

# PARC drone has no limit on flight time, works via microfilament

November 8 2015, by Nancy Owano

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How long can drones can stay in the air? The team behind the Persistent Aerial Reconnaissance and Communications (PARC) vehicle system at CyPhy Works have tried to make the word "persistent" reach new heights in aerial reconnaissance. The six-rotor PARC never needs to land.

In addition to a camera system, PARC has additional payload capacity for communications devices. If additional payload capacity is required, the camera payload can be removed.

There is a microfilament system that makes PARC capable of aerial

coverage and HD footage—for as long as you decide. "It's actually our tether that sets us head and shoulders above the competition," said the company.

While small cables normally mean low power and poor communications, CyPhy Works said that their patented system "flips that dynamic." They get high power and they get high-definition communications through a tiny cable, thanks to "novel electronics."

This is an extremely thin wire (the tether is thinner than a headphone cable but strong enough to reel in the [drone](#) if necessary, said Will Knight, senior editor for AI at *MIT Technology Review*). It is tethered to the ground to transmit power and data. The fact that it is tethered, noted Knight, means the vehicle cannot travel very far.

The PARC vehicle can operate at altitudes of up to 500 feet above ground level, or 10,000 feet density altitude.

CyPhy Works, the company behind PARC, calls its microfilament "superfine—more like fishing line than typical wire."

The company's site said their microfilament is impervious to jamming and unaffected by water, power lines, and other possible interferences. The microfilament connects the [robot](#) to its Ground Control Station (GCS), so communications can't be intercepted, spoofed, or otherwise compromised, it added.

Its advantages include endurance: Ground power enables flight durations measured in days, not minutes; it can produce infrared footage for night vision; and the vehicle has realtime access to the GCS computer.

Knight reported that PARC was launched as a commercial product this month after CyPhy Works received an exemption allowing customers to

fly the drone for commercial purposes. (In order to fly a drone for commercial purposes, said Knight, an exemption is required. The same restrictions on where and when drones can be flown also apply.)

At an EmTech MIT gathering in Cambridge, Massachusetts, Helen Greiner, the founder of CyPhy Works, spoke about the future of delivery drones.

"By 2020 you will be seeing drone delivery," Greiner said. "Technically we could do it earlier, but if you've been involved in the struggle with the FAA since the '90s you would not place a bet that they would allow larger, non-line-of-sight vehicles to fly over populated [cities](#)."

CyPhy Works was founded in 2008 by Greiner; she [previously](#) was a cofounder of iRobot.

**More information:** [cyphyworks.com/robots/parc/](http://cyphyworks.com/robots/parc/)

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