

A microcontroller-based multifunction solar tracking system abstract

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) ...

Abstract This paper aims to design and analyze a digitally controlled buck converter meant for applications requiring DC voltage under varying input voltages and load conditions. The buck ...

This chapter gives an idea to implementation and design a dual-axis solar tracker using light dependent resistor, 3-phase Neutral Point Clamped multilevel inverter, IR2110 switch gate ...

The solar tracking system is one of the effective methods to enhance Photovoltaic (PV) power generation efficiency. However, existing systems face challenges in managing power losses ...

This paper presents a low-cost, Arduino-based I-V curve tracer that overcomes these limitations through fully automated resistive load switching. By integrating a relay-controlled resistor bank ...

Food quality and safety are essential for ensuring public health, preventing foodborne illness, reducing food waste, maintaining consumer confidence, and supporting regulatory compliance ...

Key advantages of the proposed solar tracker include a 10-25% increase in energy output compared to fixed panels, improved land utilization, and cost-effectiveness over time. The ...

Wady solar trackera Wada urzadzenia moze byc z pewnoscia jego cena - warto gruntownie przeanalizowac, kiedy inwestycja mialaby szanse sie zwrócic. Naklady inwestycyjne na system nadazny powoduja zwieszzenie ...

Interesting DIY microcontroller projects and applications based on various microcontrollers. Explore projects based on 8051, AVR, PIC, Arduino, Raspberry Pi, etc. These are helpful for final year engineering project ideas.

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 ...

Automotive Systems: The 8051 microcontroller is used in automotive systems, such as engine control units, anti-lock braking systems, and airbag systems, to control various functions and ensure safe and efficient ...

This study contributes by designing a low-cost air quality monitoring system, including real-time tracking,

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analysis of meteorological factors, and applying advanced methods for handling ...

This study presents a novel solar tracking mechanism utilizing a Neural Network deployed on an ESP32 microcontroller. The system integrates real-time data from temperature, humidity, wind ...

The increasing demand for personalized and adaptive healthcare solutions for the elderly has driven the development of intelligent wearable devices that monitor vital signs and provide real ...

ABSTRACT This work presents the design and simulation of an Field-Programmable Gate Array (FPGA) based digital controller for a micro-power photovoltaic (PV) energy harvesting system ...

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SmartFlower Solar produces unique, ground-mounted solar panel systems that include a sun tracker and a number of other high-tech features. This "smart" solar panel system is an all-in-one, self-sustaining system that differs ...

This study presents a DeepONet-based machine learning framework for designing stochastic mechanical metamaterials with tailored nonlinear mechanical properties. By leveraging sparse but high-quality experimental data from in ...

Before building the real thing, the researchers tested it using simulations in MATLAB/Simulink. The simulated setup included one fixed solar panel, one solar panel with the smart tracking ...

IoT-based smart drip irrigation systems can be used to get instant crop or crop health information. The advantages of this system are remote operation, energy savings and a low-cost IoT ...

Aquaponics, a cutting-edge agricultural method that combines aquaculture (fish farming) and hydroponics (soil-free plant cultivation), is emerging as a promising solution to the global food ...

Solarsurges has developed its own photovoltaic solar tracking control system, including the integration of "AI + solar tracking" technology applications, providing customers with "hardware ...

Highlights o A sensorless solar tracking method based on Beta-Particle-Filter has been proposed. o The particle filter accelerates the optimization through the resampling mechanism. o

This study introduces a novel ANN-based power management structure that learns from historical data and responds intelligently to real-time system conditions. The proposed system improves ...



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