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(57) Abstract :

The present invention relates to an IoT-powered autonomous pest detection and control system designed for sustainable farming. The system integrates advanced technologies, including the Internet of Things (IoT) sensors, machine learning techniques, and autonomous robotic platforms, to provide an efficient and environmentally friendly solution for pest management. The system utilizes a network of IoT sensors deployed across an agricultural field to collect real-time data related to environmental conditions such as temperature, humidity, soil moisture, and light intensity, as well as direct pest activity. This data is processed by a central processing unit, which employs machine learning techniques to analyze the collected information and predict pest outbreaks, identify pest species, and determine the optimal pest control measures. Autonomous aerial drones and ground robots, guided by this analysis, autonomously navigate the field and execute pest control actions, such as targeted pesticide application, biological pest control, or mechanical removal, with precision and efficiency.

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