University : Karunya Institute of Technology and Sciences
Country : India
Web Address : www.karunya.edu

[2] Energy and Climate Change (EC)

[2.15] Planning, implementation, monitoring and/or evaluation of all programs related to Energy and Climate Change through the utilization of Information and Communication Technology (ICT)

1. Solar Power Plant Data Logging System

A fully automated data logging system records and monitors energy generation from the campus solar power plant. Real-time dashboards and data analytics modules assist in evaluating energy output, efficiency, and CO_2 reduction. The data are archived digitally and periodically reviewed for optimizing solar energy utilization and system maintenance.

2. Automatic Lighting Control Systems

Smart lighting systems have been deployed in various academic and administrative buildings. These systems utilize motion sensors and ambient light detectors to regulate indoor illumination, thereby reducing electricity consumption. The control units are integrated with ICT-based platforms for scheduling, remote access, and performance tracking.

3. Participation in AERONET (AErosol RObotic NETwork)

KITS is an active collaborator in NASA's AERONET, a global network of ground-based aerosol monitoring systems. Using ICT-enabled photometric instruments, the institute collects and transmits atmospheric aerosol data in real time. This collaboration contributes to global climate research and helps in evaluating air quality trends across regions.

4. Digital Weather Logging System

A network of weather log stations records parameters such as temperature, humidity, rainfall, and solar irradiance. The system automatically stores and transmits meteorological data to a central repository, providing critical inputs for climate modeling, student projects, and environmental research activities.

5. Remote Monitoring of Groundwater Levels

A low-cost IoT-based groundwater monitoring system has been developed to support sustainable water management. Pressure sensors measure back pressure variations

corresponding to groundwater recharge capacity, and the data are transmitted wirelessly for analysis. The system allows hourly and daily monitoring without manual intervention, aiding farmers and researchers in preventing over-extraction of water resources.

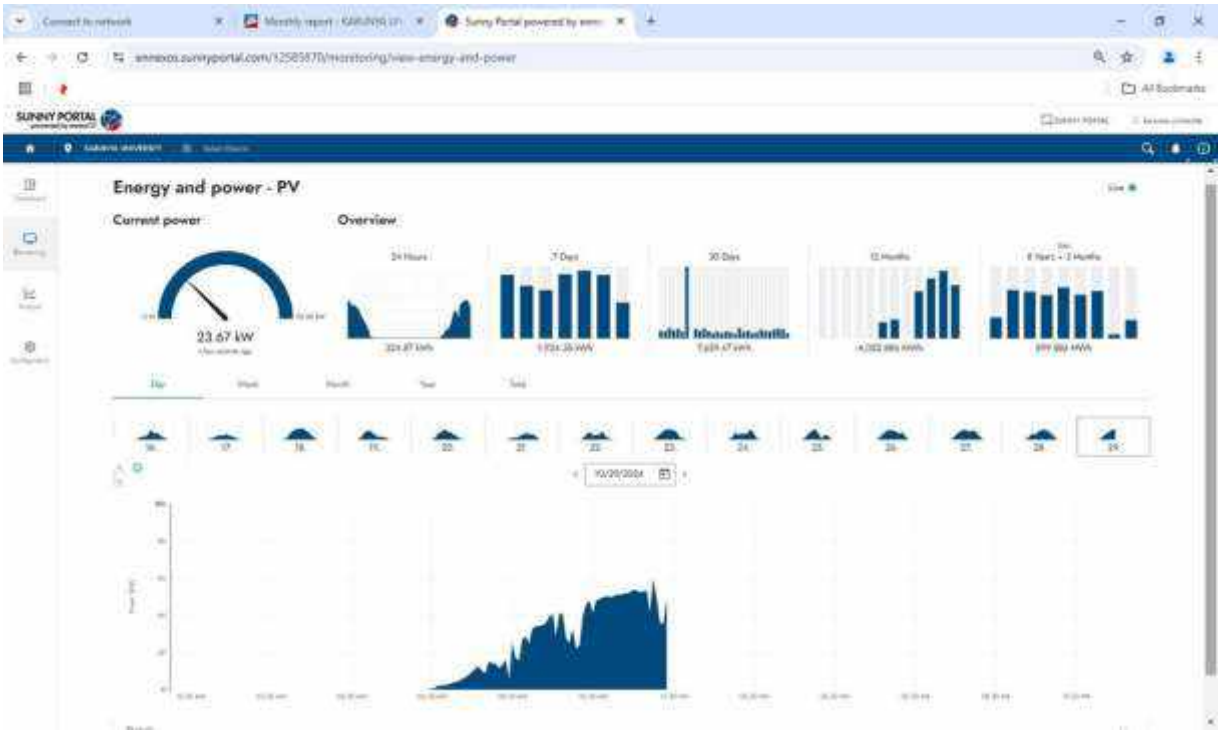
6. Real-Time Monitoring of Solar Data for Research

