New tech for battlefield airmen

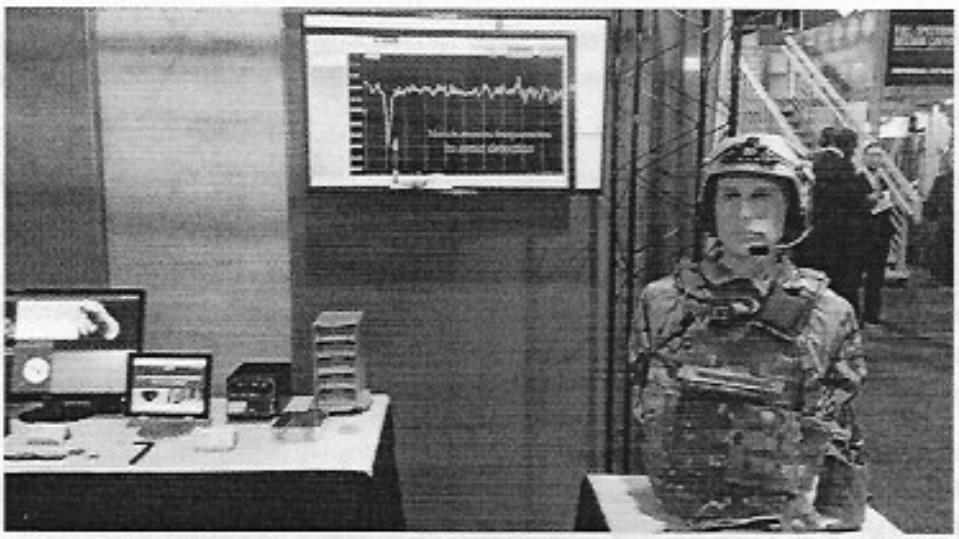
By: Kyle Rempfer **14 hours ago**



Staff Sgt. Derek (right), a student Joint Terminal Attack Controller, calls indirect fire from close air support during a joint training mission with soldiers from 2nd Battalion, 12th Field Artillery Regiment, 1st Stryker Brigade Combat Team, 4th Infantry Division, near Nellis Air Force Base, Nev. (Air Force)

Several exhibitors at the Air Force Association's annual conference brought their latest tech and gadgets for battlefield airmen. Here's a look at some of the offerings.

'Wearable network'



Physical Optics Corporation's WEARNET — an integrated, wearable mobile network for ground troops — on display at AFA 2017. (Kyle Rempfer / Military Times)"/>

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Physical Optics Corporation brought WEARNET, a wearable personal network that includes a camera hooked up to a GPS and radio, all of which can transmit live the wearer's actions and receive tactical feeds from aircraft sensors overhead.

The system is intended to compete against similar but heavier systems from competitors, which require more batteries and wires, said Christian Veeris, vice president of business development at POC.

"In the 21st century, we've digitized the command post," Veeris said. "Everybody has satellite communication. The White House can sit there and watch the raid on Osama Bin Laden. So, the big push is to now give that same technology and situational awareness to the guy on the ground who's actually shooting, moving and communicating."

WEARNET is still in development, Veeris said.

"There's a couple companies out there that have versions of this, but they're probably two generations removed," he said.

The ultimate goal is to get rid of wires and cables, Veeris said.

But the problem then becomes a ground operator who has all the gadgets but is weighed down by a bag full of batteries, Veeris said. It's not feasible for personnel in the field on a 96-hour mission to carry five different batteries for ten different devices, he added.

"We haven't gotten there yet," he said. "There are technical solutions out there, but they are a little bit power hungry."

Helmet Mounted Trackers

Thales brought CENTAuR, a helmet mounted display for ground operators that's still in the prototype phase, but will mirror the capabilities of helmet mounts already in use by pilots to track friendlies and enemies on the ground.

CENTAuR — or the Communication-Enabled Networked Tactical Augmented Reality system — is still constrained to development, said Michael Sheehan, president and chief executive officer of Thales Defense & Security, Inc.

"The biggest technical challenge is how do you track head motion without the canopy overhead with a reference system," Sheehan said.

Thales' Scorpion is a similarly designed helmet mounted display that's already fielded to crew members in the A-10 Warthog and AC-130 gunship, he added. But those pilots have the benefit of an overhead canopy in their cockpit to track head movement. Without that focal point, the helmet has no way of knowing where the ground-based user is looking, Sheehan said.

