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Army poised to transform ground robotics industry

By: Jen Judson, April 12, 2017 (Photo Credit: Sgt. 1st Class Brian Hamilton / 108th Training Command-Initial Entry Training)

HARRISON TOWNSHIP, Mich. — The U.S. Army is poised to transform the ground robotics industry over the next year as it launches several competitions to define its future unmanned ground systems fleet.

By necessity, during the wars in Iraq and Afghanistan, the Army clamored to buy unmanned ground vehicles that could help provide a level of standoff between soldiers and the dangers faced on the battlefield, mostly improvised explosive devices.

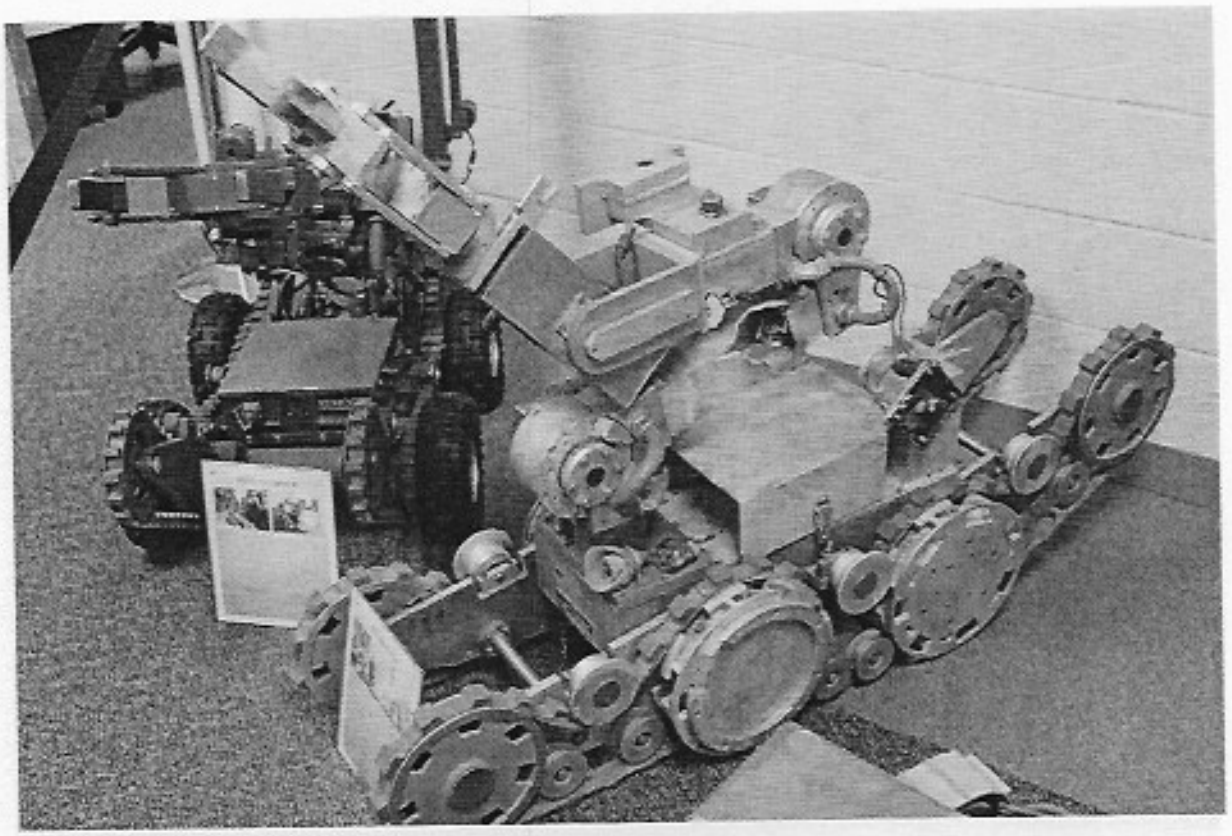
Due to the rapid procurement of roughly 7,000 UGVs, the Army now has a petting zoo of various ground robots from Talons to PacBots to Dragon Runners.

