

IoT Based Onion Storage Monitoring and Automation Control System

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Abstract: Onions are a staple crop globally, consumed in various culinary dishes and food products. However, their post-harvest preservation presents a significant challenge. Onions are sensitive to moisture, temperature, and humidity variations, making them prone to rot and spoilage during storage. Traditional storage methods often rely on periodic manual checks and manual intervention, which can be ineffective and resource-intensive. This project aims to address these challenges by implementing an Internet of Things (IoT) based solution that leverages moisture sensors, temperature and humidity sensors, microcontrollers, and an IoT platform to continuously monitor and regulate storage conditions, ensuring optimal onion quality and extended shelf life.

Onions, a fundamental and widely consumed vegetable in global culinary traditions, face significant post-harvest preservation challenges. Sensitivity to variations in storage conditions, such as temperature, humidity, and moisture levels, often leads to spoilage and a rapid decline in quality. Traditional storage methods reliant on manual monitoring prove resource-intensive, prone to human error, and lack real-time insights into the evolving storage environment. This project introduces an innovative solution, an Internet of Things (IoT)-based onion storage monitoring system, to address these challenges. The system deploys sensors to continuously collect data on storage conditions, transmitting it to a cloud-based platform for real-time analysis. The analysis identifies trends and anomalies, triggering alerts and recommendations via a user-friendly interface.

The anticipated outcomes of this project include enhanced onion quality, reduced spoilage, and increased resource efficiency for farmers and storage facility operators. This technology-driven approach contributes to the availability of high-quality onions in the market, serving both agricultural and culinary sectors. The IoT-based onion storage monitoring system represents a substantial step forward in post-harvest preservation, marking a promising advancement in the agriculture industry.

Keywords: Onion Storage

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