

UAV Helicopter Brings Finesse to Airstrikes

One shot, one kill, zero pilot. That's the goal of the Autonomous Rotorcraft Sniper System, a new unmanned helicopter that's controlled with an adapted Xbox 360 controller.

By David Hambling

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Vigilante 502 Unmanned Helicopter

+ **Max Weight:** 1100 pounds + **Length:** 26 feet + **Rotor Diameter:** 23 feet + **Top Speed:** 117 mph + **Payload:** 150 pounds + **Fuel Capacity:** 36 gallons + **Flight Time:** 6-plus hours

RND Manufacturing Edge 2000 Rifle

+ **Cartridge:** Lapua Magnum .338 + **Weight:** 14 pounds + **Action:** Gas-operated semiautomatic + **Muzzle Velocity:** 3000 feet per second with 250-grain bullet + **Rate of Fire:** Up to 10 carefully aimed shots per minute + **Ammunition Cost:** \$4 per round

In modern warfare, the advantage often goes to guerrillas who can attack, then quickly hide among the population or disappear into the hills. To counter those tactics, the Pentagon since 2001 has been arming [unmanned aerial vehicles](#) to identify and destroy targets with missiles. The Defense Department is seeking weapons for UAVs that can strike enemies but limit collateral damage, especially in cities.

The Army's solution is the Autonomous Rotorcraft Sniper System (ARSS), a small, unmanned helicopter equipped with a powerful .338-caliber rifle. An autopilot system handles the tricky [business](#) of flying while the operator lines up the kill shot on a remote monitor.

The Army ground-tested the rifle's turret on a Vigilante unmanned helicopter to evaluate its accuracy. The turret-control [hardware](#) and flight-control algorithms will be refined to make shots more accurate before airborne testing begins in July. The program's heads say the airborne robo-sniper idea was put forward five years ago, but only became practical when Utah State University's Space Dynamics Laboratory designed a lightweight, stabilized turret. Users control it with an adapted Xbox 360 controller. The same turret could be used on unmanned fixed-wing aircraft such as the [Predator](#) or [Reaper](#) and could also allow ground robots to fire on the move.

Other Possible Weapons for the ARSS

- + M249 5.56-mm squad automatic weapon, a small-caliber machine gun
- + M240 7.62-mm machine gun, a weapon used by the U.S. and NATO
- + AA-12 12-gauge, a full-auto shotgun
- + Peak Beam Immobilizer, a xenon strobe light that stuns targets with "psycho-physical" effects like disorientation and nausea

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