Cloud-based Automated Meter Reading through Wireless LAN

Electrical Network Analysis

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Abstract

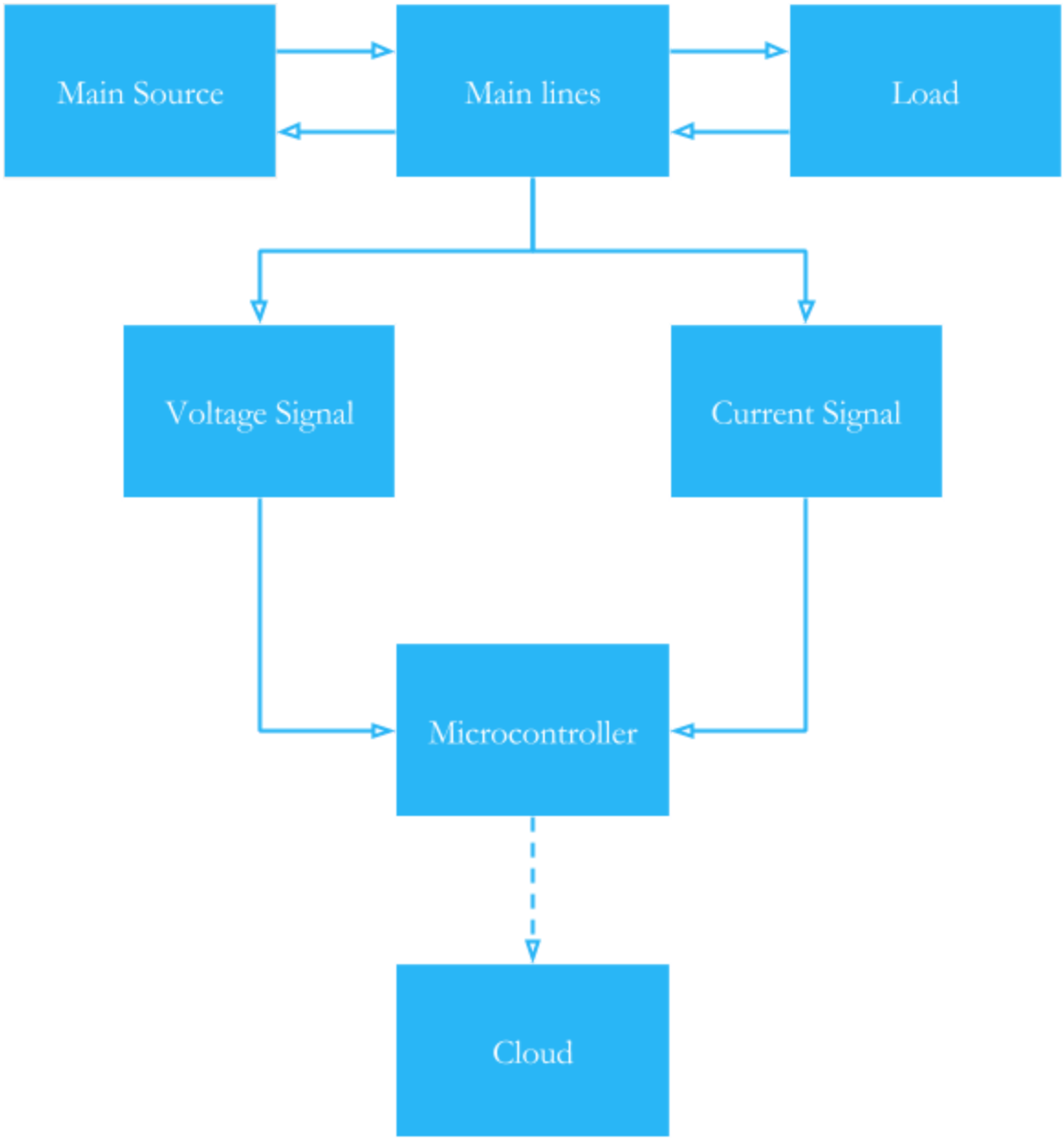
Pakistan has always been facing lack of *transparency* as a key issue in its revenue generation system. The underlying reason if analyzed, is not regarding individuals but system. Information proceeds through several channels which can neither be *documented*, nor *monitored* in a centralized manner.