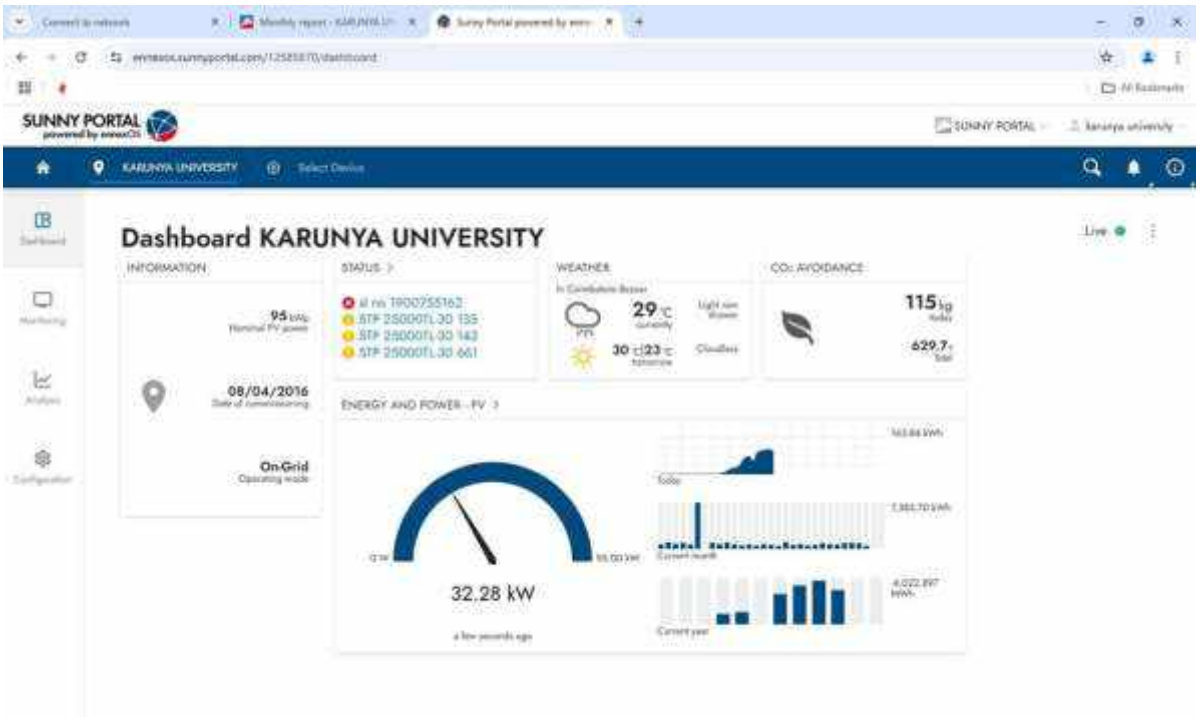
The Division of Electrical and Electronics Engineering (EEE) has installed a 3 kW solar photovoltaic system dedicated to research and academic study. The solar energy generated is utilized to power the loads connected in the Solar Energy Laboratory. Real-time solar generation data are continuously monitored through ICT-based interfaces for research, teaching, and analytical studies.

