MAKEL USOBIM (Remote Meter Reading Data Center) System

100% web based architecture provides seamless interface to its users for accessing all data over internet

MAKEL USOBIM, is a 100% web based OSOS(Automatic Meter Reading System) system that is designed for the AMI/AMR needs of the electricity distribution and industrial companies. Meters started to become a part of data communication system first by remote reading of the electricity meter data(AMR - Automatic Meter Reading) and this process is evolved to a Smart Grid: A distribution data management system enabling us to manage energy generation, usage and distribution.

Remote meter reading systems enables us to use the electricity infrastructure efficiently, to make correct estimations for investments, correct grid analysis and planning, reduce tampering and losses, in time billing, real time multi pricing in a multi tariff system, distribution web automation, remote closing and opening, to reduce meter reading cost and to increase customer satisfaction. These features give distribution companies an ease in management and reduce costs. Makel automatic meter reading system, is designed to collect energy usage, state and notifications from customers into a central control station. Meters can also be controlled remotely by the help of the two-way communication. The system can be programmed to read metering data periodically or at the determined time. Also the central station can make immediate reading in cases of a new customer arrival, customer departure, customer objection, tamper or loss suspicion. Makel USOBIM system consists of 3 parts; communication software, application software and database.

Communications software which runs as background service in communication server at data center provides all necessary communication activities between meters and data center using TCP/IP protocols. Communications software and web interface uses database to communicate with each other. Application software is the backbone for web interface and services. It provides a web server for web users. Number of connected users is only limited by the capacity of the server and internet throughput. Database is based on SQL server 2008 and can hold millions of data for years safely and produces faster and sophisticated reports.

General Specifications

▶ GSM/GPRS technology and TCP/IP protocol gives us a wide range of coverage in a secure, fast and cost effective way.

▶ The system is independent of the underlying hardware infrastructure, with the help of the web based multi layer modular software architecture; it easy to add and remove a meter. You can start from 1 meter to a hundreds of thousands of meters.

▶ Provides data communication interfaces to exchange necessary data between external systems (Geographical information systems, subscriber information management systems, Billing systems, CRM, ERP software) using web services in xml language or in other formats. It also provides methods for processing of retrieved data for hand held terminals.

▶ Has a customer tracking aimed at periodic reading (hourly, daily, weekly, etc.), which can collect energy usage, state and notification information and also load profile data.

▶ Using universal standards the system is independent of mobile network operators.

▶ The analysis module working on top of the SQL database server can make flexible queries, analysis, create graphical views, and creates needed work commands.

▶ With the help of the flexible module in the multilayered software new meter communication protocols can be added easily (EN 62056-21, DLMS-COSEM, etc.). The system can read many different brands of meters

▶ The security is ensured by using an encrypted communication between the central station and the meter.

▶ Database security is ensured by the encrypted communication in the database access layer, authorization mechanism and firewall. Also the database is backed up periodically.

▶ With the easily usable GUI, error prone and efficient usage is ensured.

Street lightening meters can be controlled automatically or manually by using the reed available in the Wport.

▶ Users can be informed through e-mail or SMS for cases like when the Reactive/Active energy ratio goes below or above the determined value, number of failed communication attempts.

▶ Different authentication levels enable to create users with different qualifications

▶ Virtual metering points can be constructed by using some of the metering points connected to the system.

▶ Using Wport modem, Partial (user specified or default packets with user defined or default contents) or complete readout data in meters can be read from data center.

▶ Up to 10 different packets with user specified contents can be defined in Makel USOBİM system.

▶ All reports created by the system can be exported to Excel, pdf, csv, text, rtf. Also the graphics can be saved in image formats. System can create OSF formats.

▶ System is designed to work 7/24.

