IoT-Based Automatic Solar Panel Cleaner

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Abstract

Solar energy is a sustainable and environmental friendly source of renewable energy. Solar technologies convert sunlight into electrical energy using devices such as photovoltaic (PV) cells. One of the most significant advantages of solar energy is its ability to generate electricity without emitting toxic gases. However, the efficiency of solar panels can be significantly reduced due to poor maintenance especially inadequate cleaning. This research paper explores the impact of incorporating an Internet of Things (IoT)-based automatic solar panel cleaner and evaluates its effect on energy efficiency. The IoT-based cleaning system increased the solar panel power output by 89.33%, demonstrating its effectiveness in improving performance under harsh environmental conditions.

Keywords

Solar Energy, Renewable Energy, IoT-based Cleaning System, Solar Panel Efficiency, Automatic Cleaning Mechanism, Power Output Improvement, Environmental Sustainability, Smart Maintenance.