
Discussion on Smart Photovoltaic Energy Storage Containers for Agricultural Irrigation

Can solar photovoltaic-thermal irrigation be used in agricultural systems?

Author to whom correspondence should be addressed. This research focuses on developing an intelligent irrigation solution for agricultural systems utilising solar photovoltaic-thermal (PVT) energy applications. This solution integrates PVT applications, prediction, modelling and forecasting as well as plants' physiological characteristics.

Are photovoltaic-based smart irrigation systems sustainable?

To address these, secure platforms with encryption and cloud-based monitoring are recommended to ensure system reliability and data integrity [23,24]. In summary, photovoltaic-based smart irrigation systems offer a sustainable and technologically advanced approach to irrigation management.

Can solar-powered smart irrigation systems improve food security?

The system's economic analysis demonstrated a payback period of 5.6 years, highlighting its financial viability. This study underscores the transformative potential of solar-powered smart irrigation systems in enhancing food security, conserving water, reducing energy consumption, and mitigating carbon emissions in urban agriculture.

What is a sustainable smart irrigation system?

The project aims to develop a sustainable smart irrigation system (SIS) for the indoor plant irrigation by integrating photovoltaic (PV), internet of things (IoT), and rainwater harvesting techniques. The addressed problem involves the inconsistency and tediousness of manual watering, emphasizing the need for a sustainable design for a SIS.

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The integration of photovoltaic systems with rainwater harvesting offers a promising solution for enhancing water and energy management in arid and semiarid agricultural ...

A smart irrigation system based on soil moisture sensors supported by photovoltaic energy is an innovation to address water use efficiency in the agricultural sector, especially in remote areas. This ...

This study explores the design and adaptation of a shipping container into a portable irrigation control station for agricultural operations. The project leverages the ...

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