

(54) Title of the invention : A CLOUD-ENABLED MANAGEMENT SYSTEM FOR BUSINESS AND AGRICULTURE INTEGRATING IOT SENSORS AND COMPUTER VISION FOR POTATO PLANT DISEASE DETECTION

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(57) Abstract :
 This utility patent describes a cloud-enabled management system designed to revolutionize business and agricultural practices by integrating Internet of Things (IoT) sensors and computer vision technology for the early detection of diseases in potato plants. The system leverages advanced IoT sensors to continuously monitor environmental conditions such as soil moisture, temperature, humidity, and light intensity. These sensors provide real-time data that is crucial for maintaining optimal growing conditions and identifying potential disease outbreaks at their inception. The computer vision component of the system employs sophisticated image processing algorithms to analyze high-resolution images of potato plants captured by strategically placed cameras. By using machine learning techniques, the system can detect subtle visual symptoms of various potato diseases, including late blight, early blight, and bacterial wilt. This early detection capability allows for timely intervention, significantly reducing crop loss and improving overall yield. Data collected from IoT sensors and computer vision analyses are transmitted to a cloud-based platform, where it is aggregated and processed. This cloud platform enables remote monitoring and management, providing users with actionable insights and recommendations through an intuitive dashboard. The system supports seamless integration with existing agricultural management software, enhancing its utility and flexibility. In addition to agricultural applications, this technology can be adapted for business management scenarios, offering robust tools for supply chain optimization, inventory management, and predictive analytics. By integrating IoT and computer vision with cloud computing, this patent provides a comprehensive solution for improving efficiency, productivity, and sustainability in both business and agricultural contexts. The innovative combination of these technologies promises to advance precision agriculture and business operations, leading to more informed decision-making and better resource management.

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