

Wireless 'RoboFly' Looks Like an Insect, Gets Its Power from Lasers

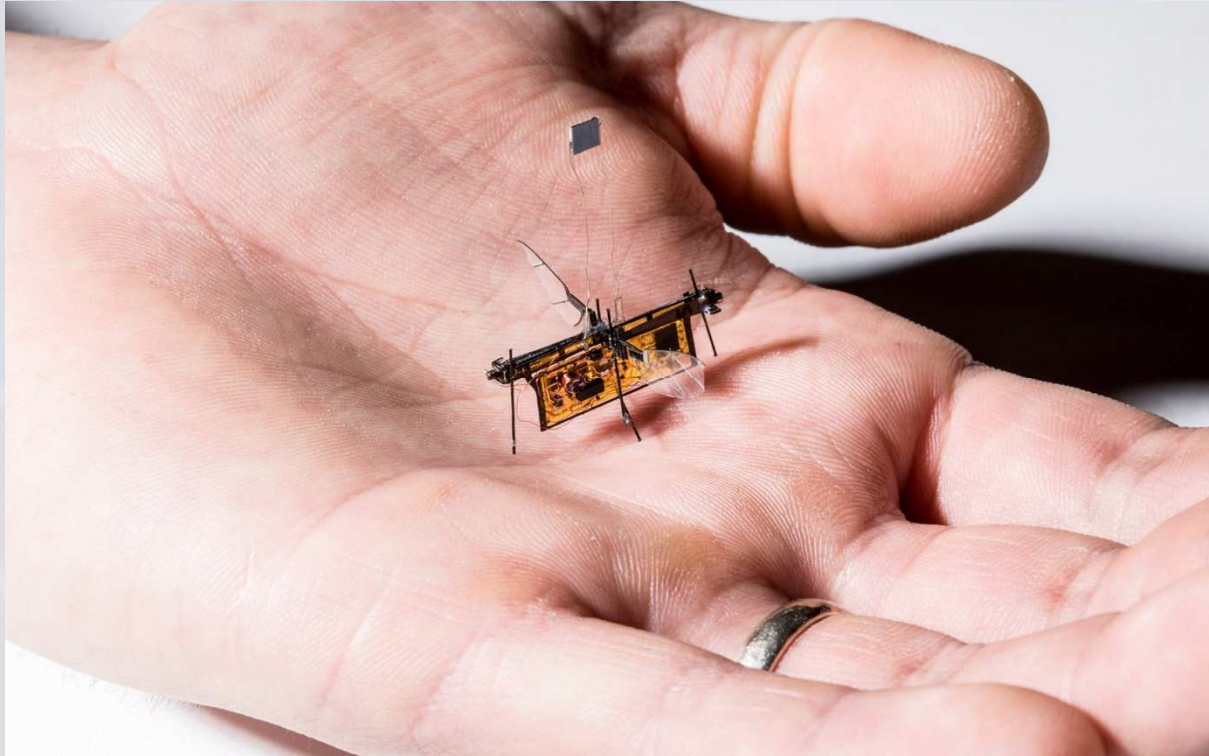


Fig 1 RoboFly is only slightly bigger than a real fly.

A new type of flying robot is so tiny and lightweight. It weighs about as much as a toothpick, it can perch on your finger. The little flitter is also capable of untethered flight and is powered by lasers.

This is a big leap forward in the design of diminutive airborne bots, which are usually too small to support a power source and must trail a lifeline to a distant battery in order to fly. Engineers who built the new robot announced in a statement.

Their insect-inspired creation is dubbed RoboFly, and like its animal namesake, it sports a pair of delicate, transparent wings that carry it into the air. But unlike its robot precursors, RoboFly ain't got no strings to hold it down. Instead, the miniature bot uses a lightweight onboard circuit to convert laser light into enough electrical power to send it soaring.

Animals' amazing abilities have inspired designs for robots that swim like manta rays, hover like jellyfish, jump like bush babies and even jog like humans. Prior to RoboFly, another insect-like bot, called RoboBee, demonstrated its ability to take off, land, hover and even perch midflight to conserve energy.

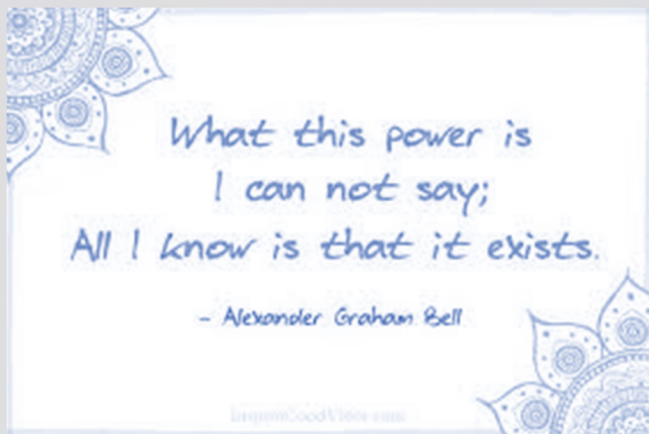
But RoboBee was leashed to its power supply and controller. RoboFly flies freely, thanks to a photovoltaic cell on its body that converts energy from a narrow laser beam. It produces about 7 volts of electricity, which a flexible onboard circuit boosts to the 240 volts required for liftoff. Meanwhile, a microcontroller on the circuit acts as RoboFly's "brain," sending pulses of voltage to the wings and making them flap much like an insect's wings would, according to the statement.

However, the cell doesn't store energy; the circuit must be within range of the fixed laser to generate power for the robot to take off, and once its cell moves beyond the laser's reach, RoboFly's flight is over.



Fig 2 Laser light bathes a photovoltaic cell, providing RoboFly with the power to take flight.

Tiny, highly maneuverable robots like RoboFly could quickly flutter into crevasses where bigger aerial drones simply wouldn't fit. One possible task for future versions of RoboFly could draw even more inspiration from flies — particularly, their talent for tracking down "smelly things,"



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