

TECHNOLOGY

MEET UAV'S LITTLE BROTHER: THE UNMANNED MILITARY CONVOY

TERRAMAX KITS TURN ORDINARY MILITARY TRUCKS INTO SELF-DRIVING ROAD WARRIORS.

BY NEAL UNGERLEIDER

When you think of self-driving vehicles, you probably think of Google, Audi, and Daimler. Although the research underlying all of their advances was funded by DARPA, it's somewhat surprising that the military isn't already way ahead of everyone else when it comes to remote-controlled ground movement.

Oshkosh Defense is hoping to change that. The company has introduced the TerraMax conversion kit, which turns ordinary trucks and minesweepers into what the company calls unmanned ground vehicles. Marketed as the thing to buy "when you'd never send anyone," the retrofitting systems are designed to have unmanned vehicles travel in tandem convoys with troops in IED-filled territory. In essence, the unmanned vehicles are designed to either detect bombs or take the brunt of an explosion.



The kit integrates a remotely accessed drive-by wire system, which includes steering, braking, gear shifts, and engine control into the

vehicle. A combination of GPS signals, Lidar, radar, input from satellite maps, and other itinerary methods are then combined to have the vehicles travel from one place to another. Oshkosh, a military contractor with more than \$8 billion in annual profits, pitches TerraMax as a cost-saver for the military at a time when the Pentagon is contemplating massive military manpower shrinkages.

"There were changes that happened in both Iraq and Afghanistan," Oshkosh Defense president John Urias told Fast Company. "There was a sophisticated military which came in and was basically brought to its knees by the IED threat. Terramax or unmanned ground vehicle technology can accomplish your mission with less troops or take troops out of picture, just think about the impact of that."

The other reason Terramax might be appealing to the Pentagon is that it's a retrofit installation. Instead of having to build a new fleet of autonomous trucks from scratch, the military could upgrade existing trucks and minesweepers with this technology.

"It's not a box that you plug in 15 minutes," says John Beck, Oshkosh's chief unmanned systems engineer, "but an architecture that uses communication to get precise control over steering and braking." The system also ensures a steady stream of diagnostic data, the ability to black out "no-go" zones using GPS, and a combination of radar and lidar "So vehicles can understand environments. If there's a hole, ditch, or a cliff, it can understand trees, and big rocks, and things they shouldn't be flying over."



