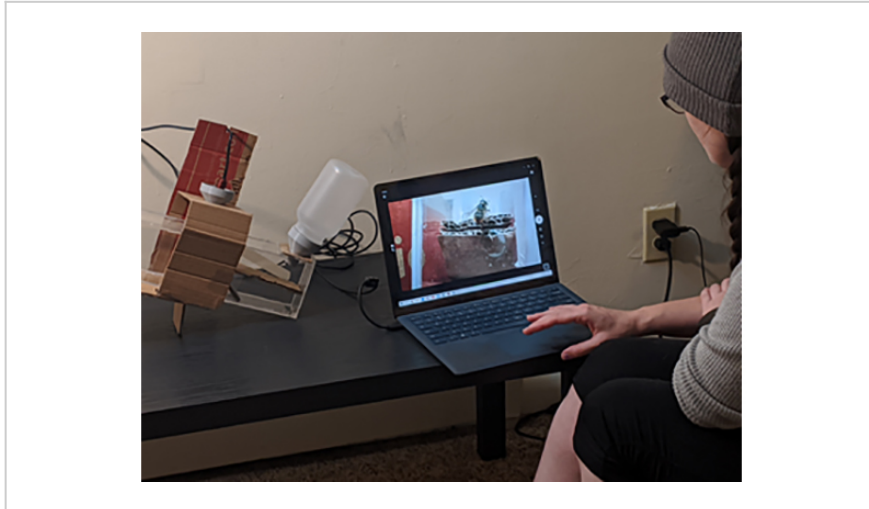


InsectEye: Autonomous, Adaptive, Continuous Insect Monitoring System

ID# 2021-5274



The InsectEye system

Technology Summary

This is a multi-camera monitoring system designed to capture video of insects, identify them with artificial intelligence, and selectively release them. Specifically consisting of: 1) an imaging chamber that is designed to guide insects to obtain optimal images using microclimate sensors; 2) a design of insect-based tunable position and speed modulator to enhance image capture; 3) a selective exit mechanism that permits application-dependent binning of observed insects; 4) autonomous self-powered system that can use the energy context to log, analyze, and/or transmit collected observations; the remote interface obviates the need for a physical visit to the monitoring site and also allows multiple systems to communicate with each other; and 5) a real-time image recognition driven adaptation of chamber characteristics to have desired insect behavior. This system can be configured to attach to other insect trapping methods. This allows for monitoring of biodiversity in a way that can be customized for a variety of existing insect traps.

Application & Market Utility

Existing insect monitoring systems are either solely lethal to insects, are non-continuous, or are only collecting information of specific individual species. This system eliminates expensive travel to monitoring sites for periodic maintenance and sample collection. The system enhances accuracy for various reasons including fine-grained detection (individual insects instead of biomass), and will be provided as a package used to monitor insects in agriculture settings (track pest population dynamics), conservational settings, research settings, and medical settings (tracking insect vectors of known human pathogens, such as dengue and malaria).

Next Steps

The research team seeks collaboration and licensing opportunities.

TECHNOLOGY READINESS LEVEL

4-7

Seeking

Licensing | Research

Keywords

- insect identification
- artificial intelligence
- insect image recognition
- pest population dynamics
- tracking insect vectors

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