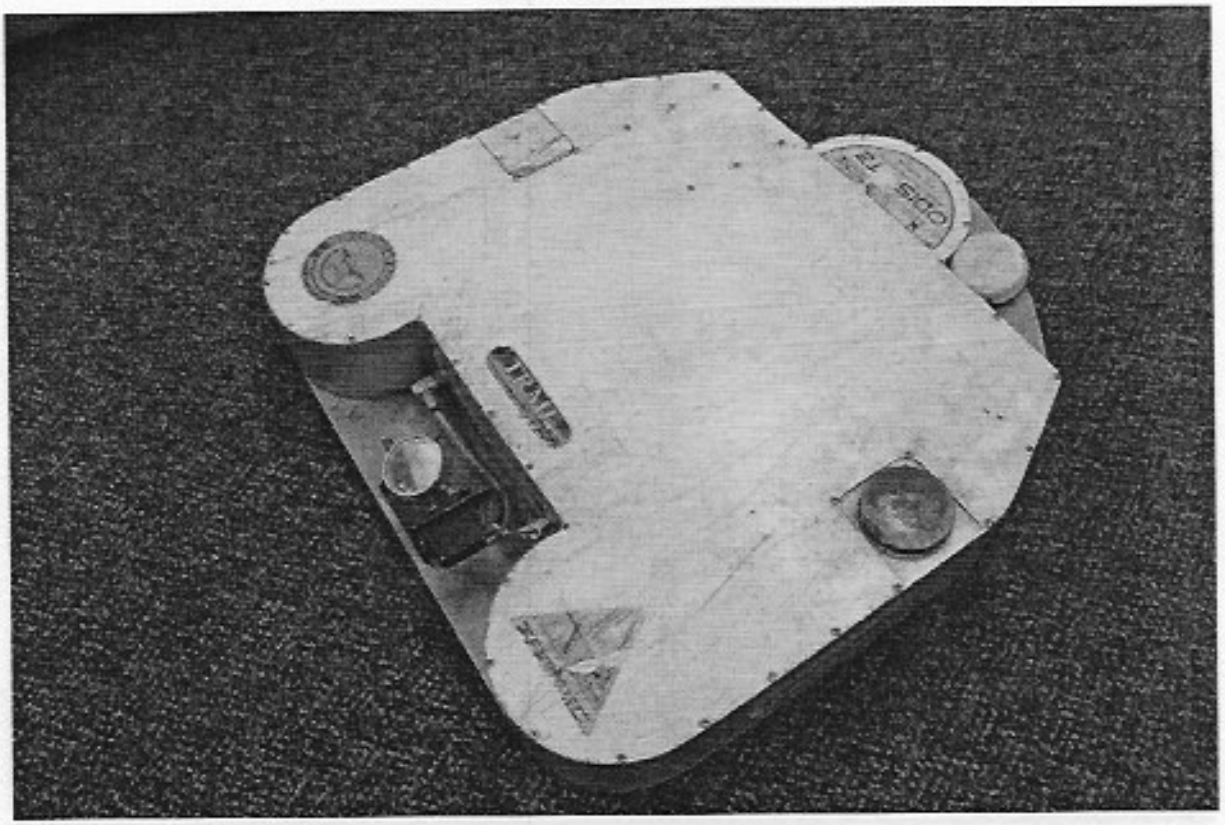
A quick tour through the one-room museum at the Robot Logistics Support Center at Selfridge Air National Guard base in Harrison Township, Michigan, shows the invention and evolution of many of these robots. And a walk through the warehouse reveals only a glimpse of the extent of work the Army is still doing to keep the robots rotating in and out of use in the field.

