

Pentagon moves to integrate technology with wearable equipment

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The Department of Defense wants to give airmen and soldiers an advantage in combat by integrating technology with lightweight wearable equipment.

The Pentagon has invested millions of dollars to make the size, weight and power of wearable technology and equipment smaller and easier for troops to carry.

Wearable technology, like helmet mounted displays, allow combat airmen on the ground to link into what airborne cameras see and may give [air traffic controllers](#) a way to spot where aircraft fly, according to Gregory M. Burnett, chief engineer at the Battlefield Air Targeting Man-Aided Knowledge, or BATMAN lab, at the Air Force Research Laboratory at Wright-Patterson base in Ohio.

"We're really trying to augment the operator and aid them throughout their many duties and responsibilities that they conduct in combat and humanitarian assistance," Burnett said.

"Anything we can alleviate and reduce the cognitive and physical needs on our airmen is very much of interest to the Air Force," he said.

One defense research project, Warrior Web, is a lightweight under suit meant to make it easier for troops who carry loads of more than 100 pounds over rough terrain for miles, according to the Defense Advanced Research Projects Agency. The reinforced suit has a myriad of sensors

to monitor and gather data on a soldier wearing it.

The U.S. Army Research Lab tested the suit to determine how well it reduces soldiers' injuries and fatigue, DARPA said.

AFRL research has explored drawing "wasted" kinetic energy, such as when someone is walking, to recharge electronic gadgets like smart phones, Burnett said.

Defense Department needs have prompted defense contractors to develop wearable technologies in the hopes of tapping into a new market.

Raytheon, for example, recently demonstrated a configuration of a "wearable situational awareness" suit with a helmet mounted display, a laptop computer mounted on a chest vest, and 3-Dimensional audio.

The helmet mounted display lets a wearer see "augmented reality," or data such as distance, location of targets and other information displayed over the location a person is looking at while audio amplifies real world sounds much like a stereo system.

"Really, what we're trying to do is paint a picture in the battlefield," said Brian P. Murphy, a company intelligence information and services program manager.

Engineers want the suit to become part of the wearer without becoming a distraction.

"We have to make that interaction more seamless," said John Bell, a business development leader at Raytheon, a major defense contractor.

Loren B. Thompson, a Virginia-based Lexington Institute defense

analyst and a consultant to the defense industry, said the military has to carefully determine how rugged and secure wearable technologies are before taking them to the battlefield.

"The military likes the versatility of portable computers but often they are just not rugged enough or secure enough to use in a combat environment," he said.

Rapid advancement of wearable commercial technology has led the Defense Department to adapt off-the-shelf technology for military needs.

"The U.S. military has figured out it can't keep buying things the traditional way because it will never keep up with the marketplace," he said. "They will have to buy more commercial, off-the-shelf technology."

But the danger is adversaries "will understand that technology very well," he said. "There are real drawbacks to using commercial technologies in a combat environment."

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