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# DRONE

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# HACKER'S DELIGHT

## SPECIALIST 'DANGER DRONE' TO HELP DETECT SECURITY FLAWS

Bishop Fox, a computer security company in Tempe, Arizona, has unveiled the 'Danger Drone', a \$500 custom built quadcopter that is designed to attack Wi-Fi networks. Essentially a flying laptop filled with hacking software, the "drone penetration tester" was exhibited at the BlackHat USA 2016 security conference in August to great acclaim.

The frame is based on the standard F450 design and is entirely 3D printable. According to Fran Brown, a partner at Bishop Fox, the parts have been customised to be "cheaper, more lightweight and have a more convenient surface area." They also include a "third shelf" hybrid of the top and bottom plates that give more room for extra USB peripherals needed for the hacking tasks.

The flight controller board, an Erle Brain 2 from Erle Robotics, plugs into the Raspberry Pi, along with a Huawei E173 GSM 3D modem. Fran confirmed that there were power issues with the drone due to "added hacking peripherals, extended legs, GoPro camera, bells and whistles," but this was solved by putting in a 4-cell Li-Po battery. Full details for making the craft have been released with Bishop Fox proclaiming that it has "already done the trial and error work to find the ideal compatible products for you!"

The final version is described as having an effectively limitless range, due to the telemetry being controllable over a LTE/3G signal, with manual range on a 900Mhz controller being the standard 2km. Maximum speed is given as over 100kph with a flight time up to 45 minutes without the payload. However, that may well go up soon as Fran and the team are "currently exploring the possibilities of recharging the drone battery via solar power." This could be used with a target on a building roof that "would make it possible for the Danger Drone to stay out in the field indefinitely" and could act as a "persistent backdoor into a building's internal network."

Whilst this may sound scary, the aims in releasing the designs are overtly 'white hat', with Bishop Fox' goal being "to help equip security professionals with practical drone penetration testing tools that they can use to evaluate their current exposure and validate the effectiveness of their existing deployed drone defences (if any). This is especially vital given the current absence of any mature drone defensive solutions/ products available to organisations to protect themselves. Conditions have finally matured enough to where penetration testers who are inexperienced with drones can get up and running fairly quickly, spending only a couple

of hundred dollars on a Raspberry Pi-based drone copter solution."

By releasing the designs publicly, those in the know can test their defences more easily and those not in the know will be made aware of the potential dangers. "If you factor in the explosion of Internet of Things products being released that also tend to talk over the air, it's clear that 'over the air' attacks will only continue to grow in popularity as the number of potential target devices continues to increase exponentially. Now that drones have gotten cheaper, easier to use and have transitioned from the realm of the hobbyist to the mainstream, it's only logical that the next evolution of this hacking trend will incorporate drones in some way," Fran explained.

"Drones will be the platform ideal for conducting these already popular 'over the air' types of attacks - providing the dual benefits of increasing the range (or distance) of possible attacks, while also reducing the risk to attackers of getting caught."

## BISHOP FOX

■ Further details on the Danger Drone (and yes, it was named after the Kenny Loggins song), including designs, are available from [bishopfox.com](http://bishopfox.com).