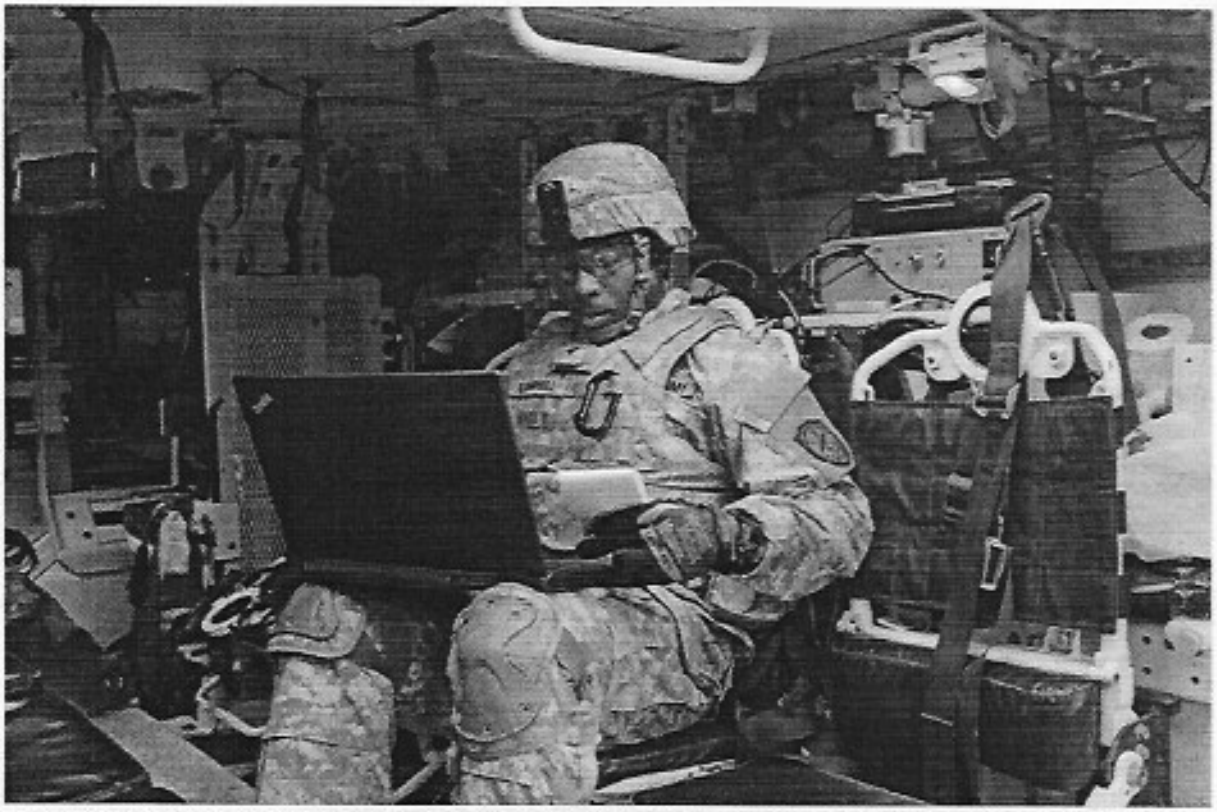
"Most of the commercial applications are focused on putting a display in front of the eye, not attacking the head tracking problem. That's the harder problem," Sheehan said. "They have brilliant displays, but they really aren't tracking where the head is looking, and that's key."

Cyber gear that's tough enough to kick off a helicopter

By: Andrew Tilghman 1 day ago

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A Cyber Soldier assigned to the 780th Military Intelligence Brigade prepares his equipment inside a Stryker vehicle during an integrated cyber exercise at Joint Base Lewis-McChord (Capt. Meredith Mathis/Army).

QUANTICO, Va. — The Marine Corps' surging interest in unit-level cyber capabilities was on display at the annual Modern Day Marine conference that opened here Tuesday, as dozens of vendors were hawking rugged processors, powerful battery systems and hard-shell cases that could provide advanced digital fires for forward-deployed Marines.

The "CyberPac 8201," for example, is a 28-lb. shock-resistant server that packs $60,000 of highly reliable processing power into a box the size of a briefcase.

"This is basically their ax when they go out in the field," said Bruce Imsand, the chief executive officer of MaxVision, the Alabama-based company that makes the CyberPac. "This is for battalion-level incident response teams."

MaxVision has sold CyberPacs to the Air Force and Army, Imsand said.

The Modern Day Marine conference at Marine Corps Base Quantico is the largest annual gathering of Marines and defense industry professionals who showcase their wares in the hopes of landing big contracts with the Corps.

The gear on display ranged from large amphibious assault vehicles and radar equipment to small sidearms and waterproof boots.

A large swath of the event was focused on providing computer processing power to Marines at the tip of the spear, whether for cyber capabilities or to fuel the increasingly complex intelligence, surveillance and reconnaissance tools now required for expeditionary operations.

Protecting that gear, however, is a growing concern.

"If this stuff is going to get kicked out of a helicopter, the older cardboard boxes and wooden crates just don't provide the protection that is required," said Jeff Gazich, a sales manager for Gemstar, a Minnesota-based company that sells customized hard cases.

Gemstar is more than 50 years old but has only recently begun to focus on the military as a potential customer.

"We've been asked to come in here as their standard threshold for protection is rising," he said.

Gemstar and several other companies want to sell cases to the Marine Corps that include foam protection, cooling systems and customized designs to fit specific types of hardware.

Powering that gear is another acute challenge for the Marine Corps and its expeditionary missions. The average Marine's kit is already weighed down with heavy battery packs, and the Corps is continuing a search for the perfect battery or mobile power source.

Rechargeable, disposable and solar-powered batteries, as well as other experimental technologies have all . But so far there's no silver bullet.

"They are all trying to find the right technology that can provide very high energy for a long period of time but it also has to be lightweight," said Yves Destenaves, a product manager with Acumentrics, a Massachusetts-based company that specializes in battery and power systems.

Acumentrics sells a 9-lb. battery system that is sewn into a standard Marine's backpack with USB ports and traditional electrical-plug inputs accessible from the pack's exterior and within reach for the warfighter.

Marine Commandant Gen. Robert Neller has frequently raised concerns about the Corps' need to push cyber capabilities, both offensive and defensive, down to the lowest level. He's concerned that the Corps does not have enough Marines with cyber skills and fears the military's networks are vulnerable and could be a critical weakness in a future war.

Forward-deployed Marines need to be able to protect their own communications networks and potentially those of their local allies. They need to respond quickly to cyber attacks to identify, attribute and counter them. And they need to be prepared to launch offensive cyber operations to shape the battlefield when needed.

For now, the Marine Corps cannot provide all of those capabilities from a brigade-level headquarters.

"You've got to be plugged in and connected to the network to be able to see what's going on," Imsand said.

"You can't do it remotely."