
Intelligent Photovoltaic Container 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.

Can solar power a smart irrigation control system?

There is great potential for developing a solar-powered smart irrigation control system kit, especially considering the increasing need for sustainable agricultural techniques. This kit can run independently by using solar energy, which lessens reliance on traditional energy sources and lowers operating expenses for farmers.

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.

Can solar-powered irrigation control systems help with irrigation scheduling decisions?

As a result, there are few or no low-cost clean energy irrigation control systems in Sub-Saharan Africa to aid in irrigation scheduling decisions. This paper presents the design, development, and evaluation of a solar-powered smart irrigation control system kit, referred to as the Smart Irri-Kit.

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In order to better develop and utilize solar energy resources, improve the independent research and development ability of solar energy products and the technical ...

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The kit combines the advantages of solar power and intelligent irrigation scheduling to create an efficient and sustainable solution for agricultural irrigation.

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Keywords Food security, Solar energy, Intelligent sensors, Irrigation system, Smart agriculture, Rooftop The current population growth trends result in a rise in the need for ...

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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