Makel Usobim General Architecture
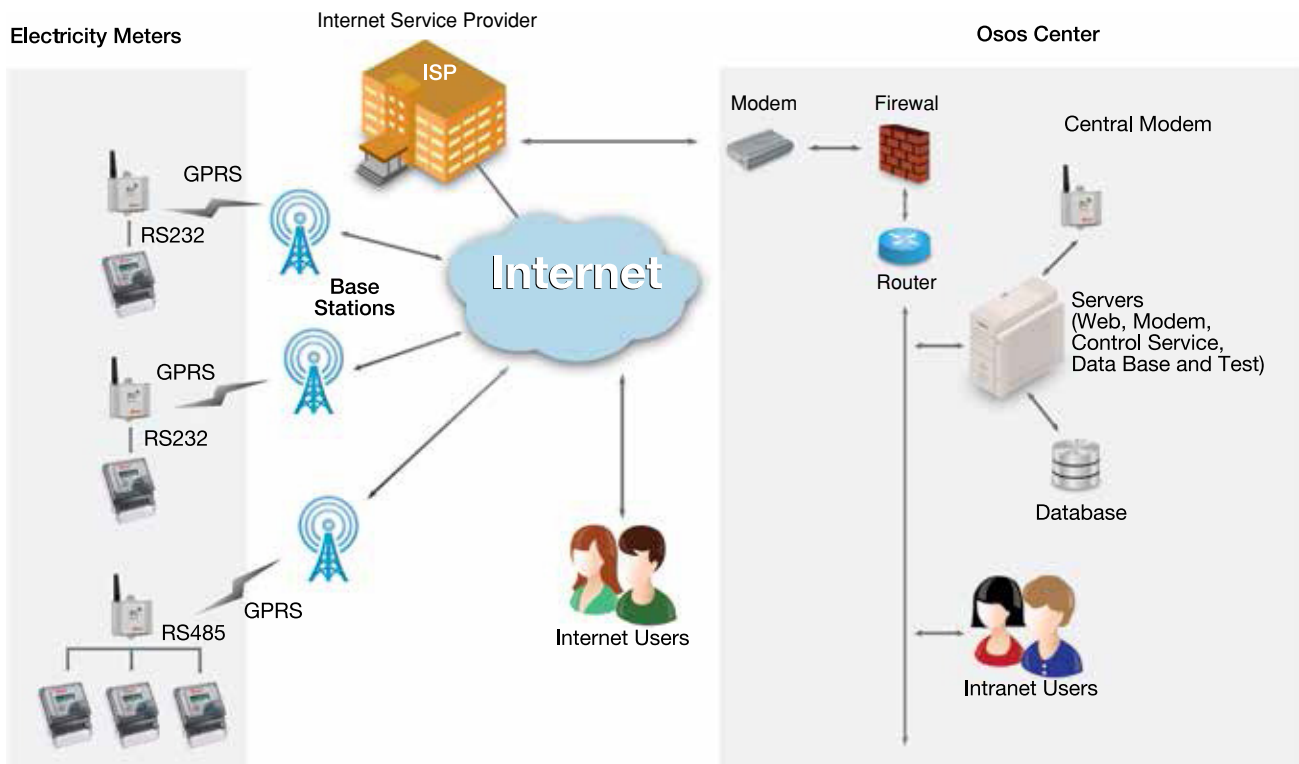
- OSOS center is the installed data center of AMR. Data management, collection and storage are coordinated in this center.
- Commands from OSOS data center passing through the routers and broadband modems reach to modems via ISPs and GSM/GPSR mobile internet infrastructure.
- Modems doing all necessary communications with meters or bypassing commands to meters, behave as a gateway between meters and OSOS data center. Communications are encrypted. If desired, modems can do all the necessary communications with meters in determined times to pick-up and store all required data in standalone fashion and when OSOS data center asks for data, they transfer all stored meter data to data center.
- Data obtained from meters are stored in a strong database in OSOS Center. So, one can easily and safely reach millions of data in a short time.
- When desired, internet and intranet users using a web browser which is available in their computers and by entering their user name and password can query all stored data, have desired reports or give new orders for new data reading action.