Army Develops Robotic Helicopter Sniper

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Collateral damage has become synonymous with modern urban warfare. In fact, the concept of "total war [1]," where there is "less (or no) differentiation between combatants and non-combatants (civilians)," has existed since The Peloponnesian War [2]. As far back as 431 BC, civilian casualties were considered an acceptable (and often desirable) outcome of total warfare. Today, the DOD defines collateral damage as lawful, "so long as it is not excessive in light of the overall military advantage anticipated from the attack." This unfortunate trend has prompted development of the Autonomous Rotorcraft Sniper System [3] (ARSS), essentially an unmanned surgical instrument of death.

The ARSS takes the RND Edge 2000 sniper rifle [4] (replete with .338 Lapua Magnum rounds [5]), mounts the rifle onto a highly-stabilized turret, and attaches the system to a Vigilante unmanned helicopter. The nexus of the ARSS, the Precisions Weapons Platform (PWP) lightweight turret, was designed by Utah State University's Space Dynamics Laboratory [6] (SDL). According to SDL, the PWP is "intended to integrate a sniper system onto a rotary–winged unmanned aircraft that will allow sniper capability on a platform that can achieve line of sight to a target by going above or around obstacles. This system could provide an accurate delivery of fire with little or no collateral damage, which is particularly useful in urban settings."

The title *Autonomous* Rotorcraft Sniper System (emphasis mine) is a misnomer since the system is, at best, semi-autonomous. Auto-pilot handles the flying, while software assists the aiming. But it's a human operator, using a modified Xbox 360 controller, who "pulls the trigger." SDL describes their "operator's station" as follows: "similar to a video game with video imagery from the cameras displayed on a flat–panel monitor. A gaming controller is used for aiming, arming safing, and firing tasks." The ARSS doesn't make critical decisions on its own—an important prerequisite of true autonomy. But with its surgical accuracy, the ARSS could greatly reduce collateral damage.

The RND Edge 2000 can fire up to 10 aimed shots per minute, so the ARSS can handle multiple targets in quick succession. Better still is the cost per trigger pull--$4. By comparison, Hellfire missiles [7] run about $68,000 each. The non-existent blast radius of the RND Edge limits collateral damage, but this comes with a tradeoff—the AGM-114 Hellfire II has a max range of 8,749 yd vs. 1,914 for the .338 round. ARSS will require more of an "up close and personal" approach.
Inevitably, the ARSS will draw the ire of groups who feel that video game violence desensitizes our youth. The inclusion of an Xbox controller will raise red flags. I don't buy this argument (i.e. "When war is a videogame, it's much easier to pull the trigger."). Similarly, I don't believe robots make war more desirable. To paraphrase Patrick Lin, George Bekey, and Keith Abney, authors of Autonomous Military Robotics: Risk, Ethics, and Design [8], "these objections seem to imply that we should not make any improvements in the way we prosecute a war and, indeed, should return to more brutal methods (e.g., bayonets)."

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