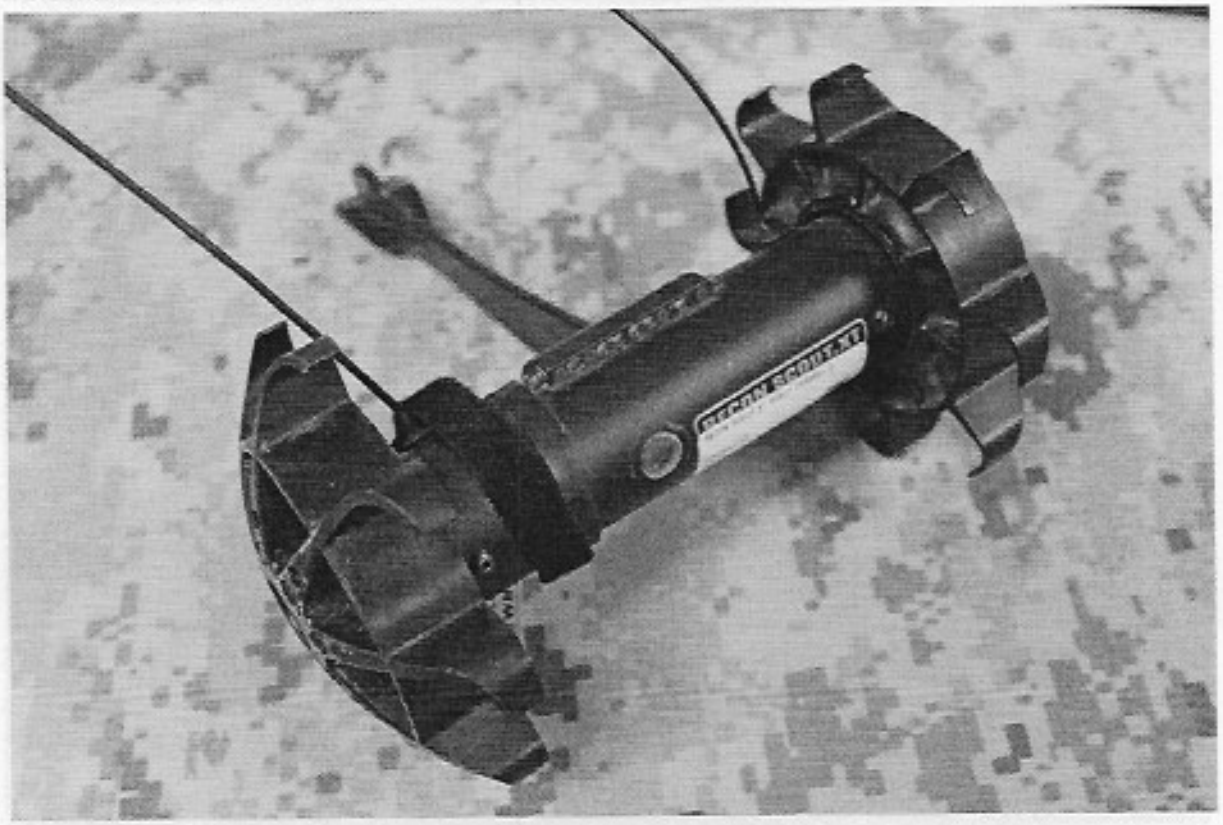
There are 10 UGV repair facilities in the U.S. and two forward-deployed.

