

You're in the Army Now!

No pity for pint-sized U.S. Army recruits in evaluation for active-duty fitness

By Peggy Mason

Boeing engineers and technicians, alongside U.S. soldiers, are testing and evaluating some U.S. Army recruits to determine their fitness for active duty.

One of their favorites weighs less than 40 pounds (18 kilograms) but can sit motionless for hours near a potential target. The recruit can survey and share information from underwater—with no need to come up for air. Fellow soldiers throw the little guy through glass windows and send him into contaminated areas without any protective gear. They expect him to stay alert for days on end—with no sleep. Despite the rough handling, he consistently conveys reliable, accurate, real-time information to his buddies.

Another recruit can hover outside windows of a building's upper floors, stare inside and relay what it sees to fellow soldiers on the ground. Also lightweight, this recruit could still use some working out, as it's shaped like a beer keg.

Obviously, they are not the Army's human recruits. They are robotics designed by Boeing and its partners to give soldiers a layer of safety and increased situational awareness during reconnaissance and surveillance missions.

Boeing engineers and technicians work daily with soldiers assigned to the Army Evaluation Task Force at Fort Bliss, Texas, and White Sands Missile Range, N.M., to enhance the design and development of these systems and the network that will connect them. Together, they form elements of the Future Combat Systems program that the Army wants to deliver early to soldiers in the field.

The thrown-through-the-window recruit is one of the ground robots—formally called Small Unmanned Ground Vehicles (SUGVs)—and is controlled remotely by a soldier wearing a special eyepiece and using a hand-held device that looks like a video game controller. Because so many young soldiers are adept at video games, the controller was intentionally designed like the popular Microsoft Xbox controller. The unmanned ground vehicles are favorites of the soldiers involved in the evaluations, half of whom are veterans of the conflicts in Iraq and Afghanistan. More than one of them said something similar to: "If only I'd had the SUGV when I was in Iraq ..."

PHOTO: The Small Unmanned Ground Vehicle can endure all kinds of rugged terrain, climb stairs and transmit what it sees to its controller. The sensor head includes both electro-optic and infrared cameras. **TOM RULE/BOEING**



The hovering beer keg outside the urban building is the smallest of the unmanned aerial vehicles (UAVs). Like its comrade scuttling on the ground, the Class I UAV is remotely controlled by a human soldier. The robot, weighing in at around 20 pounds (9 kilograms), is easily carried by live soldiers.

The Boeing-Army team also is evaluating several varieties of unattended ground sensors. These include a hand-sized sensor that soldiers can mount in unobtrusive locations inside buildings and that transmit real-time video images of the interior areas during urban operations. Another version is a skinny sensor with a tripod base that soldiers place along roadways or in a variety of terrains to monitor outdoor areas for hostile activity.

Information from these sensors—both robotic and unattended—is relayed to soldiers on display screens in specially equipped High-Mobility Multipurpose Wheeled Vehicles (HMMWVs, or Humvees). The vehicles are equipped with Boeing-developed Joint Tactical Radio System Ground Mobile Radios that act as another layer of the mobile network—a key part of the Army's modernization plan. The radio system—providing secure, reliable, multichannel voice, data, imagery and video communications—puts the full power of the Global Information Grid into the hands of the warfighter. The result is that soldiers will have far greater awareness of their location in relation to both friendly units and hostile forces.

"The whole net-centric concept empowers each individual soldier by providing an overall picture of the battlefield," said Iris Chavez, Boeing Mobile Node Test lead, as she monitored incoming information from a Humvee a few miles away. "The tools and the systems we are testing will be a critical part of the force, helping to protect and even save lives." ■

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PHOTOS: (ABOVE) Inside specially equipped High-Mobility Multipurpose Wheeled Vehicles, soldiers' situational awareness is maintained through a network of sensors and robotics, increasing security for the soldiers during surveillance and reconnaissance missions. **BOB FERGUSON/BOEING**

(RIGHT) A Tactical Unattended Ground Sensor is placed where it can most effectively scan for activity and relay information to soldiers nearby. Equipped with acoustic, seismic and infrared sensors, the easily portable device provides soldiers with extra "eyes" and "ears," greatly increasing situational awareness in the field. **BOB FERGUSON/BOEING**



Give and take

Although the manned-ground-vehicles component of Future Combat Systems (FCS) was recently canceled under the Acquisition Decision Memorandum from the U.S. Department of Defense, most elements of FCS continue to be developed as the U.S. Army transitions to a new Army Modernization plan.

Accordingly, Boeing engineers and technicians continue to work side by side with Army soldiers at Fort Bliss, Texas, and White Sands Missile Range, N.M., to evaluate FCS elements.

Being on site with the customer benefits both Boeing and the Army. Boeing gets valuable customer feedback that can be incorporated quickly. "Soldiers are focused on the mission and know the best use of products," said Tim Conway, Boeing technical field test manager. "They, better than anyone, can detect early development issues—that might otherwise have been missed—that we can address promptly."

Soldiers also benefit from working closely with Boeing personnel. "I interact daily with Boeing," said Capt. Marc Cervantes, assistant product manager of capabilities integration. "They are the subject matter experts, and they're right there, anticipating what we need to ensure mission success."



PHOTO: U.S. Army Maj. Theotis Clemons and Boeing employee Tim Conway are co-leaders of the Technical Field Test team at White Sands Missile Range, N.M.

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