Agri-X

Solar pump monitoring system

A product from

ELITIA TECHNOLOGY
SOLUTIONS PRIVATE LIMITED

Irrigation is a very influential aspect that affects the productivity os agro-based economies. Reliance on electricity is an absolute need for effective irrigation. Adding to the other agricultural costs, farmers find it very difficult to maintain the cost for conventional electricity.

Solar powered water pumping systems, that makes use of photovoltaic (PV) cells helps the farmers to cut down costs for irrigation to multiple folds and also brings self-reliance to the farmers. These and several other benefits appeases the farming community, and more and more farmers are interested in trying alternate sources of energy.

Typically these installations tends to be as a part of a group, and not as individuals. So naturally, they are maintained by energy providers as a group.

Agri-X

Maintaining such large distribution of the installed solar pump systems is not an easy task. It requires tremendous amount of man power to monitor the health of the systems, to repair them in case of any failures, etc.

Internet of Things (IoT) provides an extrordinary platform to connect these installations and thus maintain them effectively. It also provides means to calculate the efficiency of the power generation, system maintenence, predicting malfunctions, and much more.

Introduction

Agri-X is able to monitor real time generation from renewable pump installations of heterogeneous vendors in distributed locations country-wide typically solar.
The system is capable of measuring, monitoring, recording and storing performance data of all the pumps simultaneously. The data is retrieved, processed and used for analysis. As this a distributed system, the data from the generating sources should be pushed to the cloud server using latest communication technologies such as GPRS, 3G, lease link etc. Key points are enumerated below:-

• The remote monitoring application have 3 personas which are:

- **Super Admin:** who can monitor all the sites at the same time and have control over operators.

- **Technician:** who is the operator of the control room and can monitor the site on a detailed basis.

- **User:** who is the owner of the site, can monitor the essential parameters of his site.

• The monitoring service includes a complete graphical user interface (GUI) to represent all the monitored power generation parameters.

- Real time tabular and graphical views

- Viewing online data

- Viewing Historical Data

- Alarm Management

System Architecture
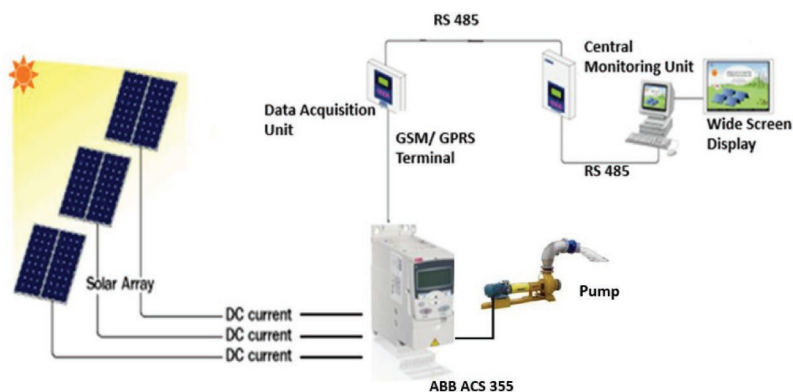
• With the help of GPRS device, operational and process data is monitored locally in real time and transmitted to a central location for analysis via the Internet.

• Each ABB ACS 355 drive will be connected to a GSM/GPRS device which acquires data from MODBUS client devices and push the acquired data on the local server through HTTP

protocol from where the site can be monitored.

- Modbus TCP commands from the drive to data acquisition unit are supported in the remote monitoring mode.

- An internal Modbus TCP gateway provides a standard interface that can be used by supervisory control and data acquisition applications to display drive information in real time. Also, have built a remote monitoring system to understand the solar pump site behavior.

How Agri-X works?

Elitia's Agri-X, is entering a new era with the development of wireless sensing devices. Our deep insight on power industry and intelligent M2M Gateway capabilities help to acquires data remotely on operating conditions with cloud hosted analytics software that makes sense of disparate data points to help managers become far more proactive about managing production at peak efficiency and predictive modeling to improve return on investments.

Thus, Elitiatech provides an inclusive solution for monitoring, integration, security, and solar site maintenance and management during the entire life cycle while reducing manpower and resources /costs. We serves as a unified platform that interfaces flexibly with other existing solar energy technological systems such as inverters, sensors, CCTV, ERP systems PLC's and others.

Our system displays all the information gathered from the solar site and displays them on one screen in real time at a different location.

