Identifying, monitoring, and eliminating mosquito swarms via acoustic fingerprinting

Technology #cu16076

This technology is a system for the accurate and automatic tracking of pests via acoustic triangulation, which can be used to prevent mosquito-borne disease.

Unmet Need: Method for real-time, automatic identification and monitoring of mosquitoes

Current efforts to monitor mosquitoes depend on passive field traps that require manual counting, are prone to error, time-consuming, and limited in terms of spatial coverage and observation frequency. Furthermore, preventative techniques mainly focus on eliminating mosquitoes with insecticides, sticky nets, and similar passive approaches that lack any guidance for efficient trap placement.

The Technology: Acoustic pest triangulation for active prevention of mosquito-borne disease

This technology utilizes acoustic triangulation to enable real-time, automatic identification and monitoring of mosquitoes and their precise locations. Real-time monitoring can enable early threat alerts, improve the efficiency of trap placement and other countermeasures, and verify elimination of the threat. Additionally, the high sensitivity of this technique also enables the identification of mosquito gender and species.

A demonstration of this technology has verified accurate detection and monitoring of mosquitoes with high signal-to-noise ratio, even in noise-polluted environments.

Applications:

- Insect-borne disease prevention
- Real-time, automatic detection, and tracking of local pests
- Remote sensing and regional pest monitoring
- Entomological surveillance research
- Agricultural monitoring
- Unmanned autonomous vehicles
Advantages:

- Facilitates real-time, automatic identification and monitoring of mosquitoes
- Can be utilized for tracking other pests that possess acoustic signatures
- Can aid early and efficient elimination of mosquitoes and other threatening pests
- High signal-to-noise ratio for precise target identification from afar
- Accurate location monitoring even in noisy areas
- Acoustic signal monitoring enables operation in unlit and visually obstructed environments

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Patent Information:

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Related Publications:

Tech Ventures Reference:

- IR CU16076
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