

Embedded Base Meter Reading and Fault Detection System with Control Circuit

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ABSTRACT

The rapid development of automation and measuring techniques, automatic recording of the data in the meter reading instrument has gradually become the target of people whose working, living, and home conditions are of system has a large number of risks. Zigbee is a new global standard for wireless communication with the characteristics of low-cost, low power consumption and low data rate. which is designed to improve the robustness of the conventional Zigbee based AMR system by coping well with dynamic error environments. In many countries GSM network is widely known for its vast coverage area, cost effectiveness and also for its competitive ever growing market. We utilize telecommunication systems for automated transmission of data to facilitate bill generation at the server end and also to the customer via SMS, Email.

Keywords - ZigBee, Wireless communications, Automatic meter reading system, GSM, Embedded base.

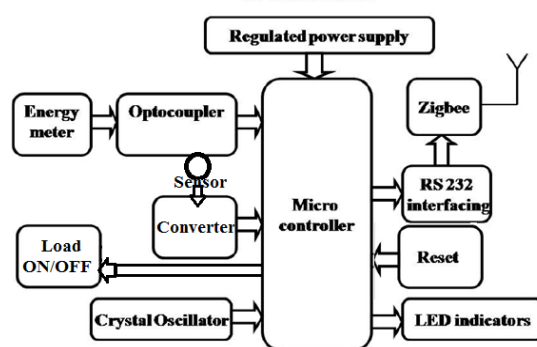
I. INTRODUCTION

The struggle between global warming and human beings is well recognized by the international society. Scientists devoted their effort into the development of renewable energies while governors/administrators audit and control energy consumption based on regulation. In view of the compulsory energy consumption control in near future, researchers have developed energy aware technology such as ZigBee. ZigBee is a wireless sensor network for home and building automation. Recently, ZigBee has been widely adopted for both metering as well as energy management. In the existing automatic meter reading technology, the meter reading process is done by the help of manpower. But this method is subjected to several disadvantages like errors during calculation, absence of consumer during billing time and extra expenses for the billing process. Aims to minimize these difficulties by providing automatic energy calculation through wireless medium and due date for payment etc. to the consumer through the wireless medium. The wireless technology can be implemented by having a Zigbee enabled transceiver interfaced with the EB section server as well as in the consumer side.

II. BLOCK DIAGRAM OF WMR

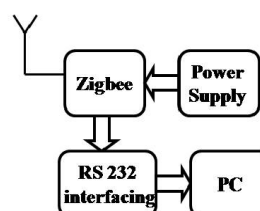
Zigbee based wireless Energy Meter reading and logging system on PC

1. Transmitter



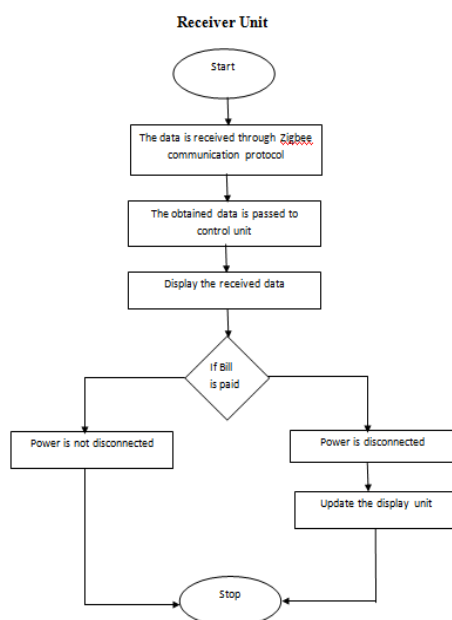
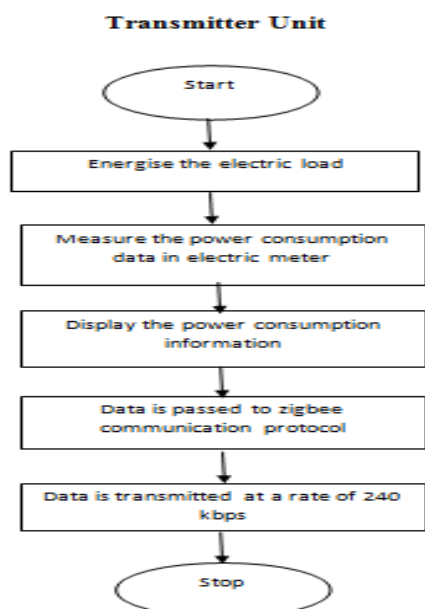
Zigbee based wireless Energy Meter reading and logging system on PC

2. Receiver



III. METHODOLOGY

The proposed AMR system is divided into two sections i.e. transmitter section and receiver section. The Methodology of AMR can be explained through below flowcharts.



IV. CONCLUSION

The successful development of the wireless automatic meter reading system described in this article is based on the high performance, extremely low power consumption, high level of integration, and low price of ZigBee technology. The technology has strong market competitiveness. ZigBee wireless meter reading system uses short-range wireless communication and computer network technologies to read and process metering data automatically. Wireless automatic meter reading technology can not only save human resources, but also improve the accuracy and instantaneity of the meter reading. It enables management sector to timely and accurately access power consumption messages. Moreover, no

cabling is required with relatively economical investment. For the proposed wireless automatic meter reading system, wireless communication links can be quickly built, Engineering period significantly shortened, and it has better scalability compared to a wired system. If a fault occurs, simply checking wireless data module can quickly find it out and restore the system in normal operation.

V. ACKNOWLEDGEMENTS

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