

Protecting The Robots That Protect Soldiers

Abbott Koloff, Associated Press

ROCKAWAY TOWNSHIP, N.J. (AP) — Because bomb-disarming robots cost about \$140,000 apiece, Bernard Reger's superiors asked him to design a virtual training system that does not require using robots that might get blown up during an exercise or fall off a cliff.

The Army already marketed a computer war game, America's Army, as part of a recruiting campaign. Reger started eight years ago by inserting a virtual robot into that game and refined the software over the years.

He created the Robotic Vehicle Trainer, a package that includes a controller that looks and works exactly like those used to control robotic vehicles. Picatinny Arsenal patented the system at the end of last year, five years after an earlier version was first used.

"Now they can destroy a robot without setting the Army back a couple of hundred thousand dollars," said Reger, 39, of West Orange.

Reger, a mechanical engineer, is the chief of the Combat Support and Munitions System Branch of the Armament Software Engineering Center at Picatinny. Long before working for the military, he worked on brains, examining how learning takes place as part of stroke research in Chicago.

He came to Picatinny nine years ago, after being unemployed for a short time, for a salary that was about \$30,000 a year less than he had been making as a consultant. But he said money was not an issue.

He sends holiday cards to soldiers who work with the system he helped to create, thanking them for keeping his family safe.

Staff Sgt. Joshua Johnston, 27, from Maryland, said there were no robots in the U.S. when he was training to use them five years ago. He said soldiers learned in the classroom. Then they were sent to Iraq before getting their first experience with a robotic vehicle, learning on the job.

"A lot of times, guys were deployed and it was: 'Here's your robot. Learn it,'" he said.

Johnston and Staff Sgt. Christopher Duff, 25, from Virginia, demonstrated the system last week at Picatinny, along with two kinds of robots — the Talon, designated MTRS Mark 2 Mod 0 by the military, and the PackBot made by iRobot, the same company that makes the Roomba robotic vacuum cleaner. The PackBot has a longer arm for reaching into pickup trucks while the Talon is larger.

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"You can flip a human body with (the Talon)," Johnston said.

With soldiers' help, Reger developed a virtual reality with scenarios that look like parts of Iraq, complete with palm trees and dusty, desert roads.

"It's based on the minds of soldiers," Reger said. "It's what they have seen in the field."

Using a controller and looking at a laptop computer screen, soldiers use the controller to drive a robot down a street looking for an improvised explosive device. They pull it apart using the robot's arm or place explosives to destroy it. Then they back up the robot to a safe distance, about 150 yards. If they do not go far enough, the system lets them know about it.

"It would say that you damaged the robot," Johnston said.

Duff said the system allows soldiers to get a feel for driving the robots. Johnston said the scenarios are realistic, down to the orders received to go out on a mission. Some even have what he called "indicators," like a pile of rocks on the side of the road that might hide an IED.

The system has become so popular that Picatinny sends it to other branches of the military in a package that includes the laptop, a controller and the software. The Army gets it for free, officials said, but other branches pay \$5,000 for the cost of the parts.

But while America's Army has been widely available for free, with a paid version on a video console game, Reger said the Robotic Vehicle Trainer will not ever be made available publicly, for security reasons.

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