

Abstract

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The protection of agricultural crops from wild animals is a significant concern for farmers worldwide, as wildlife incursions can lead to extensive crop damage, economic losses, and challenges to sustainable farming practices. Traditional methods of crop protection, such as fences, traps, and scare devices, often fail to provide reliable, long-term solutions. This paper presents an intelligent surveillance system designed to protect crops from wild animal interference. The system integrates various advanced technologies, including motion detection sensors, infrared cameras, and machine learning algorithms, to monitor agricultural fields in real-time.

The intelligent surveillance system is capable of identifying and tracking wild animals through a combination of image processing and behavior recognition. It can distinguish between different animal species, assess the level of threat posed by their presence, and activate deterrents such as automated sound alarms or visual signals. The system's adaptability ensures that it can handle diverse environments, from crop fields to orchards, while minimizing false alarms and unnecessary disruptions to the ecosystem.

Furthermore, the data collected by the system is used for predictive analytics, allowing farmers to anticipate potential wildlife incursions and take preventive actions before significant damage occurs. This system also provides valuable insights for wildlife conservation efforts by offering non-intrusive monitoring capabilities.

By combining intelligent surveillance with real-time response mechanisms, this approach offers a sustainable, efficient, and environmentally friendly alternative to traditional wildlife management practices, helping to safeguard crops and promote a harmonious coexistence between agriculture and wildlife.