

Remote Data Acquisition and Visualization on an App

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Abstract

In order to allow power consumers to have a better understanding of their industrial electricity, it is necessary to provide them with real-time electricity information. Now a days we need to do meter reading, analysis manually. If any meter is goes down or fluctuating we need to do manual servicing and troubleshooting. It may cause meter loss, Time loss, and financial loss. The platform enables power consumers to have a better understanding of their own electricity consumption status and reasonable arrangements for use of electricity. Its deployment is very simple. For users, they do not need to change the household electricity structure. They can easily view the home electricity information and real-time monitor and control after installing power information visualization APP on their mobile phones or other mobile terminals. User interaction needs to collect power information of all equipment, and provide users with real-time electricity price and electricity information. The basic purpose of system is M-Measure, A-Analysis, R-Record, and CControl. No human intervention for data processing analysis. This is use for Power quality analysis, Identification and prevention of downtime of assets, Alarms and triggers are used for preventive control to avoid loss. Reduce the losses by monitoring and controlling the power quality. Accurate analytics depending on the load connected to the system. It supports most of all make sensors and hardware meters to work with the system. Periodical analysis of the organization for the complete energy health check-up.

Keywords: *Smart Meter, Visualization, Acquisition, Gateway, Sensors*

INTRODUCTION

Electricity conservation is need of the hour. Whenever possible it must be saved but you cannot conserve what you cannot measure. We get the electricity bill at the end of every month. The amount of our bill is calculated from the units as shown on our meter. In industrial sector or big organization where the energy consumption is very high, using energy efficiently and avoiding wastage of energy is very important. Energy consumption needs to be monitored on every storey. There are various parameters- current,

voltage etc. on the basis of which we get the UNIT count. It allows power consumers to have a better understanding of their industrial electricity. So when a owner tries to backtrack, see how he's getting a large sum all these parameters will be shown to him, with their values. Also consumed energy every 15 min, per hour, per day can be monitored for every floor, building. Variation is seen at night, the power consumed is low and during the day time the power consumed is high. To monitor the data, first important step is data acquisition. Data needs to be acquired

from multiple sources, such as meters from each floor into one node per floor. Send that data from nodes to cloud from multiple nodes.

Literature Survey

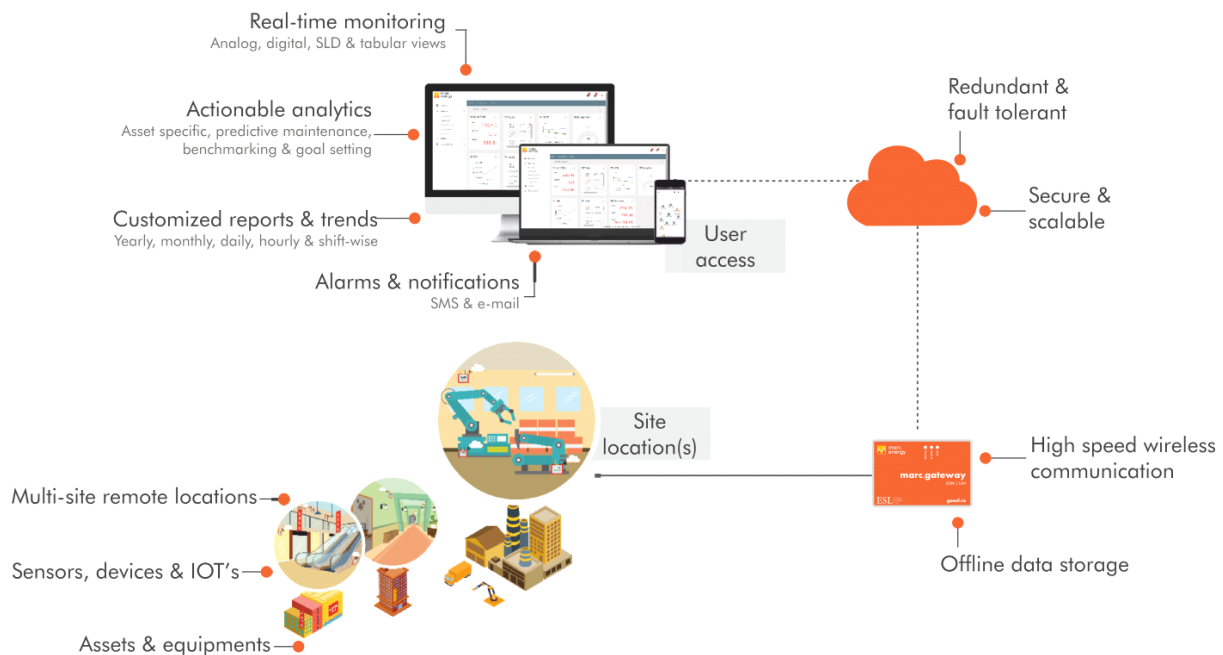
a. The paper was published in since 2012 they present a study on a prototype of a system to acquire and monitor data using an App. The purpose is to acquire and analyze this information to Measure, Analyze, Control Energy consumption providing an easily accessed data base.

b. The paper was published in since 2016, In order to allow power the consumers to have a better understanding of their own electricity , it is necessary to provide them real-time electricity information. On the

basis of intensive study of the electricity information acquisition system, this paper puts forward a construction scheme of power information visualization platform based on smart meter. Limitation it is network down may cause data loss. It may slow down if meters increase.

Proposed Methodology

To find appropriate solution for above problem statement following system is designed. They were using some sensors for collecting information at remote location, gateways are used to push data over cloud. And some visualization devices at client side. The following system design satisfies the problem statement. This is proposed system.



There are 4 important aspects in the system

- Sensors: - Collecting the data from the remote locations.
- Gateway: - Devices which able to send data over cable.
- Data Acquisition and Visualisation on an App through Smart Meters
- Cloud: - It is the place where data is stored.
- Visualization:- It can be an Android,

IOS and Web application.

The combination of sensors and gateways is known as SMART METER.

RESULTS

- Increased machine uptime – It is easy to find out the down time of an system. We can take immediate action to restart the equipment. It result we the uptime of machine. Using this we can

utilize the machine totally.

- Strategies to manage demand supply – We can easily analysis the behaviour of an equipment. If we know that some equipment is not working well then we can take action or we can demand for new one.
- Prolonged equipment life – We can easily maintain the equipment. All the equipment are under observations. That's why we can easily give proper maintaince.so the lifetime of equipment will increases.
- Accuracy in analysis and Report – Manually reading and reading through applications the application reading will more accurate and detailed

CONCLUSION

- Operational energy costs of organizations are reduced, provided appropriate products and solutions backed up.
- Increases the life of equipment

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REFERENCES

1. Dapeng Zhao. The Research on the construction of the smart city in China,
2. Longhua Mou, Guofeng Zhu, Jiyan Zhu, Design of intelligent terminal based on smart grid, Power System Protection and Control.
3. The design and implementation of power information visualisation platform based on smart meter.
4. The development of mobile apps for wireless sensor data acquisition and visualization of bio potentials