Innovative Fully Automated solar panel cleaning robot Launches, Boosting PV Efficiency by 35% with Water-Free Operation

Shenzhen, Guangdong Feb 1, 2026 (Issuewire.com**)** - Recently, the "Todos PV Cleaning Robot," a fully automated solar panel cleaning robot, has officially entered the market. This truly unmanned and water-free system utilizes automated mechanical arms and smart sensors to autonomously clean PV panels in extreme drought or dusty environments. Field tests show an average increase in power generation efficiency of 35%, while reducing water usage by 85% and maintenance costs by 60%.

Industry Challenges and Technological Breakthroughs

PV power stations in arid regions such as the Arabian Peninsula and Northern India have long struggled with dust pollution. Studies indicate that without cleaning every two months, power generation efficiency can drop by 25%-35%. Traditional manual cleaning poses risks such as (high-altitude operations), microcracks from human contact, roof leakage, and high water consumption. The new system addresses these issues with the following innovations:

Water-Free Eco-Technology: Employs micro-vibration dust removal and electrostatic adsorption technology, eliminating water consumption and preventing panel damage.

Intelligent O&M Management: Equipped with IoT sensors and a cloud platform for remote monitoring, automated reporting, and smart task scheduling.

Zero Human Intervention: The robot adapts to various angles and terrains autonomously, eliminating

safety risks associated with manual cleaning.

Proven Efficacy and Long-Term Value

The system’s durability has been validated in harsh environments such as deserts and coastal areas. Long-term data shows that regular automated cleaning extends PV panel lifespan by 25%. With its predictive fault diagnosis system, 99% of common anomalies can be self-repaired, significantly reducing downtime risks. Industry experts highlight that such automation technologies are becoming critical infrastructure for reducing costs and improving efficiency in PV power stations, particularly for large-scale ground installations and distributed rooftop projects.

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