

Design of a Photovoltaic Power Generation System Based on Artificial Intelligence and Internet of Things

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Abstract : In order to improve the efficiency and safety of photovoltaic power generation devices, this photovoltaic power generation system combines Artificial Intelligence (AI) and the Internet of Things (IoT) to control the chasing photovoltaic power generation device to track the sun to improve power generation efficiency and then convert energy management. The system uses artificial intelligence as the control terminal, the power generation device executive end uses the Linux system, and Exynos4412 is the CPU. The power generating device collects the sun image information through Sony CCD. After several power generating devices feedback the data to the CPU for processing, several CPUs send the data to the artificial intelligence control terminal through the Internet. The control terminal integrates the executive terminal information, time information, and environmental information to decide whether to generate electricity normally and then whether to convert the converted electrical energy into the grid or store it in the battery pack. When the power generation environment is abnormal, the control terminal authorizes the protection strategy, the power generation device executive terminal stops power generation and enters a self-protection posture, and at the same time, the control terminal synchronizes the data with the cloud. At the same time, the system is more intelligent, more adaptive, and longer life.

Keywords : photo-voltaic power generation, the pursuit of light, artificial intelligence, internet of things, photovoltaic array, power management

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