

Pest Controller Drone

Case:

Farmers in a region are facing a significant problem with crop pests. The pests are resistant to traditional pesticides, and the farmers are struggling to control them. The farmers are also concerned about the environmental impact of using large amounts of pesticides.

Problem Statement:

Design and build a drone quadcopter that can be used to apply pesticides to crops with pinpoint accuracy, using a minimal amount of pesticide. The drone should be easy to operate and maintain, and it should be affordable for small-scale farmers.

Constraints:

- The drone must be able to carry and spray a significant amount of liquid, making it ideal for large-scale farming operations.
- The drone must be able to apply pesticides with pinpoint accuracy, using a minimal amount of pesticide.
- The drone must be easy to operate and maintain.
- The drone must be affordable for small-scale farmers.

Evaluation Criteria:

1. Accuracy: How accurately can the drone apply pesticides to crops?
2. Efficiency: How efficiently can the drone apply pesticides to crops?
3. Usability: How easy is the drone to operate and maintain?
4. Affordability: How affordable is the drone for small-scale farmers?
5. Student Requirements:

Students Activities:

1. Research existing agricultural drones and pesticide application methods.
2. Design a drone quadcopter that meets the problem statement constraints.
3. Build a prototype of the drone.
4. Test the prototype and make necessary modifications.
5. Write a report on their design and testing results.