

Warbots to Replace Human Soldiers?

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The Spinner. Source: http://www.darpa.mil/TTO/programs/fcs_ugcv.htm

Any good student of military history can tell you that technological change can make a huge difference on the battlefield. History is replete with examples: the English longbow at Crecy overmatched the Genovese crossbowmen. During WWI when Allied tanks helped break the stalemate on the Western Front and, the ultimate technological victory, the atom bomb that forced the Japanese into submission in WWII. But progress marches on, further changing the battlefield of the future and, unfortunately, doing little to reduce its ubiquitous nature. The death traps of Vietnam and Iraq have shown the power to utterly destroy does not always lead to victory.

To curtail needless casualties, the full robotization of war at the lowest level has already started. Not only are the ethical considerations frightening, the pace is astonishing. Everything from the dumbest land

mine to the best smart missile has already improved ten fold over the last 20 years. Armies are ready to field the first remote controlled land warbots – soon to be fully automated after the unheralded success of US Air Force systems like Global Hawk, Predator and other intelligence gathering unmanned, remote controlled vehicles. A Predator even managed to kill an alleged group of terrorists traveling in a moving car using powerful Hellfire antitank missiles – albeit by remote control hence not truly autonomous.



The Talon. Source: <http://www.globalsecurity.org>

The days of crewed vehicles – both on the ground and in the air - are numbered. The US Air Force admits there is no planned successor to the F-22; the next generation will be unmanned. Why? Because it's cheaper – no human pilot who needs millions of dollars in training or expensive systems to protect his or her fragile body. Already the F-22 is capable of executing violent maneuvers that would disable a human making an automated version much faster and more agile. The need for a pilot to discern targets has long been relegated to forward air controllers and friend or foe detection systems – any automated aircraft could detect, identify and fire long before a human could process the needed information.

Size is another large consideration: As early as WWII, the Soviets discovered that by making their tanks smaller they could save money and crews – by using less armour plating and reducing the size of the target presented to the enemy. Today, tank engineers look for ways to reduce the crew size – removing the crew altogether would allow for a tank half as high - height is an important consideration in the battlefield – and a third lighter. Plus, as a bonus, the tank would be harder to see on radar due to its low profile. In fact, with no crew to protect, it can violently self-destruct if critically damaged adding to its offensive potential.

Let's not forget another obvious benefit: zero friendly casualties if the tank is destroyed. This is probably the most important reason fully automated weapons systems will be adopted in short order. Politicians who wish to wage war do so at their own peril in the face of heavy casualties. Casualties, by the way, are not just those killed in battle, but also the wounded. Every death or disfigurement of “our soldiers” translates in to lower poll numbers. Collateral damage – as civilian deaths are euphemistically called - will still be high and may rise further with machines not being able to effectively separate friend from foe. But this is less of a problem as the deaths tend to be “them” and not “us”.



MDARS. Source: http://www.usatoday.com/tech/news/techinnovations/2004-06-22-guardbots_x.htm

An examination of some of the newest ideas for warbots is in order to understand better the direction they are taking.

The Massachusetts-based Foster-Miller Talon robot mounts a M240 or M249 machine gun which fires up to 1,000 rounds per minute – this unit is remote controlled, not automated, but the potential is there. All that is missing is a thermal target detection system and an automated navigation system and viola - warbot. The unit can also mount a rocket launcher. Defense agencies have been testing an armed version of the Talon since 2003.

The US Air Force is currently testing a Jeep-size, four-wheeled Mobile Detection and Response System (MDARS). MDARS is equipped with radar, television cameras and infrared to detect people, vehicles and other objects. It carries a small, tracked mini-robot called Matilda that can be launched to search under vehicles, inside buildings and investigate suspicious objects without endangering the main vehicle. MDARS can be equipped with remotely fired weapons like the M-16 assault rifle. These units can run \$500,000, but a less expensive version based on a standard ATV called Scout is expected to only cost around \$300,000.

Carnegie Mellon is developing the Spinner, an autonomously navigating armored car for DARPA. During testing it climbed over an obstacle exceeding one meter, operated unrefueled for more than 450 kilometers over a 14-day period, and traveled cross-country at 40 km per hour. Its six independently articulated drive wheels allow it to climb over an array of obstacles and it can even travel upside down. It has a 4,500 lb payload and is expected to carry out supply missions.



US Marine Corps Gladiator. Source: <http://www.gizmag.co.uk/go/4484/>

The recently introduced US Marines Gladiator is anything but a passive automated truck. This ATV turned mini tank literally bristles with armament including a machine gun, mortars, mine launchers and rockets - the soldier in the background is holding the remote control for his “toy”.

So, as is plain to see, most of the pieces are already in place to create a “Terminator” machine that roams the battlefield unaided, dispensing death and destruction at will. And for now, will the battle hardened, tough-as-nails grunt be replaced by the pencil neck nerd with a high Xbox quotient? It’s all too likely. Fortunately for the world’s war powers, there is no shortage of avid gamers to work the joysticks in the battlefields of the future.

This leads us to the thorny ethical issues surrounding automated warfare. Those familiar with science fiction writer Isaac Asimov’s First Law of Robotics know that a robot should be programmed not to harm to humans or through inaction allow humans to be harmed. Period. Unfortunately for humankind, it looks like his “First Law of Robotics” will remain where it is today – in the realm of science fiction. Maybe a

look at Keith Laumer's "Bolos" or Fred Saberhagen's "Berserkers" might be in order - where robots both protect humans and wreck havoc.

And, after all, whether you're blown up by a mine, killed by a smart bomb or run down by a warbot – the distinction is less important than the outcome - you dying, that is.

Someday, war may be limited to warbot battles, one side conceding defeat when their last machine is destroyed – don't bet on it. War would become a sport. But war by its definition means to take life, not just destroy equipment – all the warbots in the world cannot hope to protect us from this final truth.

by Philip Dunn, Copyright 2006 PhysOrg.com

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