UAV photovoltaic panel detection

This paper presents a novel framework for collaborative inspection of solar panel farms that use the complementary capabilities of Unmanned Ground Vehicles (UGVs) and Unmanned ...

This article proposes a method for detecting solar cell faults with unmanned aerial vehicle (UAV) equipped with a thermal imager and a visible light camera, and providing a fast and reliable ...

The existing hot-spot fault detection methods of photovoltaic panels cannot adequately complete the real-time detection task; hence, a detection model considering both detection accuracy and speed is ...

The use of thermal imagery and UAVs has become increasingly common for detecting faults in solar panel systems, particularly in large-scale arrays where traditional electrical methods are difficult to ...

This paper presents a novel localization pipeline that directly integrates PV module detection with UAV navigation, allowing precise positioning during inspection. The detections are ...

Timely and accurate detection of defects and contaminants in solar panels is critical for maintaining the efficiency and reliability of photovoltaic (PV) systems.

In this article, a hot spot defect detection algorithm according to infrared images of aerial PV is proposed for practical engineering problems such as defects with different morphology, unclear ...

In this study, a lightweight real-time detection model, TA-YOLOv11, is proposed for UAV-based IR PV panel defect identification.

The growing reliance on photovoltaic (PV) systems as a sustainable energy source is challenged by performance degradation due to faults, necessitating efficient fault detection methods. ...

It examines key components of UAV-based PV inspection, including data acquisition protocols, panel

segmentation and geolocation, anomaly classification, and optimizations for model ...

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