

Project Title : Spoiled Food Detection and Removal

Abstract

Food spoilage poses a significant challenge to food safety, public health, and waste reduction. Food spoilage remains a critical issue affecting both consumers and the food industry, leading to economic losses and environmental concerns. In response, researchers have developed an innovative prototype leveraging to address spoilage factors such as precipitation, humidity, and temperature, thereby extending the shelf life of perishable items. The prototype incorporates for precisely identification of various fruits and vegetables, enabling accurate assessment of their freshness status. Complemented by sensors and actuators, the system continuously monitors gas emissions, humidity levels, and temperature variations within the refrigerator. This real-time monitoring facilitates proactive intervention to prevent spoilage, with customers receiving timely alerts via mobile messages regarding the freshness of their food items.

The early and accurate detection of spoiled food is essential in preventing the consumption of harmful products and reducing unnecessary waste. The system identifies signs of spoilage such as gas sensors. The system distinguishes between fresh and spoiled food with high accuracy. Once detected, spoiled items are flagged for removal or automatically separated in an automated IoT based system. The proposed method aims to enhance food quality control in domestic, retail, and industrial environments, ultimately improving consumer safety and minimizing food loss. Future developments may integrate real-time monitoring and Expanding upon the abstract, the prototype's success lies in its ability to leverage sensor technology to monitor and control key environmental factors influencing food freshness. By accurately identifying spoilage risks and alerting users in real-time, it empowers them to make informed decisions about food consumption, ultimately reducing food waste. Furthermore, the incorporation of user interaction addresses the need for human oversight in spoilage management, ensuring timely removal of affected items to maintain overall food quality. This interactive feature not only enhances user experience but also improves the efficiency of the prototype in mitigating spoilage risks. By utilizing robotic arms for waste disposal, it minimizes the environmental footprint associated with food spoilage, contributing to a more sustainable food ecosystem.

