Solar tracking fuzzy control system

A supervisory control unit based on fuzzy logic was designed to manage power flow between the energy sources, storage system, and various loads. This framework ensures that energy is ...

Gani, A. & Sekkeli, M. Experimental evaluation of type-2 fuzzy logic controller adapted to real environmental conditions for maximum power point tracking of solar energy systems.

Solar Tracking System using Arduino Smart Grid Monitoring with GSM Alert Wireless Transformer Fault Detection Load Control via IoT Smart Energy Billing System Induction Motor Speed ...

Indukuri et al. [13] have suggested a multi-phase control approach to maximize the integration of ML-UPFCs with solar photovoltaic (SPV) systems. The first step involved optimizing the DC ...

This study offers a comprehensive comparative analysis of PI, PID, Fuzzy Logic, ANN, and ANFIS controllers for managing the charging control of a lithium-ion battery via a buck converter system.

This paper explores the design, analysis, and comparison of different control strategies for managing the speed of brushless direct current (BLDC) motors in electric vehicles (EVs) ...

The enhanced sensorless closed-loop control strategy provides a viable solution to the limitations of conventional solar tracking systems, thereby improving tracking efficiency and cost ...

IEC 62817:2017???????,???? ??????????, Photovoltaic systems - Design qualification of solar trackers, Photovoltaic systems - Design qualification of ...

The integration of isobutane in high-efficiency solar thermal collectors presents several technical challenges that researchers and engineers must address. One of the primary obstacles is the ...

Fuzzy Logic is used in a wide range of applications, such as control systems, image processing, natural language processing, medical diagnosis, and artificial intelligence. The fundamental concept of Fuzzy Logic is the ...

Finally, a stability test of the system is carried out to verify the overall stability of the power system Keywords: perturbation and observation; maximum power point tracking; fuzzy logic controller; ...

With the continuous growth of global demand for clean energy, improving the efficiency of photovoltaic power generation systems has become an important research topic. This study ...

In this article, a dynamic event-triggered mechanism based on Model Predictive Control (DETM-MPC) is proposed to reduce the impact of denial of service (DoS) attacks on cloud control ...

4. fuzzy logic control for quadratic boost converter design and performance analysis electrical projects for final year projects 5. high gain boost converter with fuzzy logic control for dc ...

This paper resolves the predefined-time control problem for multi-agent systems under predefined performance metrics and state constraints, addressing critical limitations of traditional ...

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04 Fuzzy logic control for solenoid valves Fuzzy logic control algorithms are used to handle uncertainties and nonlinearities in solenoid valve systems. These algorithms use linguistic variables and rule-based decision-making to ...

ABSTRACT This paper investigates the problem of fuzzy adaptive predefined-time full-state error constraints for permanent magnet synchronous motor systems. This study employs fuzzy logic ...

A solar tracking system maximizes the solar system"s electricity production by refocusing the panels to follow the sun throughout the day. It optimizes the angle at which the panels receive solar radiation.

The most common solar tracking system is placing photovoltaic (PV) panels to remain perpendicular to the sun"s rays and setting space telescopes to determine the sun"s direction. PV solar tracking system adjusts ...

To address the control uncertainty and improve the control performance of the magnetic levitation system, an intelligent feedforward compensation controller is proposed based on fuzzy ...

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