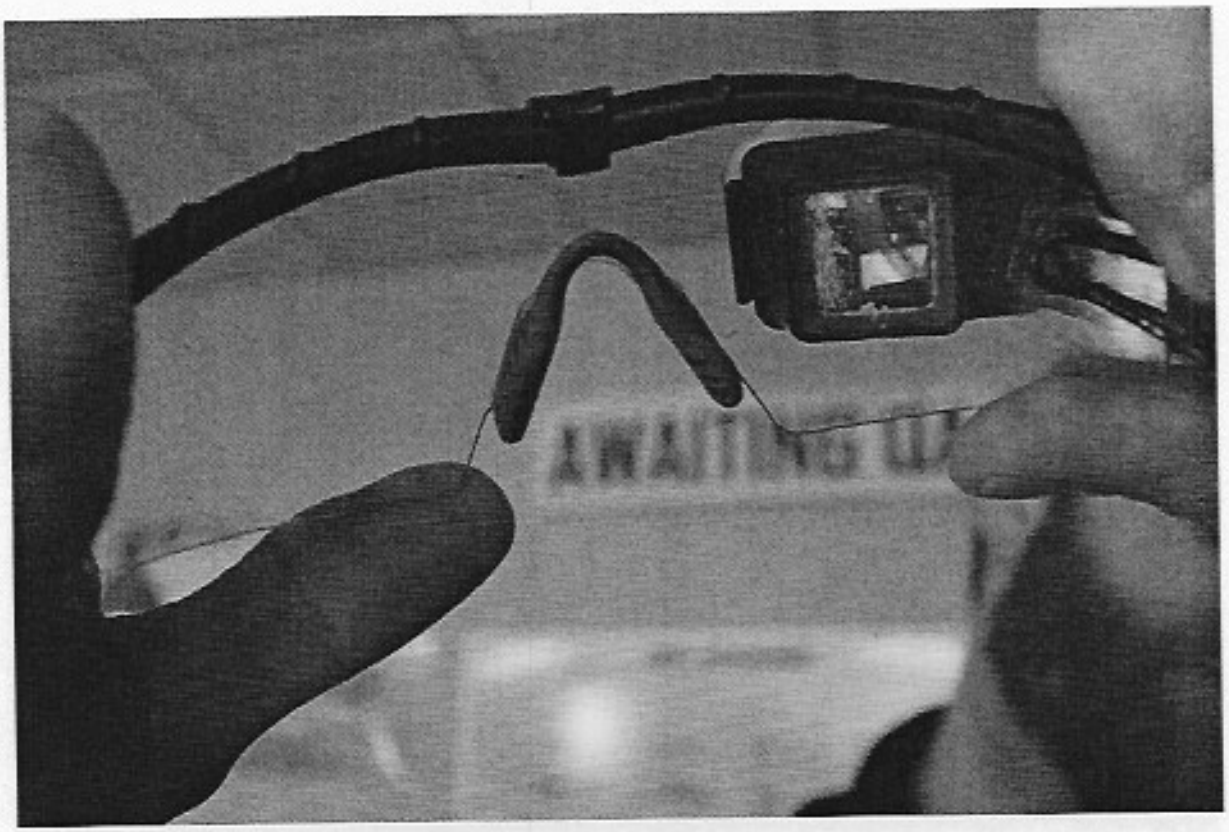
The various robots in the fleet perform functions from detecting explosives or other chemical, biological, radiological and nuclear threats to clearing mines and providing situational awareness.

There are roughly nine variants of robots used for the explosive ordnance disposal (EOD) mission, two robots for engineering battalions to conduct route clearance, two for CBRNe tasks and three for contingency and global response forces, and that's just within the Army.



