

Name of Project: Areca Nut sprayer

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Project Objective:

In recent years, workmanship scarcity has emerged as one of the foremost challenges in farming. One of the crop that has been most affected by this is the arecanut. It is mandatory to climb the tree a minimum of five times a year for a successful harvest i.e., twice for the preventive spray against fungal disease, and thrice to harvest the arecanut. This has been done by skilled person.

The primary objective of the proposed project is to design and develop a robot which can climb the Arecanut tree and spray pesticide, thereby reducing time and workmanship required for the same job. The robot will climb one tree and scan the surrounding trees for arecanut bunches, detect the ones requiring spraying using Image Processing and also determine the amount of pesticide to be sprayed, distance to spray, angle and other requirements.

This robot is completely autonomous and reduces the time and dependence on workmanship. The sprayer sprays pesticide to the adjacent trees with high level of accuracy.

Key Deliverables:

Simulation, Algorithm and Design

1. Design and Structural analysis of the robot on simulation software.
2. Developing an algorithm to detect areca nut bunches requiring spraying, in still images.

Manufacturing

1. Chassis manufacturing
2. Procuring the required hardware and electronic components.

Assembling and Testing

1. Soldering and connecting electronic component as per circuit design.
2. Assembling the mechanical parts of the robot.
3. Testing the coordination of different parts of the robot.
4. Fixing of bugs and algorithm improvisation.

Prototype testing

1. Taking the robot to real time situations and testing it.
2. Making necessary changes and improvisation.

Time Period: 1 year

Product Cost: Rs. 2,00,000