Design of monitoring system for solar power station

How a solar power plant monitoring system works?
The Figure 1 shows the configuration of solar power plant monitoring system. Photovoltaic array output in the form of DC voltage is collected and connected to the Solar Charge Controller (SSC). The SSC optimize the charging process of the battery as the storage system.

What is a solar monitoring system?
The system was developed for monitoring a stand-alone PV plant that supplies power to DC and AC loads. It provides facilities to get information through three kinds of measurements: Environmental and system variables (ambient temperature, solar radiation, current, voltage, energy, power, etc.).

Can a virtual instrumentation system be used to monitor PV solar plants?
The aim of this paper is to introduce a system developed for monitoring PV solar plants using a novel procedure based on virtual instrumentation.

Why should a PV Monitoring System be used?
Due to high influence of solar iradiance, PV temperature and the ambient temperature on the PV performance, this parameter should be monitored and analysis to get the best operating condition. The designed monitoring system is able to collect and represent the effect of this parameter on PV perfomance.

How to calculate battery efficiency in solar power plant monitoring system?
The calculation of battery efficiency is carried out by using Equation 3,where Cd is discharging capacity and Cc is charging capacity. The Figure 1 shows the configuration of solar power plant monitoring system. Photovoltaic array output in the form of DC voltage is collected and connected to the Solar Charge Controller (SSC).

Why do we need periodic monitoring of solar power plant?
Periodic monitoring is needed to determine the performanceof solar power plant from time to time,considering the efficiency of photovoltaic is strongly influenced by solar irradiance and the conditions of solar power plant itself.

In this paper we will discuss a low cost IOT based embedded Solar PV Monitoring system which will make use of GPRS module and a low cost microcontroller to send the data measured at the...

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This paper mainly represents the simulation of the compact design of a grid-tied solar system for energy

production & internet of things (IoT) -based power monitoring using...

The IoT based solar energy monitoring system is proposed to collect and analyzes the solar energy parameters to predict the performance for ensuring stable power generation. The main advantage of the system is to ...

This paper therefore presents the design and construction of a solar tracking system that position the solar PV panel in proper orientation with the sun so as to always receive direct radiation.

International Electrotechnical Commission (IEC) standard 61724-1 is used by the industry as both a standard for how to design stations for monitoring power production at solar power installations and as a guide to design stations for resource assessment. This standard recommends various classes of monitoring stations for various purposes. For ...

The IoT based solar energy monitoring system is proposed to collect and analyzes the solar energy parameters to predict the performance for ensuring stable power generation. The main advantage of the system is to determine optimal performance for better maintenance of solar PV (photovoltaic). The prime target of PV monitoring system is to offer ...

In this study, a cost-effective Internet of Things-based remote monitoring system for solar photovoltaic energy systems is presented, along with a machine learning-based photovoltaic power estimator. An Internet of Things ...

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