission is based on the standard SMS rates. Thus the charges are independent of the duration of the data transmission. The ability of this scheme is to eradicate the drawback of serial communication that makes the system more efficient. The prime prospect of this project is to implement wireless computerized monitoring and mobile billing system. Seemingly this system will prevent power theft by tempering the energy meter as for regular monitoring it. Moreover, it helps to lessen the required workforce for meter readings as well as also decreasing human error factor almost nil, since the reading of meter is digital now. Thus the power provider company will be profited instead of incurring losses. However, the generated bill will be available to the consumer through SMS. Therefore a cost efficient and easily comprehensible service of automatic meter reading and digital billing system is ensured.

ADVANTAGES

- Charges are independent of the duration of data transmission.
- It prevents power theft.
- It lessens the required work force.

SYSTEM REQUIREMENTS

H/W System Configuration:-

- Processor - Pentium –IV
- RAM - 4 GB (min)
- Hard Disk - 20 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

S/W System Configuration:-

- Operating System : Windows 7 or 8 32 bit
- Application Server : Tomcat5.0/6.X
- Programming Language : Java
- Java Version : JDK 1.6 and above