ŁOTWA SYSTEM

Solar dual container intelligent control system

Overview

What is intelligent solar tracking controller?

The designed intelligent solar tracking controller was implemented based on a field-programmable gate array (FPGA). The designed control system was tested and evaluated using both experimental and simulation and it allowed simpler, faster, and precise control to the solar tracking system.

Can single and dual-axis solar tracking control systems improve solar tracking performance?

The aim of this paper is to design and implement efficient single and dual-axis solar tracking control systems that can increase the performance of solar trackers, predict the trajectory of the sun across the sky accurately, and minimize the error, therefore, maximize the energy output of solar tracking systems.

Are single and dual axis solar tracking controllers possible?

This section presents the results and the discussion of the proposed single and dual axis solar tracking controllers separately. To achieve the goal of the developed solar tracking systems, a manually controlled real mechanical solar tracking prototype was designed and implemented to collect several variables.

Can artificial intelligence be used in solar tracking control systems?

Artificial Intelligence is widely used in solar applications. Adaptive Neural Fuzzy Inference System (ANFIS) principle is one of the intelligent techniques that is sufficient to be used in control systems. This paper proposes two new efficient intelligent solar tracking control systems based on ANFIS principle.

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Trinasolar

To address the challenges faced by this power station, TrinaTracker implemented its self-developed intelligent control system as a pilot project in August 2023. This solution integrates ...

Solar dual container system control

What is a dual axis solar tracking model? Chaowanan Jamroen et al. (2020) created a dual-axis solar tracking model that is both automatic and economical to improve the power production in ...

Concept Design And Implementation Of A Dual Axis ...

May 3, 2025 · The IoT framework enabled real-time data exchange, centralized control, and scalability, offering a blueprint for intelligent solar energy systems. While the system is a proof ...

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An integrated dual control framework for self-sustained ...

Oct 1, 2025 · An integrated dual control framework for self-sustained single-stage solar energy harvesting system in intelligent air ventilation application

Modeling of intelligent controllers for solar photovoltaic system ...

Nov 2, 2023 · Solar photovoltaic (PV) systems, however, exhibit nonlinear output power due to their weather-dependent nature, impacting overall system efficiency. This study focuses on the ...

Modeling of intelligent controllers for solar ...

Nov 2, 2023 · Solar photovoltaic (PV) systems, however, exhibit nonlinear output power due to their weather-dependent nature, impacting overall ...

A novel container-based approach for integrating solar ...

In the virtualised environment with decentralised intelligent controllers in containers, the control setpoints are communicated between the IEC 61850 client and server and implemented as ...

Smart control and management for a renewable energy ...

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Efficient single and dual axis solar tracking system controllers based

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Inference System (ANFIS) principle is one of the intelligent techniques that is sufficient to be ...

Modelling and Control of an Experimental Fuzzy Logic ...
Feb 9, 2024 · ABSTRACT This paper aims to model and control of an experimental dual axis solar tracking system utilizing a Field Programmable Gate Array (FPGA) based on intelligent ...

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