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Dogs of War: Wireless Harness Shows Soldiers What Their K9s Are Seeing

"You can put a camera, a radio, and GPS on a canine, and he's your remote eyes and ears."



Honeywell

By Eric Tegler Feb 18, 2016

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For all the attempts to build battlefield robots that look and run like animals, dogs remain more agile, flexible, and are quieter than their mechanical counterparts. That's why, 3,000 years after human beings began using animals in warfare on a large scale, canines are still a soldier's best friend.

"YOU CAN PUT A CAMERA, A RADIO, AND GPS ON A CANINE, AND HE'S YOUR REMOTE EYES AND EARS."



A new invention by Honeywell, however, blends mutt and machine. At this week's Singapore Airshow, Honeywell showed off its experimental K9 C2SA system, which stands for Dog, Command and Control, and Situational Awareness. K9 C2SA is basically an instrumented canine harness with video, navigation, and communication features, and included the ability to control the dog remotely, Honeywell says.

The package is still in early development. Its elements—a day/night infrared (IR) camera with a recording option, a remotely controlled IR beacon, IR illuminator, amber chest light, and GPS augmented with inertial navigation and Doppler radar—have yet to be tested together and integrated. But the potential is obvious.

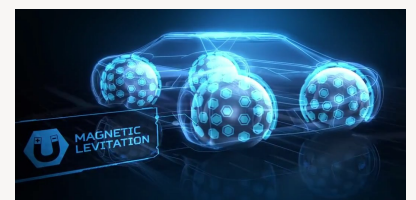
"You can put a camera, a radio, and GPS on a canine, and he's your remote eyes and ears," says Paul Samanant, a senior research scientist with Honeywell.

Honeywell Exhibits New K9 C2 Package at the #SGAirshow <https://t.co/IEMGsMbtXS>
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A military dog wearing this 4-lb. harness would be able to beam back visuals and data to soldiers. The system has a range of about 150 feet in congested, urban environments, 820 feet in open areas, and 980 feet in tunnels, meaning that canine handlers will always be nearby. The battery allows for up to four hours with streaming video, lights, and radio communication.

Of course, the canine and its handler are a better team if the human can tell the dog where to go. So Honeywell proposes training the animals to respond to remotely controlled silent directional buzzers placed on the front, back, left, and right of the harness. The buzzers would guide the animal in different directions. In the event the link is lost, the company says automatic IR beacons could control the dog's behavior.

**"RIGHT NOW OUR DEMONSTRATION IS A BUNCH OF
PIECES ON A DOG HARNESS. WE HAVEN'T INTEGRATED
THE PIECES YET."**



Honeywell sees dogs with K9 C2SA filling a variety of missions, from search-and-rescue and target identification to special operations and IED detection. The sensor and navigation package in the harness would pair with a tablet. Via the mobile device, the handler could see a video stream from the camera. The tablet would also render a precise navigation display of the dog's location with a map and pin, much like a Google Maps presentation.



Honeywell

Navigation and position information is particularly difficult in confined spaces like buildings, tunnels, and forests where canines are often expected to go, in part because line-of-sight GPS signals are blocked in these situations. So K9 C2SA includes palm-sized inertial navigation units aided by miniature Doppler radar transceivers and a barometric altimeter.

"GPS-denied navigation is very hard to do," Samanant says, adding that aircraft and submarines—the places where the military has made it work—don't have the size and power restrictions of your average trusty canine.

Teams from Honeywell have field-tested the navigation and sensor/control systems separately with live animals but have yet to combine them. "Right now our demonstration is

a bunch of pieces on a dog harness," Samanant acknowledges. "We haven't integrated the pieces yet."

Once Honeywell puts all the pieces together and makes them play nice with each other, the next challenge is to ensure the harness is properly balanced and proportioned to take advantage of canine agility. "Over field trials we've found a design that won't hinder the dog's mobility," he says. "The joints of the front and hind legs shouldn't hit the harness when they run full-speed."

Honeywell's got work to do, but it just might come up with the vest for the military super-dog.



Honeywell

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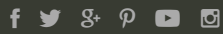
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