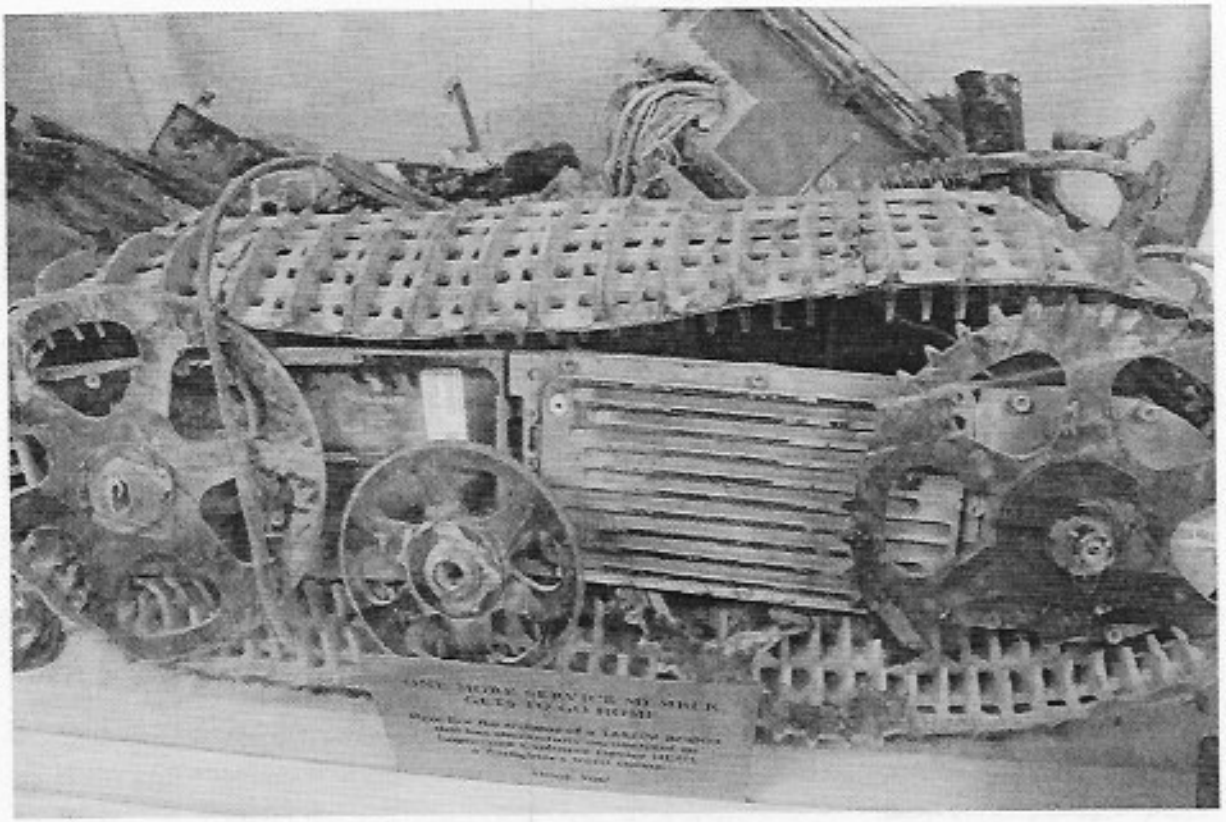









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"One of the issues or challenges in some of the things that we've learned over time is these systems are, one, proprietary. So they don't necessarily communicate with one another and, two, changes that we would need to make with them have to go back to the original contractors to make those changes," Lou Anulare, the product manager for unmanned ground vehicles in the Army's Program Executive Office for Combat Support and Combat System Support, told Defense News in an interview at Selfridge.

The Army's way forward streamlines UGVs so there are just a few common chassis in the small, medium and large ranges and a universal controller, making the systems interoperable and open to take on new sensors and capabilities more easily, Anulare said.

Man Transportable Robotic System — MTRS

The Man Transportable Robotic System Increment II will be the Army's next medium-sized robot to provide standoff capability to identify and neutralize explosive hazards. The MTRS Inc. II system will have a common chassis with the ability to plug in various payloads for current and future missions.

A capability production document was approved in May 2013, which led to a request for proposals from industry in November 2016. The source-selection team is in the process of choosing a winning

This means a common chassis for the medium variant unmanned ground vehicle will be determined this year. An initial operational capability for the vehicle is expected in 2021.

The Army plans to procure a total of 1,210 of these UGVs with the intention of fielding to engineering battalions and CBRN and EOD units.

unmanned aerial systems to decide within a year whether the common controller idea can be expanded to cover both aerial and ground drones, McVeigh noted.

The National Advanced Mobility Consortium pulled together industry partners and recently demonstrated the ability to control surrogate ground robots using the architecture that the Army is using for CRS(I) and the operating system used for unmanned aircraft systems Puma and Raven, "so this isn't science fiction, this is reality," he added.

On the heavier side

Further down the road, the Army will focus on procuring a Common Robotic System (Heavy), a vehicle-transportable system weighing 500 to 1,000 lbs to perform "highly dexterous manipulation procedures" for EOD and disarming vehicle-borne IEDs from a safe distance, according to a presentation slide included in the briefing at Selfridge.

The CRS(H) UGV will also be designed to easily reconfigure with various modules and payloads.

A materiel development decision is anticipated in fiscal 2018 and the Army plans to procure 225 systems for EOD units.

The Army is also preparing to release an RFP this month for a new Route Clearance Interrogation System that takes the soldier out of the loop in route clearance operations, according to McVeigh.

And the service is working on how to add autonomous capabilities to the Husky Mounted Detection System, he added.

The Army will also move out this year to procure a Squad Multipurpose Equipment Transport system with plans to hold a "rodeo" in the August or September time frame for industry to demonstrate capabilities. The service will then select a winning system that will be given to three infantry battalions or brigades to use for a year to help solidify requirements for a future system, McVeigh said.

Moving forward in executing the recently published Army's Robotics and Autonomous Systems Strategy, service officials will work on leader-follower technology where a manned lead truck would be followed by three unmanned vehicles in a convoy.

The idea is to be able to increase the number of convoys that can run in a 24-hour period and keep soldiers out of harm's way, McVeigh said.