

# **Jyothi Engineering College**

## **Department of Mechatronics Engineering**

### **Name of students with dated signature**

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**Semester and branch:** S7 MECHATRONICS

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**Area of Research:** Usage of object tracking technology for agriculture automation

**Topic of project:** Pepper Harvesting

### **Abstract**

This project focuses on the implementation of object detection and tracking technology to revolutionize the harvesting process in agriculture. Our project aims to develop a precision harvesting system that combines computer vision techniques with robotics to optimize crop harvesting. Object detection and tracking technology, primarily based on deep learning algorithms and machine vision, will be employed to identify and locate ripe crops within a field. By mounting cameras on harvesting machinery, the system can detect and track crops in real-time, enabling precise and efficient harvesting. The project's key components include the development of a custom software solution that integrates with the agricultural machinery and a robust hardware setup involving cameras, sensors, and actuators. The mechanical harvesting component is designed for efficiency and minimal crop damage. Customized tools and end-effectors are employed to delicately detach ripe produce from the plant, preserving both crop quality and yield. This innovative approach not only reduces the need for manual labor but also minimizes the environmental impact of agriculture by minimizing waste and reducing the use of chemicals. In conclusion, this project represents a significant leap forward in the agriculture industry by synergizing object detection and tracking technology with efficient mechanical systems. By automating and optimizing the harvesting process, it addresses the challenges of labor shortages, crop losses, and environmental concerns. The proposed precision harvesting system has the potential to revolutionize the agricultural industry, offering a sustainable, efficient, and cost-effective solution to meet the ever-growing global food demand while minimizing environmental harm.

**Keywords :** Object detection and tracking, Robotic arm, Agriculture, Neural network

### **References**

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