The solution of this problem can be implemented through an **Automated Meter Reading infrastructure** which provides a real-time cost effective *monitoring* system of distribution corporations as well as executive bodies.

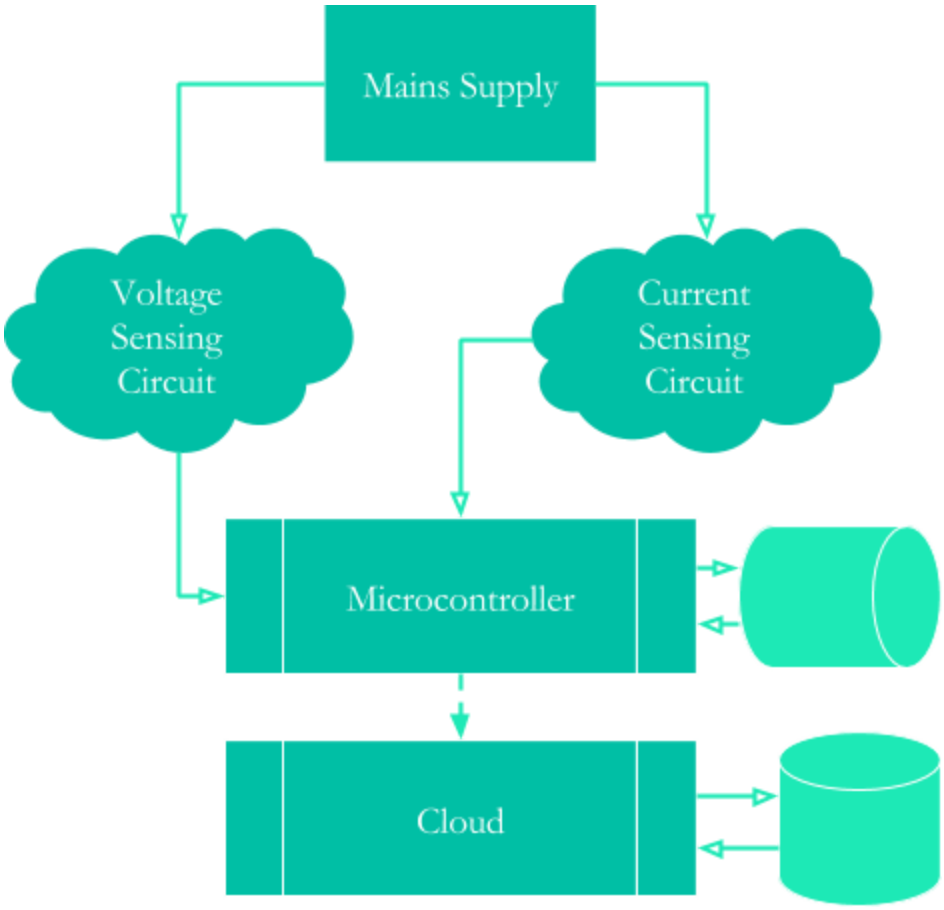
Proposed architecture is a cloud based infrastructure collecting information from individual nodes through a preferably wireless communication channel. Each node collects its data for a particular passage of time and transmit it onwards for further processing and monitoring. The cloud machine can then be utilized to perform desired calculations in a billing perspective, not with respect to previous data but relative to energy utilization pet time of day as well. Thus bills can be automatically generated with maximum transparency and least tolerance for errors.

This technology will save the cycle and instant results will be obtained which surely was could not have been possible through the classic infrastructure. Expenses and time are both saved against paper documentation as well. Moreover, *human resources* can also be now utilized for more important executions than these repetitive tasks of life.

Block Diagram



Data Flow Diagram



Hardware Components

- Voltage Transformer
- Current Transformer
- Microcontroller : NodeMCU
- Analogue Multiplexer
- Voltage Regulator
- Potentiometers

Team Management

- Research and Development : Muhammad Usman
- Implementation : Syed Talal Ahmad
- Scaling and Calibration : Muhammad Hamza Shafique