

Management of Crop Diseases via Drone Assisted Detection of Pheromones and Kairomones in a Cotton Farming Land

Applications

- Automated detection for precision agriculture & targeted pest management in controlled manner.
- Cotton, Rice, Wheat, Maize, Coffee crops can be targeted for crop yield increase by atleast 20%.

Inventor

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Categories of this invention

- ▶ Micro & Nanotechnology (MEMS)
- ▶ Robotics (Unmanned aerial vehicle)
- ▶ AI (Navigation data)
- ▶ Agritechology (Biosensors)



Problem Addressed

Spraying is automated with use of Drone and hence health hazards associated are prevented, human exposure to harmful chemicals is avoided.

Target spraying in needed proportions reduces the unnecessary mass spraying and therefore the pesticides getting into our food is controlled by more than 30% with efficient use of intelligent drone for detection & spraying, both.

Intellectual Property

1. A PHEROMONE DETECTOR

Inventor(s) - Prof. Santanu Bhattacharya; Prof. Rudra Pratap; Mr. Parikshit Moitra; Dr. Deepa Bhagat

Indian Patent No. 307528

2. OPTICAL NANOSENSOR FOR EARLY STAGE DETECTION OF BACTOCERA OLEAE INFESTATION

Inventor(s)- Prof. Santanu Bhattacharya; Prof. Rudra Pratap; Mr. Parikshit Moitra; Dr. Deepa Bhagat

Indian Patent No. 316092

Technology

Integrated pest management solutions using drones (Unmanned Aerial Vehicle) equipped with nanosensors (MEMS).

- To detect pheromones and kairomones for food crops and cash crops.
- To detect the presence of pests and transmit data wirelessly to analyse, map, and target specific pests with recommended dosages.
- For automation of pesticide spray for controlled and localised use of the harmful and hazardous pesticides

Advantages

- Highly efficient method of detection of pest infestation with precision upto 90%
- Use of drone makes this possible to cover upto 20 ~25 acres per day in detection & spraying.
- Crop yield increase is atleast 20~25% with timely action & real time detection, remediation.
- Real time monitoring & storing of the infestation data in the cloud level enables farmers, contractors and insurers.

Potential Value

- 1 Drones for agricultural pesticide spraying are already in use. We have plans to retrofit the existing ones with the addition of the intelligent platforms to enable them to become smart drones.
- 2 Our Intelligent Drone product with hardware, software and yearly subscription would cost Rs.6.5 lacs per set.
- 3 Ordinary Drone alone is sold at about Rs.4.5 to Rs.5 Lacs range in the market.