This live system enables students and researchers to evaluate solar panel performance, load characteristics, and energy efficiency trends, integrating renewable energy monitoring directly into the learning process. Through the integration of ICT, KITS has achieved enhanced data-driven decision-making, energy conservation, and operational efficiency. The digitization of monitoring systems enables continuous performance assessment, predictive maintenance, and real-time sustainability reporting. These efforts contribute directly to the institute's goal of reducing carbon footprint and promoting smart campus operations.

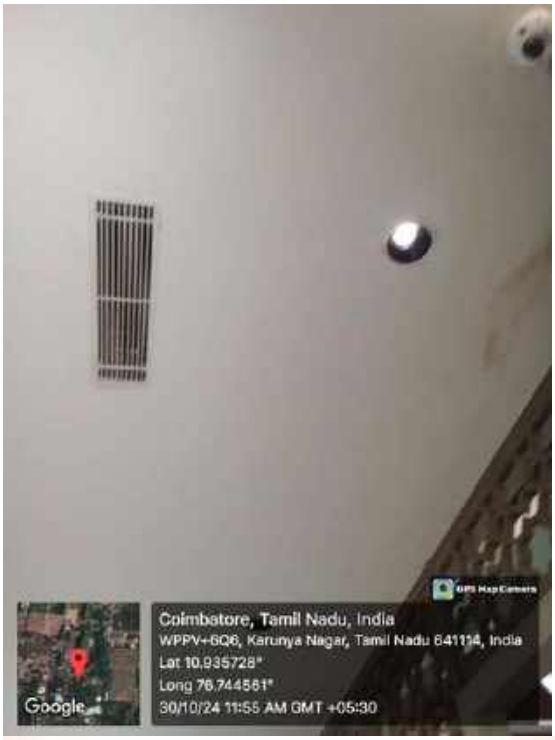
Detailed with Photo

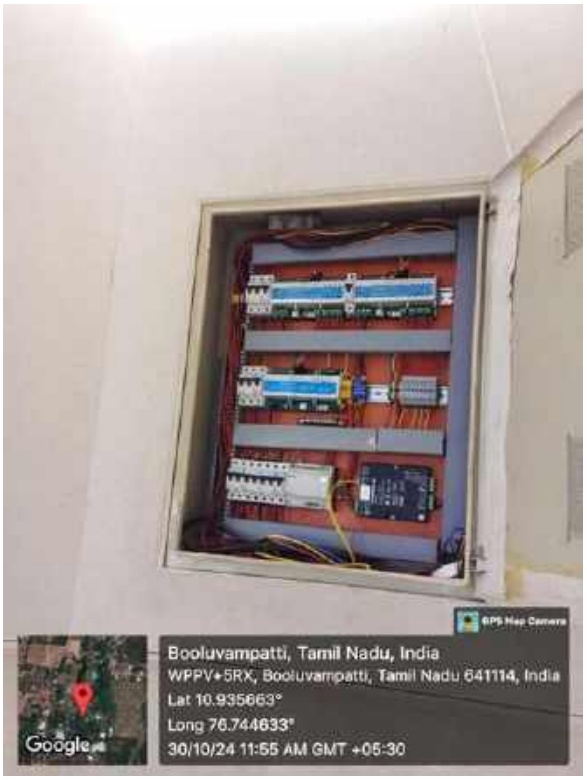
1. Data log for Solar Power Plant


Energy and power - PV
Current power
Overview
23.67 kW


SUNNY PORTAL
KARUNYA UNIVERSITY
Dashboard KARUNYA UNIVERSITY
Live
INFORMATION
95 kWp
08/04/2016
On-Grid
STATUS
STP 25000TL-30 135
STP 25000TL-30 143
STP 25000TL-30 661
WEATHER
29 °C
30 | 23 °C
CO2 AVOIDANCE
115 kg
629.7 t
ENERGY AND POWER - PV
32.28 kW

