'Robo-mule' kicks up its heels for Marine Corps

By Bethany Crudele - Staff writer
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The Marine Corps Warfighting Lab is testing a new four-legged, rugged terrain robot, dubbed "Robo-mule," and demonstrated it Sept. 10 at Joint Base Meyer-Henderson Hall, Va., giving Commandant Gen. Jim Amos a look at the newest technology.

The Legged Squad Support System (LS3) demonstration by the Warfighting Lab, the Defense Advanced Research Projects Agency and Boston Dynamics is part of a larger effort to develop unmanned equipment that could help lighten the load for Marines on the ground. LS3 differs from autonomous vehicles like the Ground Unmanned Support Surrogate and the Cargo Unmanned Ground Vehicle, which were tested this summer at Fort Pickett, Va. Unlike large wheeled vehicles, the LS3’s animal-like body is designed to climb rugged slopes and inclines.

Tell us
How would the "Robo-Mule" improve life for deployed ground troops? Send us a letter to the editor: marinelet@marinecorpstimes.com.
"This can go where GUSS and the Cargo UGV cannot go," said Maj. James Richardson, head of the Logistics Combat Element Branch within the laboratory’s technology division.

Like the Cargo UGV and GUSS, LS3 does not require a driver and is controlled by a remote operator. Intended for small infantry units, LS3 can carry up to 400 pounds of equipment, including ammo, batteries and water. It can also reach speeds of 5 mph and accelerate to 8 mph during "burst" periods. Richardson said developers hope to increase operating speeds to 20 mph and get the robot to respond to basic verbal commands.

Robo-mule recognizes road obstacles and has a refined sensor system to prevent it from walking off cliffs. It can also turn itself upright onto all four legs autonomously if it's been knocked over.

The commandant is no stranger to four-legged vehicles. In 2007, when he led Marine Corps Combat Development Command, Amos had a chance to view BigDog, a similar four-legged robot with rugged terrain capability. But Robo-mule is a different kind of animal.

"This is much larger than BigDog," Richardson said. "BigDog was extremely loud, and when the commandant saw [it], he had to have headphones on to muffle the sound. It was [also] primarily human-directed. [LS3 has] better perception, better capabilities as far as payload and can actually trot and walk at a much faster pace."

BigDog's battery lasted two hours; those familiar with the LS3 say the goal is to create a battery on the vehicle that can last 24 consecutive hours without needing to be refueled.

DARPA released footage of the robot in February, but the demonstration for the commandant marks the first time the Marine Corps will test the newer technology.

"You've got to experiment and kick the tires to see if [equipment] is going to be good for the Marine Corps," said Fred Lash, a spokesman for the Warfighting Laboratory. "I'm sure the commandant is really looking forward to seeing this."

Richardson described the technology as "exciting" and said it remains to be seen how well the LS3 will be able to perceive obstacles like standing water or dust clouds.

Additional testing is scheduled at Fort Pickett, Va., and the Marine Corps Air Ground Combat Center at Twentynine Palms, Calif., this year. Though the Marine Corps doesn't have a projected timeline to get the robot into theater, Richardson insists the development of such technology reinforces the commandant's goals of cultivating a more mobile and agile expeditionary force.

Marines get 1st demonstration of 'Robo-mule' <http://infoition.us1.list-manage.com/track/click?u=a5af1b860c82585a9d23af380&id=be971811dc&e=84e6d5540>

The Marines Corps Warfighting Lab has kicked off tests of the "Robo-mule" four-legged cargo robot with a demonstration of the machine for Marine Corps Commandant General James Amos. The Legged Squad Support System, or LS3, can carry 400 pounds of supplies at 5 to 8 mph, with the ability to move over rugged slopes and avoid obstacles like cliffs.