

CHAPTER 1

PREAMBLE

1.1 INTRODUCTION

Traditionally, the electricity meters are installed on consumer's premises and the consumption information is collected by meter-readers on their fortnightly or monthly visits to the premises. This method of gauging electricity consumption has the following disadvantages: (i) Sometimes the meters are installed inside people's homes and, if the consumer is not at home, the meter-reader cannot record the fortnightly or monthly consumption. (ii) Hiring of a number of meter readers by utilities' companies and providing means of transportation to them is an expensive burden on the companies' budgets. (iii) Dissatisfaction of some customers who consider meter-readers' entrance to their homes as some sort of invasion of their privacy. In order to overcome these disadvantages of the traditional meter reading system, efforts are underway around the world to automate meter reading. Nowadays, automate meter reading is heavily used in the abroad for collecting data and billing purpose. While Italy's ENEL SpA is considered to be first utilities' company which heralded in the new era of Automatic Meter Reading (AMR) in Europe. Among other countries, Germany, Greece, United Kingdom, Australia, and Argentina have deployed several AMR projects with the aim of reducing the cost of meter-reading, improving the collection of data from the meters, and then providing timely comprehensive information to consumers about their energy usage for better load balancing and utilities' management[1]. AEB, is the technology of automatically collecting data from energy meter and transferring that data to a central database for billing and/or analyzing. This means that billing can be based on actual consumption rather than on an estimate based on previous consumption, giving customers better

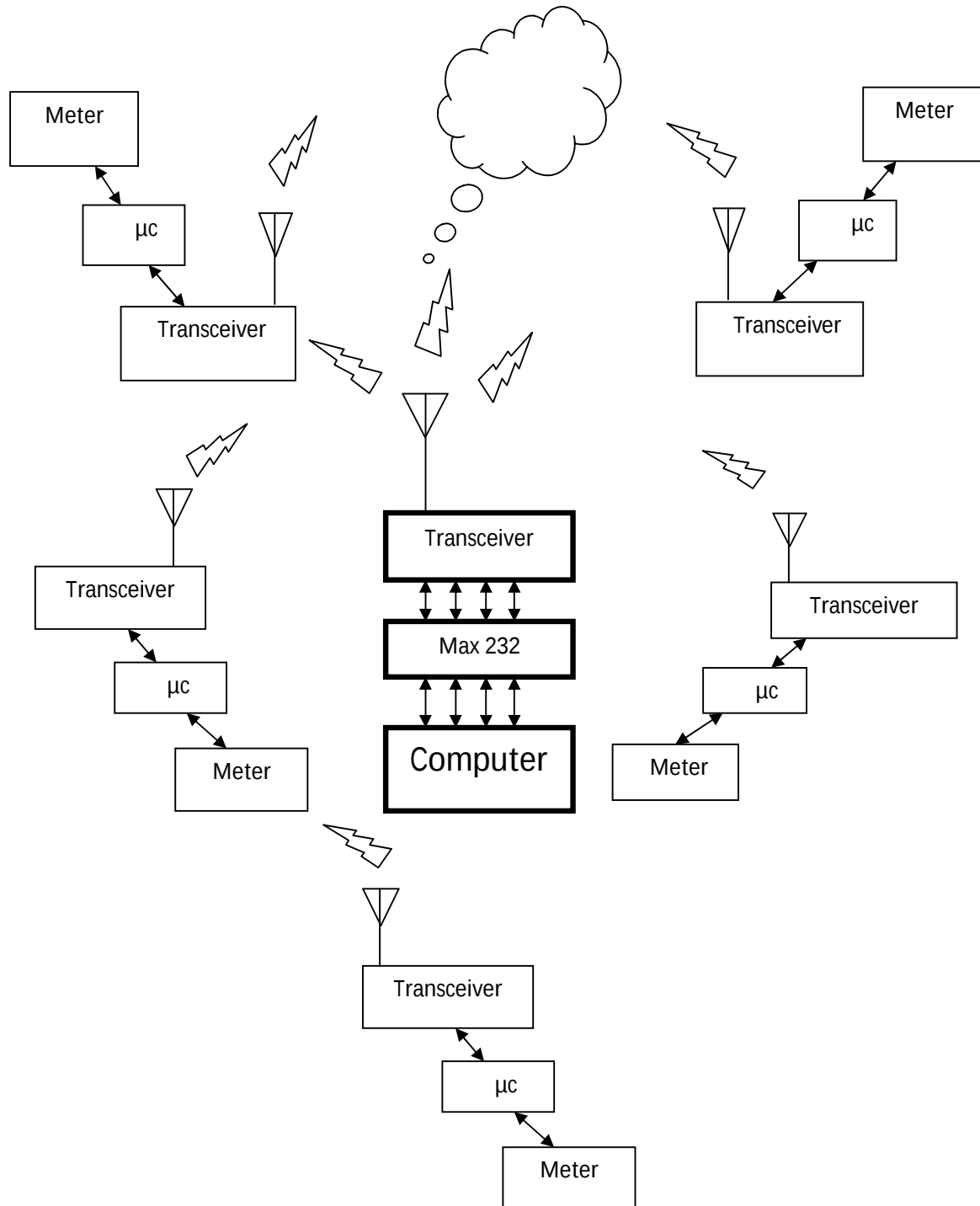


Fig1.1: Conceptual block diagram of AEB system

control of their use of electric energy consumption. Fig1 shows the conceptual block diagram of AEB system. Here the central office at the center will be collecting the meter data from various premises situated at different places. In India, the electricity billing system is completely manual. Millions of analog meters are already used in our houses, offices, industries. Here we have developed AEB with existing analog meters. In our project we have implemented AEB for a single meter. The AEB module developed here will take reading from analog meter and then convert this data into digital. Later the digital data is transmitted to the provider end to automatically generate the bill. For the purpose of communication between meter end and the server end ZigBee transceiver is used.

1.2 PROBLEM STATEMENT

In India, the current electricity billing system is completely manual. The electric meters are situated in the houses, offices and factories etc. The energy meter reading is collected by meter readers on their fortnightly or monthly visits to the premises. This system has disadvantage of appointing meter reader to take the meter reading, effects consumer privacy etc. In this direction this project undertakes the meter reading without human intervention.

1.3 AIM OF THE PROJECT

- The objective of this project is to develop a SMS based Automatic electricity billing system.
- The bill for the power consumed is automatically sent by SMS to the consumer.
- Within a limited period if the bill is not paid then the power will be automatically turned off.

1.4 OBJECTIVES

- The manual meter reading and bill data entry process is automated.
- To reduce data collection costs.
- To improve meter reading accuracy.
- To enable faster, more efficient reading times and billing process.
- To improve customer service and enable conservation of resources.