2. Automatic System for Lights

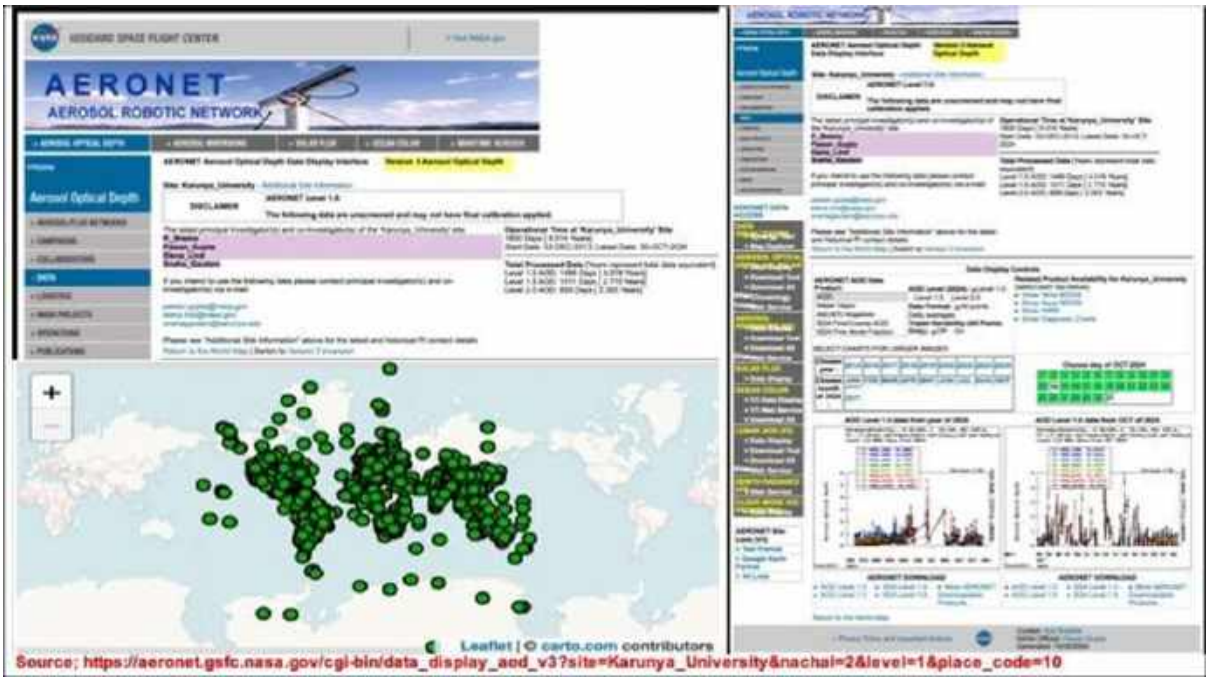




3. AERONET (AErosol RObotic NETwork)

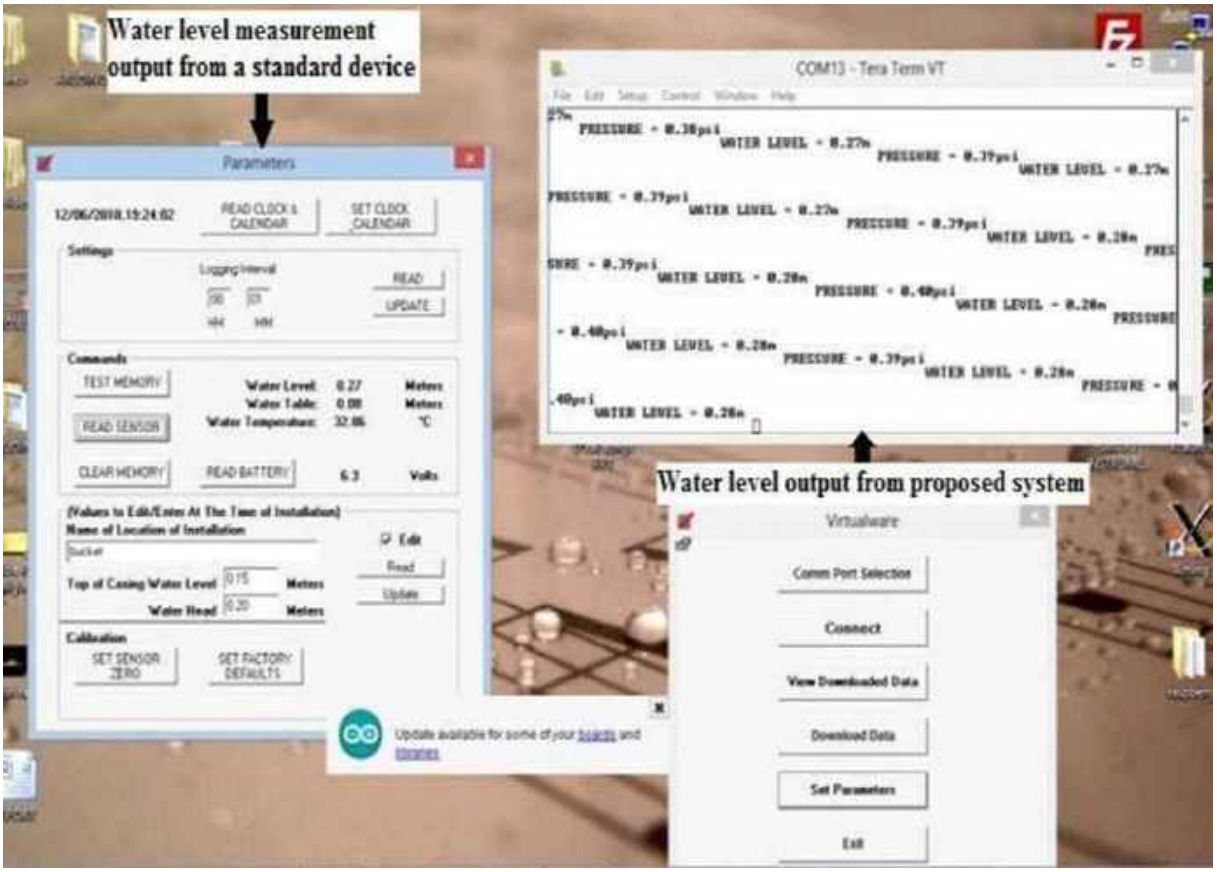
AERONET is a global federation of ground-based aerosol monitoring networks, led by NASA and PHOTONS, with contributions from other networks (e.g., RIMA, AeroSpan,

AEROCAN, AEROSPAIN, NEON, CARSNET) and partners worldwide. Karunya Institute of Technology and Sciences collaborates in data collection and sharing for this initiative.



4. Weather log Systems

5. Remote Monitoring of Ground Water Level Measurement in A Well



- Satisfies need for low cost monitoring system for farmers to know the water recharging capacity in the well so that over pumping can be avoided
- Online monitoring of ground water recharging capacity of the well is effected by measuring the back pressure developed in the pigfg pe mounted with pressure sensor.
- Considering the approximate requirement of water level measurement, the back pressure variation due to temperature change is considered negligible.
- Frequent measurements are done hourly/daily basis, readings are stored in interfacing board and transmission is done automatically without man power.
- The measurement is cost effective and frequent measurement enhances the accuracy.

Additional Evidence
https://www.karunya.edu/iqac/ranking/UIGreenMetric