

Design of solar energy measurement and control system in China

To improve the photovoltaic conversion efficiency of solar energy, promote the development of photovoltaic industry and alleviate the pressure of energy shortage. This paper designs a biaxial solar ray automatic tracking system, which combines sun-path tracking with photoelectric detection tracking.

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However, according to the National Energy Administration of China, the total proportion of solar and wind energy in the energy structure of China will only reach 11% by 2021 [6], indicating that the exploitation of solar energy resources in China should be developed in future works. Therefore, a comprehensive and accurate estimation of where and how much ...

Secondly, this article studied the main control technology of solar field control system, including system architecture, hardware and software design, feedback measurement program based on image processing. At last, it made an overall design and planning for the whole plant control system, and proposed a signal interface between solar field ...

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As China promotes the development of new energy, the solar energy project is one focus of the country. Due to the imperfection of photoelectric and mechanical solar tracking and positioning technology steps, this paper will introduce an intelligent solar photovoltaic tracking device based on an STM32 processor with ARM Cortex-M as the core. The ...

Aiming at the low generating efficiency of the current solar energy generating system, solar energy maximum power point tracking control system based on STC89C52 is designed and ...

Energy poverty is simultaneously multidimensional and dynamic, and its eradication is consistent with the requirements of sustainable development. The methodology integrates the "double-cut-off" approach and the "duration analysis" approach to develop the chronic multidimensional energy poverty index (CMEPI) and instrumental variables (IV) ...

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Therefore, this paper presents in detail the design, construction, and validation of a smart meter with load control aimed at being part of a home energy management system. With its own electronic ...

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A dual-axis solar tracking system with a novel and simple structure was designed and constructed, as documented in this paper. The photoelectric method was utilized to perform the tracking. The solar radiation values of the designed system and a fixed panel system were theoretically estimated and compared, showing that the proposed system is more ...

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