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(57) Abstract :

The present invention discloses a system and method for an AI-based solar-powered agricultural robot designed to autonomously perform diverse farming operations such as irrigation, pesticide spraying, weeding, and soil monitoring. The system comprises a mobile robotic platform equipped with solar panels for energy harvesting, battery storage for energy management, and modular task-specific attachments. An onboard AI processing unit analyzes real-time environmental data from integrated sensors and autonomously determines appropriate actions to optimize crop health and resource usage. The robot utilizes GPS and obstacle avoidance technologies for autonomous navigation and supports remote monitoring via IoT connectivity. This invention provides a sustainable, intelligent, and flexible solution for modern precision agriculture, particularly in off-grid and labor-constrained environments. Accompanied Drawing [FIGS. 1-2]

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