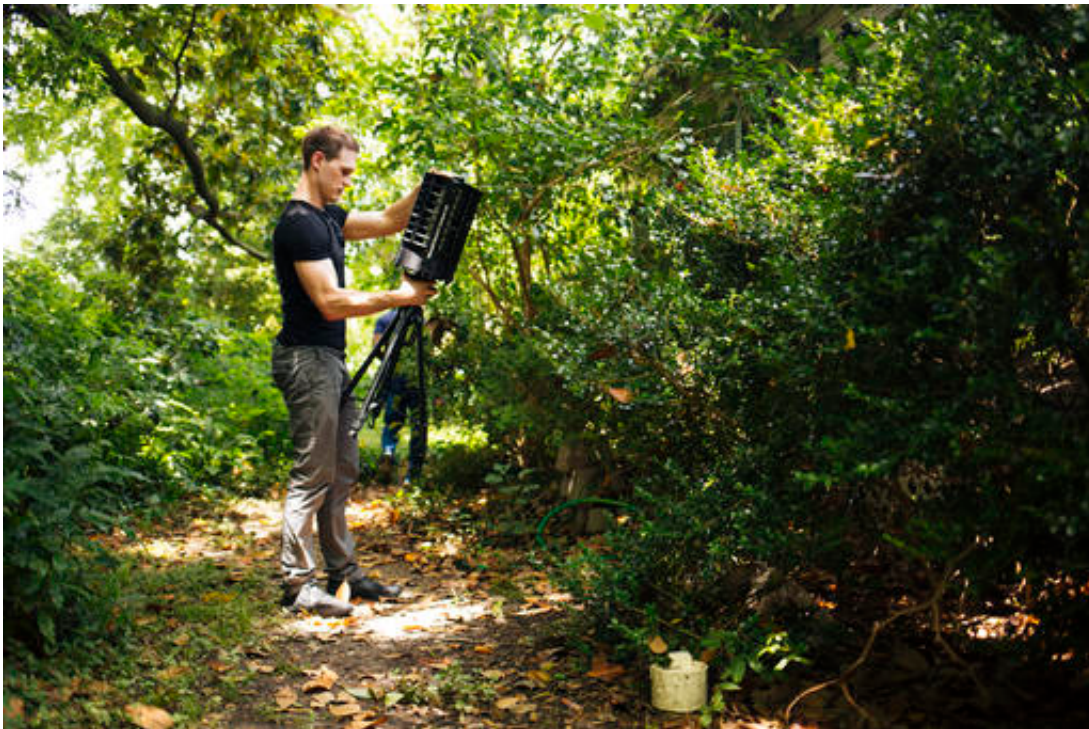# New mosquito trap smart enough to keep just the bad bugs

February 16 2017, by Lauran Neergaard

In this photo provided by Microsoft, Microsoft researcher Ethan Jackson sets up a trap for mosquitoes in Harris County, Texas in 2016. A new high-tech version trap is promising to catch the bloodsuckers while letting friendlier insects escape, and even record the exact weather conditions when different species emerge to bite. (Microsoft via AP)

A smart trap for mosquitoes? A new high-tech version is promising to catch the bloodsuckers while letting friendlier insects escape—and even

record the exact weather conditions when different species emerge to bite.

Whether it really could improve public health is still to be determined. But when the robotic traps were pilot-tested around Houston last summer, they accurately captured particular mosquito species—those capable of spreading the Zika virus and certain other diseases—that health officials wanted to track, researchers reported Thursday.

The traps act like "a field biologist in real time that's making choices about the insects it wants to capture," said Microsoft lead researcher Ethan Jackson, who displayed a prototype trap at a meeting of the American Association for the Advancement of Science in Boston.

The traps are part of Microsoft's broader Project Premonition, aimed at learning how to spot early signs of outbreaks.

"It catches people's imagination," said University of Florida medical entomology professor Jonathan Day, who isn't involved with the project. "But whether it is actually a trap that will functionally improve surveillance, I think that remains to be seen."

Trapping is a key part of mosquito surveillance and control, important so health officials know where to spray or take other measures to fight mosquito-borne diseases. Trapping hasn't changed much in decades: Typically net traps are outfitted with mosquito-attracting bait and a fan, and suck in whatever insect gets close enough. Entomologists later sort the bugs for the ones they want.

Jackson's trap consists of 64 "smart cells," compartments outfitted with an infrared light beam. When an insect crosses the beam, its shadow changes the light intensity in a way that forms almost a fingerprint for that species, Jackson said.

In this photo provided by Microsoft, Microsoft researcher Ethan Jackson sets up a trap for mosquitoes in Harris County, Texas in 2016. A new high-tech version trap is promising to catch the bloodsuckers while letting friendlier insects escape, and even record the exact weather conditions when different species emerge to bite. (Microsoft via AP)

Program the trap for the desired species—such as the Aedes aegypti mosquito that is the main Zika threat—and when one flies into a cell, its door snaps closed. In pilot testing in Harris County, Texas, last July and August, the trap was more than 90 percent accurate in identifying the insect buzzing through the door, Jackson said.

Harris County already is well known in public health for strong mosquito surveillance, and had been keeping a sharp eye out for Zika—fortunately finding none. But mosquito control director Mustapha Debboun called the high-tech trap promising, and is looking forward to larger scale

testing this summer.

"If we are trying to collect the Zika virus mosquito, you can teach this trap to collect just that mosquito," he said.

When each mosquito is captured, sensors record the time, temperature, humidity and other factors, to show what environmental conditions have different species buzzing. That's information officials might use to schedule pesticide spraying.

The next step: Rapid genetic scans of the [mosquitoes](#)' blood check for harmful pathogens—and can tell what animal the mosquito had been biting, Jackson said. If that work pans out, he said the data may help predict emerging diseases.

But bringing Microsoft's tech know-how to mosquito control ultimately will depend on cost, cautioned Debboun, who spends about $350 for one of today's traps and says the new high-tech ones can't cost more.

While Jackson doesn't know a final price, he said he used low-cost microprocessors and other equipment to design the traps and plans to test if drones can place them in remote areas.

Today's traps already provide lots of useful information, Florida's Day noted. Some mosquito species are so plentiful that he can catch thousands in a single trap. Others, like Aedes aegypti, are much harder to find, and information about when it flies might be useful, he said.

Citation: New mosquito trap smart enough to keep just the bad bugs (2017, February 16) retrieved 7 May 2024 from https://phys.org/news/2017-02-mosquito-smart-bad-bugs.html