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Automatic Electricity Bill Predictor Based on Daily Demand Enhanced by Android Device

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ABSTRACT: The life without electricity cannot be imagined, as it is one's prime requirement. Power consumers have increased in every sector like urban, rural, residential, and commercial and in industrial areas. Thus it is very important to take care of the proper use of energy to generate accurate bills, invoices and try to reduce the frauds. The present methodology needs to be converted into an intelligent and efficient mechanism which would benefit the consumer. The main idea of this paper is conservation of energy by creating an report of their usage and by setting their desired limit of daily and monthly basis using the concept of the Internet of things (IoT). This helps in financial preparedness and also to reduce power consumption at the residential level which in turn helps in saving energy sources.

Key Words: Arduino, IoT (Internet of Things), android, **Wi-Fi** module, Bluetooth module.

I INTRODUCTION

Electricity load forecasting has gained substantial importance nowadays in the modern electrical power management systems with elements of smart greed technology. A reliable forecast of electrical power consumption represents a starting point in policy development and improvement of energy production and distribution. One of the things that many people do throughout the world without taking care about is consuming electricity. Due to fast economic development affected by industrialization and globalization, energy consumption has been steadily increasing over the last years. As a result, the consumption of electrical energy sometimes becomes a problem because the generating capacity cannot match the demand so, energy consumption management is a very significant to tackle problems of losses resulting from increasing consumption patterns. There is a high demand for electricity annually for total worldwide electricity consumption. Lots of research has been done to reduce the consumption of electricity in particular, by using prediction methods where consumer usage and load is forecasted in kWh.

This project focuses on predicting the electricity bill amount in rupee at the residential and industrial level for the use of consumers. This helps in financial preparedness and also to reduce electricity at the residential and industrial level which in turn helps in saving energy sources.

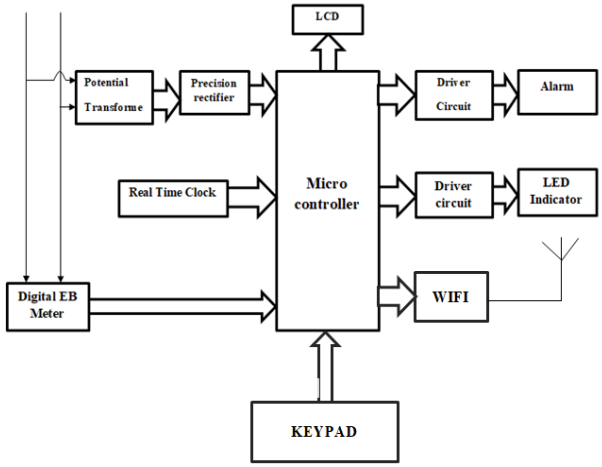
Smart meter is an electronic device that records consumption of electric energy in intervals of an hour or less and communicates that information back to the utility for monitoring and controlling. Smart meters enable a two way communication between the meter and the central system.

II PROPOSED SYSTEMS

The proposed a system for monitoring and maintaining the energy consumption of customer with daily and monthly limit using smart energy meter installed with Iot. The data's from the energy meter was given to the microcontroller which is preprogrammed with slab rate and tariff of electricity board. There is a keypad for setting daily

and monthly limit to the controller. The LCD display which displays the consumed units with tariff. There is an indicator is present to indicate the limit is reached. The microcontroller is the heart of this project which checks the voltage levels and limitation level and it send the data to LCD and to the server. We can set it by through android app.

III BLOCK DIAGRAM



Block Diagram of Proposed System

ADVANTAGES

- Tackle of human error.
- Power consumption devices control.
- Cost effective.
- Easy connection without corruption.

IV RELATED WORKS

[1]A.Vijayaraj, R.Saravanan in their paper they explained about AUTOMATED EB BILLING SYSTEM USING GSM AND AD-HOC WIRELESS ROUTING on oct 2010.they describe about the improvement in such area for electricity board billing system in india is obsolete and time consume. Thus they proposed a system through which electricity billing becomes fully automated and communication is made possible via wireless networks.the existing system in india which is manually has many drawbacks. This system is prone to errors and can also be easily manipulated. The manual system in prevalent also requires lot of human workforce. The major disadvantage in this system is that the customer is not present at home meter cannot be accessed by the meter reader. In The proposed system the central EB office has immediate access to all consumer homes in a locality with the help of an RF system.The EB meters present in every home is connected to EB office which has wireless network gets periodically updates from the meters.

[2]A. A. Adhau, N. M. Patel, A. T. Zaidy, S. L. Patil, A. S. Deshpande they published their paper as a title of advance low cost electricity billing syatem using GSM on April 2013The most fundamental necessities of human being is electricity, which is commonly used for industrial, domestic and agricultural purposes. There is a lots of problem during distribution and metering but the wireless meter ensures the fat and accurate billing system. The traditional meters with electro-mechanical meters were widely used today are vulnerable to drift over temperature and time as a result of meters mechanical nature of the components.the problem is to collecting the meter reading and generating the bill.in this the technique for prepaid postpaid scheme using sms has been illustrated.it has been used by GSM network for sending and receiving SMS.

[3] E.Moni Silviya, K.Meena Vinodhini, J.Salai Thillai Thilagam they published on April 2014 as GSM based automatic energy meter system with instant billing. This system which measure the current consumption unit through IR sensor unit. The IR transmitter is placed in the EB meter rotating unit. The receiver photo diode is placed in a place

which is used to find no of rotations. After getting the current consumption for ARM processor it will reduce the unit given for specific user. Thus, the unit here is taken as numeric value. it will intimate the user through alarm and LCD unit If the unit is reduced to minimum value If the user wants to add more units for their usage, they has to send a message to EB sector. From the EB section the required value will be sent to the ARM controller through GSM network.

[4] K.Myilsamy in his paper he explained about the automated wireless meter reading system for controlling power consumption on April 2015.This will be discuss about the implementation of wireless automatic electric meter (AMR) network, implementing based on Zigbee technology for reduced power consumption. Electric meter with Wireless network is used for the collection of unit count of reading and it is evolved from traditional meter reading scheme and power theft from the transmission lines.

[5] Krishnarao.Kundeti, Saikumar Pallagani they predict the prepaid electricity billing system for easy billing for rural people on June 2016.In this system peoples will use the electricity as they required, The system uses any type of communication media like GSM, optical fiber, Microwave etc. it is used to establish a centralized system (server) and the communication link in between power meter of customer

RESULT

CONCLUSION

The paper is purpose of present an overview of Smart electricity billing system, which can able to control the usage of electricity on consumer side to avoid of power wastage.the concept of Smart electricity billing system is a to show the consumer electricity in units and in your currency daily.

The users can pay the amount according to their requirement are not bound to pay excesses amount of money, users have to pay. Smart electricity conservation system is more reliable and user friendly.

From all these we can conclude that if we implement this Smart electricity conservation system then it can become more beneficial and communication is made possible via wireless.

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