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Related Categories: Cybersecurity and Cyberwarfare; Military Innovation; Science and Technology; Terrorism; Warfare; Europe

A DRONE-KILLER BULLET

The security risk posed by widespread access to drones was highlighted once again in December 2018, when one of the world's busiest airports in southeast England was forced to suspend flights because of safety considerations caused by two unauthorized drones. The new DroneBullet, a quadcopter/missile hybrid developed by AerialX, aims to address these security concerns - and do so in kamikaze-like fashion. The DroneBullet eliminates its target by literally ramming it at speeds of up to 217 miles per hour. Using machine vision to track other drones within a four-kilometer range, the DroneBullet can be launched by hand and is designed to withstand high-speed collisions that neutralize the target, as well as to seek and destroy additional threats.

Compared to other options for defense against UAVs, such as nets (see *Defense Technology Monitor* no. 39) and jamming devices) the DroneBullet is capable of identifying the adversary unmanned craft and varying its angle of attack based on the particular threat's vulnerabilities. The device, once available, will only be sold to military and law enforcement customers. However, U.S. Special Operations Command [USSOCOM] has already tested its effectiveness. (*Extreme Tech*, May 6, 2019)

MAXIMIZING AIRCRAFT CARRIER ENERGY SURPLUS

Older generation Navy aircraft carriers generate enough power to sustain a small city, and the newer *Ford*-class carriers have three times the energy production capacity onboard. This energy surplus leaves the Navy in an enviable position of possessing excess energy capacity, and a question of what to do with it. A team of U.S. Navy engineers may have found an answer: they are exploring the potential for charging unmanned surface and air vehicles via directed energy. The idea itself is not new; the Navy has previously considered underwater charging stations for underwater drones (see *Defense Technology Monitor* no. 22) and the Army has studied wirelessly charging UAVs via directed energy (see *Defense Technology Monitor* no. 34). However, in neither case was there an abundance of energy available and unaccounted for. Although the study will be complete by the end of this year, the technology is not yet mature and, in the best case, is still several years away from implementation. (*USNI News*, May 8, 2019)

SECRET TERRORIST-SEEKING MISSILE GOES PUBLIC

Over the last several years, the U.S. government has come to rely on drone strikes as a counterterrorism tool, using them to kill high-value targets - but often incurring heavy civilian casualties as collateral damage. In an attempt to decrease the number of civilian put in harm's way, the past several years have seen the development of a new version of the notorious Hellfire missile intended for more focused targeting. The modified version of the Hellfire (also known as the R9X) aims to slice rather than explode, with the traditional warhead replaced with six blades that are hidden during flight but designed to deploy through the skin of the missile at the last second to shred the intended target.

Nicknamed "the flying Ginsu" or the Ninja bomb, the modified Hellfire uses its weight and impact (without exploding) to destroy a target, thereby reducing potential harm to nearby civilians. Theoretically, the missile is even capable of targeting a vehicle and killing its passenger without harming the driver. Beyond reducing civilian casualties, the new R9X offers another benefit as well: the missile's increased accuracy provides more firing opportunities for the military and thereby lessens the number of hours required for an armed aircraft to surveil a target before engagement. (*Wall Street Journal*, May 9, 2019)

UK TECHNOLOGY HELPS U.S. AIRCRAFT DISAPPEAR

Originally designed to protect the United Kingdom's Royal Air Force against radar-guided missiles, expendable active decoy technology known as BriteCloud is now undergoing testing with the Defense Foreign Comparative Testing (FCT) program for adoption by the U.S. Air Force and Navy. Through the use of Digital Radio Frequency Memory (DRFM) techniques, BriteCloud is able to process signals emitted from radar-guided missiles and compare the signatures to an onboard database and send back an appropriate spoofing signal to confuse the enemy missile. According to developer Leonardo Electronics, "a key benefit of BriteCloud is its expendability, which allows it to put a significant distance between itself and the aircraft, drawing missiles further away than would be the case were the pilot relying only on a towed radar decoy or on-board jammer." BriteCloud, moreover, is particularly attractive to Pentagon officials because it is the "only modern off-board jamming decoy that has been operationally deployed," and it fits within existing U.S. aircraft decoy deployment chambers. (C4ISR.Net, May 15, 2019)