# Intelligent solar control system

An intelligent control system was developed for the motor driven hose reel irrigator, for the purpose of improving the irrigator"s hydraulic performance, energy use efficiency, as well as ...

The control of solar photovoltaic (PV) systems has recently attracted a lot of attention. Over the past few years, many control objectives and controllers have been reported in the literature.

A Solar-PV inverter is made to operate as a PV-STATCOM to stabilize the different modes of a Turbogenerator-based power system. An intelligent MPPT control of the DC-Link capacitor voltage is implemented and introduced for optimal control. ... &  Maleki, H. (2019). PV solar system control as STATCOM (PV-STATCOM) for power oscillation damping ...

The above statistics clearly depicts that by proper tracking control system for solar energy can full fill all our present and future energy demands. It is interesting to note that by the efficient design of solar tracking system, almost twice as much energy can be extracted. ... Intelligent system is the system that behaves like humans and can ...

As part of this initiative, an Intelligent Energy Management System (ISEMS) has been designed with a specific focus on renewable energy to efficiently control energy demand within a smart grid environment [[46], [47], [48]].The demand-side energy management architecture of ISEMS enables the effective utilization of renewable energy sources [49 ...

This research has been motivated by the application of solar energy in public lighting with the intention to achieve an energy-positive street lighting sub-grid, briefly named E + grid.The proposed system architecture exploits all of the four possible approaches defined in Ref. [1] to minimize the energy consumption and the operating costs of the lighting system: ...

It is proposed the use of an intelligent power management control (IPMC) system employing fuzzy logic control (FLC). The IPMC is designed to optimize the performance of energy sources and backup ...

Abstract: Solar water heater intelligent control system is made up of four modules which are data acquisition module, single-chip control module, the implementation and regulation module and human- machine interaction module. The problems of automatic detection and control can be solved based on the hardware and software design. And the research and innovation on the ...

The article describes the control system of a solar power plant based on machine learning technologies. Neural network technologies have been used to control the distribution of electricity produced in a solar power plant. In this paper, it is proposed to use a neural network to track the point of maximum power, for more efficient

charge control. This is a method of regulating the ...

The project considers an automated intelligent solar tracking control system which is mainly designed to increase the energy production from the solar energy. Since solar energy is the main source of solar energy the best way of collecting solar energy in efficient manner is ...

In addition to the mechanical design of a tracking system, an intelligent controller is needed in order to increase the efficiency of the PV control system. Recently, many studies can be found that introduced different controlling procedures for different solar cell designs that aim in maximizing the power point tracking.

An important technique to address the issue of stability and reliability of PV systems is optimizing converters" control. Power converters" control is intricate and affects the overall stability of the system because of the ...

8th IFAC Symposium on Advanced Control of Chemical Processes The International Federation of Automatic Control Singapore, July 10-13, 2012 Control of Solar Energy Systems Eduardo F. Camacho Manuel Berenguel Department of System Engineering and Automatic Control of the Escuela Superior de Ingenieros of the University of Sevilla, Spain (e ...

The paper considers an intelligent automated solar tracking control system designed to increase the efficiency of solar energy production. The proposed method of detecting cloudiness allows system to adapt to various weather conditions in real time by changing the angle of the solar panel. It is known that in case of strong scattering of solar radiation in cloudy weather panels ...

The increasing demand for energy-efficient and sustainable solutions in the building sector has driven the need for innovative approaches that integrate renewable energy sources and advanced control systems. This ...

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The system uses a NodeMCU microcontroller for real-time control, enabling remote monitoring and control. Solar panels are strategically used to charge a battery, ensuring efficient energy consumption and minimal impact on generation. The paper presents an IoT-based smart street light system using the ESP8266 microcontroller, LDR, and IR sensor.

Utilization of solar powered system as renewable energy alternatives plays a dominant role in generating electricity. Throughout the years, solar tracking system has been continuously improved by researchers globally to maximize the power efficiency of a system. In this paper, a Fuzzy Logic Controller (FLC) is integrated into a large scale solar tracking system with ...

Artificial intelligence (AI) techniques play an important role in modeling, analysis, and prediction of the performance and control of renewable energy.

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