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(57) Abstract :

A solar power-based system (100) to repel birds and animals by a scarecrow structure (102) for agricultural protection and management is disclosed. Positioned within agricultural fields, the scarecrow structure (102) integrates image acquisition units (104), sensors (106) for monitoring soil moisture, and a solar assembly (110). The system (100) employs a pre-trained deep learning model to identify animals or birds in captured images, activating responsive measures such as arm movement of the scarecrow structure, sound emission, firecracker ignition, and spray repellent release. Additionally, the system (100) analyzes crop disease and growth patterns, transmitting pertinent information to an associated entity. The actuation unit adapts arm movement based on detected animals or birds, and the identification process utilizes a Convolutional Neural Network (CNN) architecture. The solar assembly (110) includes motors (114) and sensors (116) for sun tracking, and optimizing energy capture.

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