Monitoring Solution

The remote monitoring application will have 3 personas which are

Super Admin

The Super Admin is the person who can remotely monitor all the sites in a single go. He is the one who has control over the

operators. The monitoring services renders all the essential parameters in a graphical user interface (GUI) where he can inspect all the real time data on a graphical format.

Operator

- The Operator is the person who can remotely monitor all the sites in a detailed format (site wise).

- Ubiquitous visibility of real-time pump data over Mobile & Cloud based Application.

- Analyzes and compares the massive volume of data between two sites.

- Predictive tools and customized alerts to schedule mainte- nance of connected System, which replaces the need for ongoing inspections

- Alarm Management.

- Real time monitoring.
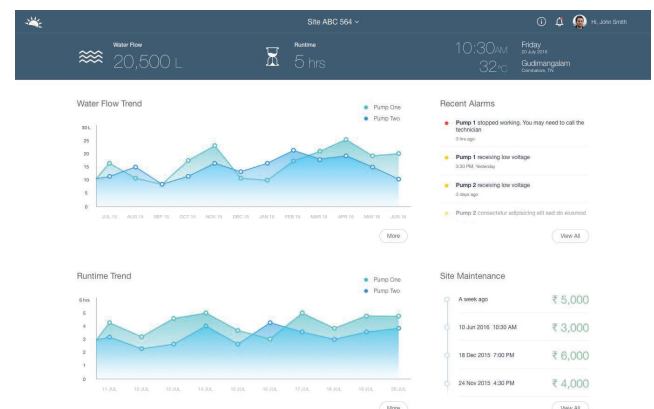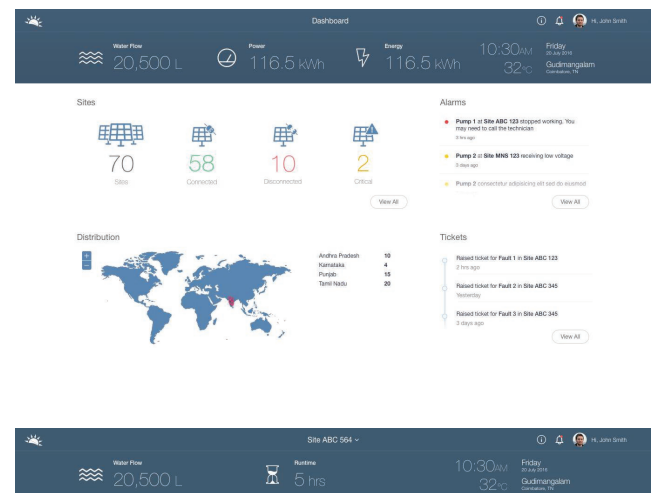
Customer

- Views the essential parameters such as water flow, power generation, run hour.
- Real time tabular and graphical views.
- Can request for service of the site.
- Gets notification/ alarms form the operator regarding his site.

Features

The web based application has the following features:

- Ubiquitous visibility of real-time pump data over Mobile & Cloud based Application.
- Centralized Application to remotely monitor the pumps distributed across geographies.
- Transparent Visibility for Operators to manage and analyze massive volumes of collected data.
- Interactive dashboards with customized widgets facilitating world class UI/UX experience.
- Predictive tools and customized alerts for operators to schedule maintenance of connected System, by replacing the need for ongoing inspections.
- SMS/ Email/ Dashboard/ Mobile App Alerts/ Events.
- Provision for Data export in various Formats like, Excel, PDF, Text, CSV.
- Unlimited Historical data made available for report generation.
- Admin Tool for Self-management of all Pumps/ OEM's/ Customers.

Benefits

The application is purely web based and does not need any client installation. It requires only web browser to work.

Users can securely access system from anywhere using Internet. Users can access information from home, office, or anywhere else without any user or client licenses through secure password protected web portal.

All generated data is available on the same cloud software platform and also visible on one common screen / user interface.

Agri-X is modular and scalable so that it can at a later date be integrated into an integrated large scale Information Management System.

The system is hosted at a robust Data Center and support Web Based operation with concurrently maintainable site infrastructure with expected availability of 99.5%. The data is backed-up regularly so that it is always safe.

Monitor and control, Reduce service calls and downtime, Maintain customer connection, Staying connected with green lifestyle

Contact Us

7, SJR Eternity, Phase 1,
Kodigehalli Road,
Hoodi, Bangalore - 560048

+91 80-420-37777
info@elitatech.com
www.elitiatech.com