

GPRS Based Automatic Metering System

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Abstract : All over the world, due to increasing population, electric power distribution companies are looking for more efficient ways of reading electricity meters. In Ghana, the prepaid metering system was introduced in 2007 to replace the manual system of reading which was fraught with inefficiencies. However, the prepaid system in Ghana is not capable of integration with online systems such as e-commerce platforms and remote monitoring systems. In this paper, we present a design framework for an automatic metering system that can be integrated with e-commerce platforms and remote monitoring systems. The meter was designed using ADE 7755 which reads the energy consumption and the reading is processed by a microcontroller connected to Sim900 General Packet Radio Service module containing a GSM chip provisioned with an Access Point Name. The system also has a billing server and a management server located at the premises of the utility company which communicate with the meter over a Virtual Private Network and GPRS. With this system, customers can buy credit online and the credit will be transferred securely to the meter. Also, when a fault is reported, the utility company can log into the meter remotely through the management server to troubleshoot the problem.

Keywords : access point name, general packet radio service, GSM, virtual private network

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