

OELP(ID3801) PROPOSAL

1. Title: Image processing for a fruit harvesting robot.

2. Members:

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4. Background and Challenge statement:

The agricultural sector is the backbone of many countries. The widespread use of robots in industries that share the repeated operations of human beings to improve productivity attracts the attention of experts toward agriculture farms. Different agriculture robots are available for weed control, seeding, disease, insect detection and harvesting. Fruit harvesting robots have been developed to accurately detect ripened fruits which makes the quality of fruits good. There are mainly three units in a fruit harvesting robot. They are the recognition system, picking system, and moving system. The recognition system performs initial fruit detection and localisation. The picking system uses a manipulator, end effector and controllers for approaching the fruit and detaching or harvesting the fruit from the tree. The moving system has a path planning mechanism mainly used to move the robot through the farmlands without causing any damage to the adjacent plants.

Our work is on the recognition system that involves image processing machine learning algorithms to identify whether the fruit is ready to harvest.

5. Deliverables:

- The system initially checks the objects in a tree and identifies whether the object is a fruit (a particular fruit) or not.
- From the identified fruit the ripeness is determined by colour, geometric and infrared vision mechanisms

6. Methodology:

The methodology involves real-time data collection of fruits from the tree, preprocessing and the separation of training and testing images.

Developing an algorithm for identification of the fruit objects from the tree and performing testing.

From the identified fruits the next stage is to make an algorithm for checking the ripeness of the fruit from the internal structure.



Signature of Faculty Mentor

Dharik Anwar P Godwin Joseph
Signature of Students