

Persistent Airborne Surveillance using Semi-Autonomous Drone Swarms

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Categories:

- Agriculture
- Mechanical Engineering

Keywords:

- Agriculture
- Drones
- Mechanical Engineering
- Mobility Model
- object detection
- Swarm Utility
- UAV

Researchers at Purdue University have developed a mobility model for persistent surveillance using multiple drones. Persistent airborne surveillance has helped mitigate damage from security breaches in the past and continues to be a key tool in security. However, existing approaches to survey an area are inefficient, expensive, or not environmentally conscious. To mitigate those problems, Purdue researchers crafted a model around the idea of drone swarm utility. Relying on a swarm of drones covers individual drone blind spots and extends coverage across a larger area. Following the flight paths outlined in the mobility model, the swarm automatically detects foreign objects from the live feed. This system anticipates threats more effectively than manually controlling each drone. This swarm framework technology shows potential to be applied to disaster management, wildlife surveillance, and all fields that require security monitoring.

Technology Validation: This technology was validated through a piecewise linear regression linking greater area coverage and less trajectory deviation with larger swarms of drones.

Advantages:

- Automatic Detection
- Greater Area Coverage
- Reduction of Blind Spots

Applications:

- Wildlife Surveillance
- Disaster Management

- Security Surveillance

People:

- Chaterji, Somali (Project leader)

Intellectual Property:

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