Electricity Consumption Notification Application

Sathish Kumar.M[1], Sasidharan K[2], Sridar.G.Srinivas[3]

[1,2,3]Department of Information Technology, R.M.K. Engineering College, Kavarapettai , Tamil Nadu , INDIA
[1]sathishkmr607@gmail.com, [2]sasidharan93@gmail.com, [3]sridharg2112@gmail.com

Abstract: The Electricity consumption notification application is an android application, which is used to track the information of daily usage of electricity. It also manipulates various information such as up-to-date electricity consumption of the month , bill according to the government norms , safer amount electricity to be consumed for the month , notifications from electricity board regarding maintenance, etc. A GSM module is used to make communication between the mobile device and the electric meter. This Application also ensures the user to manage their electricity consumption and plan their electricity usage accordingly.

Keywords: Electricity, GSM, PIC Controller.

1. INTRODUCTION

In order to avoid checking of electric meter reading and cost calculation manually, we developed a mobile application which connects user and electric meter from any point of place and also to provide awareness of electricity consumption to the user at any instance of time. The scope of our project is to notify the users about the consumption of electric units whenever they request for it using GSM. It also provides analysis of data (units) and its manipulation using graph. Current system of monitoring the consumption of electricity by the user is through manually checking their electric meter, recording the meter reading and comparing it with previous recorded units, manually calculating the cost of the usage. The proposed system is an android application, which is used to track the information of daily usage of electricity. It also manipulates various information such as up-to-date electricity consumption and also generate bill according to the government norms, safer amount electricity to be consumed for the month, notifications from electricity board regarding maintenance, etc.

2. SYSTEM OVERVIEW

Our project consist of mainly two modules, namely embedded system module for getting the electric meter reading using PIC controller, GSM module and Android application module which is used to manipulate various information which are relevant and useful to the end users of this project.Electric meter is connected to the PIC Micro Controller, the reading from the meter are actually retrieved by the rotating wheel in the analog meter which rotates according to the electricity consumption. We connected a IR Pair of Photo diode near to the rotating wheel, and the singles will be communicating when the hole in the rotating wheel comes in between the IR pair photo diode. When the communication between IR photo diode happens, we sent a digital low input (0) to the PIC controller where the counter will be incremented and stored in the registers. The same thing will be repeated as long as the rotating wheel rotates(till electricity is consumed).Through the GSM modules the request from android application is read and sent to PIC controllers using UART port. In PIC controller the current reading is retrieved and it is sent as SMS to the Mobile phone which initially sent request for the meter reading using GSM Module.The SMS which reaches the Mobile Phone is read by the application and displayed to the user with various related needed information such as current reading, bill up to the government, using which the notifications are sent to the users regarding the activities of the electricity board.

3. SYSTEM DESCRIPTION

The Android application is the integral part of the project, while the embedded module is used to get the readings from the electric meter. The application consists of five activity namely, Home screen, Notifications, Graph, User Login, Settings.

Home Screen

In this activity the information such as Current Reading, Yesterday's Reading, Last Month Reading, and bill up to current reading.

Notification

In this activity, the information which is sent from the Electricity Board of respective State are notified and displayed to the user. Through this the link is made between the user and the electricity board. This helps the user to get awareness regarding the maintenance work which is going to be begun in their respective area, power cut off, etc.

Graph

In this activity, the pictorial representation of the electricity usage is presented to the user. This graph will be made on all required basis such as day wise, month wise, year wise. This will help the user to plan and budgetize their electricity consumption, which in turn will pave way for the effective usage of the electricity resource.

User Login

This is the First activity which helps the user to get into the application. New User login is also made in this activity. This will authorize the user to enter the application.

Settings

In this activity, the average or the safer amount of electric unit is entered by the user, if he wants. This will notify the user when the consumption is exceeding the safer amount.

4. SYSTEM ARCHITECTURE
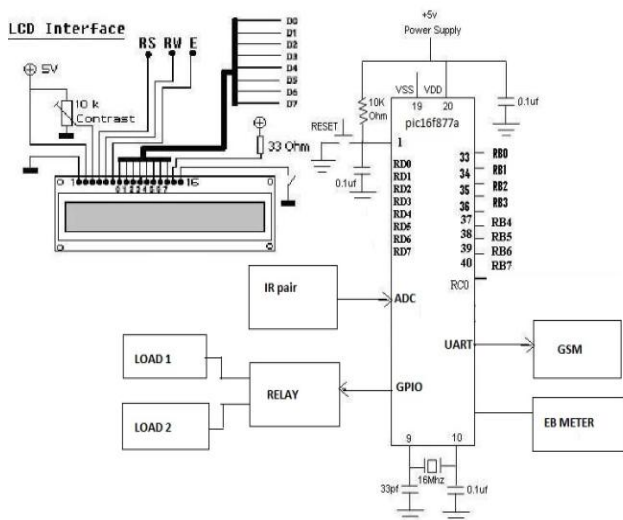
5. ONGOING WORK

This is an android application, which is used to track the information of daily usage of electricity. It also manipulates various information such as up-to-date electricity consumption and also generate bill according to the government norms, safer amount electricity to be consumed for the month , notifications from electricity board regarding maintenance, etc.

6. CONCLUSION

Hence in order to avoid checking of electric meter reading and cost calculation manually, this   mobile application connects user and electric meter from any point of place and also to provide awareness of electricity consumption to the user at any instance of time.

REFERENCES

[1]   Chunjuan WEI, Junjie YANG , Implementation of Automatic Meter Reading System Using PLC and GPRS, Journal of Information&Computational. Science 8:16 (2011)4343 –4350.2]

[2]   Ahmed Husein, and Mohamed El-Geziry , Practical Issues of Power Line Communication for Automatic Meter Reading Systems, Proceedings of the 14 th International Middle East Power Systems Conference (MEPCON'10), Cairo University, Egypt, December 19-21, 2010.

[3] Poonam Borle, Ankita Saswadkar, Deepali Hiwarkar, Rupali S. Kad, Automatic Meter Reading For Electricity Using Power Line Communication, International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, Vol. 2, Issue 3,March 2013. 948 Alok Malviya

[4]   Tarek Khalifa,Kshirasagar Naik and Amiya Nayak , A Survey of   Communication Protocols for Automatic Meter Reading Applications, IEEE