

Pre/Post-Paid Smart Metering System for S&CC

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Introduction

This is a new concept in electricity meter billing based on GSM SMS network. The system when deployed will automate the gathering and tracking of data about electricity usage in Nigeria. Every month, thousands of meter readers drive from home to home to manually read millions of electricity meters after which the collected data is entered into billing systems, most often by workers reading the logbooks. This veritable army of meter readers keeps the utility company financially alive, it involves a lot of financial overhead.

We have designed and produced a prototype of a new generation of electricity meter which promises to fully automate intelligently the data gathering, tracking, transmission and billing and payment technique of any electricity subscriber. Based on a microcontroller rather than spinning disk, this new generation meter uses wireless network platform to transfer information from the subscriber's residence to a centralized server at the electricity office for billing processing and onward bill notification to user's GSM Handset as well as the meter LCD display.

Functionality

- Meter information is read from the electricity company at the branch office through signals using the GSM SMS network for a postpaid billing system. With a prepaid plan, the subscriber purchases a special electricity company GSM based scratch card with various monetary amount and send information to an assigned number for authentication purposes of the said meter. The system is designed to give alarm when the subscribers electricity unit is down to a particular unit, also it can alert the company when an attempt is made to tamper with the meter connection. Prepaid planners will just load with appropriate amount of money according to there usage capability.

Benefits

- Reduced data collection costs: Economy of electric power billing by the operators due to minimal human intervention in reading of meters.
- Accurate and immediate billing information in real-time.
- Instant tamper detection report
- Billing through a low cost GSM data & SMS text messages
- Fast and easy installation at user's residence.
- Billing of users without power consumption will be completely eliminated since meter reading is automated.

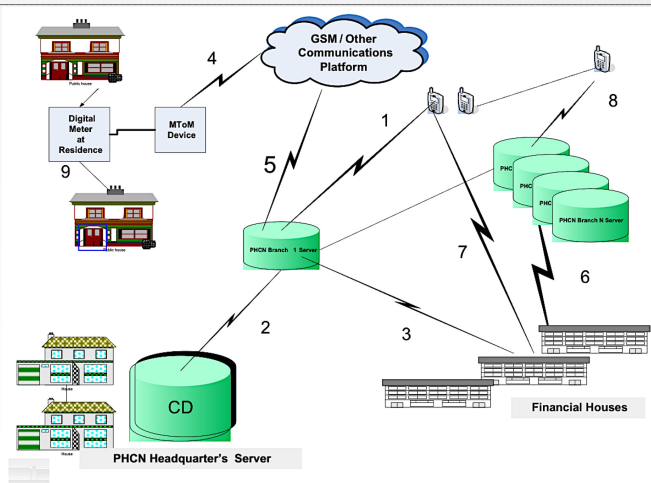


Figure 1. Block diagram of Smart Metering and Billing



Figure 2. The Developed Prototype

Conclusion

- The pre/postpaid electricity meter is designed to be used on the SMS platform to send and receive billing/metering information at the subscriber's end
- When money is paid, the financial houses send information to the central database, which in turn sends information to the respective meter and authenticates its ability to continue working without delay, otherwise the system will disconnect the subscriber from the main line.

• **Patent Pending**