Control system from iRobot aims to simplify robot operations

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Innovative robotics engineers tend to think up but beyond vacuum cleaners and Bedford, Massachusetts-based iRobot, famous for its Roomba picker-upper, has explored and entered other markets. Namely, the company has made inroads in security and defense. Allowing

responders to operate robot rescue operations without having to undergo lengthy training was the concept that inspired iRobot's latest advance.

According to CNET's report on Wednesday, iRobot already has more than 6,000 defense and security robots deployed worldwide. They are in war zones sniffing out and disposing IEDs and, in Japan, part of the Fukushima cleanup effort. Each type of robot has required specialized training. "The system is a big change from iRobot's previous controls, which have used video-game controllers to operate the robots and were far more complicated. Now, the new controls should shorten training time on operating the robots from three to five days, to just a day, and reduce the dependence on specialists trained specifically to control the machines," said CNET's Ben Fox Rubin. The robots' capabilities have been expanded and the company has taken a close look at controls on robots, with the goal of having the average person able to easily operate the robots. The company has introduced a new system that controls robot models with a simple touchscreen app on an Android tablet. They call this universal control concept the uPoint Multi-Robot Control (MRC) system. The advantage is that it simplifies the operation of all iRobot unmanned ground vehicles by means of an intuitive tablet application and enhanced communications. The uPoint MRC system is made up of an Android-based controller and robot radio network. The uPoint MRC system can be used to serve in robot operations such as driving, manipulation and inspection.

Features include a virtual joystick that allows users to touch and drag anywhere on the main video feed to steer the robot; predictive drive lines that help guide operators through tight spots; autonomous driving modes; easy switching on the same tablet between different robots operating in the vicinity; and video recording. Among other interesting features is the uPoint Robot Radio, which, said the company, leverages frequency agility – the ability to automatically switch away from congested frequencies – power management, and mesh networking to form a

robust network in which robots, operators, and observers work seamlessly together. With the uPoint Robot Radio, robots can travel deeper into complex structures, according to the team. Eugene Kim of PCMag noted the cloud component of the uPoint, in allowing multiple responders to remotely access a single feed through a Web portal. In cases where multiple experts are needed to tackle an issue, he said, this can be useful.

"We needed to invest in simplifying the control of the robots so that more people with less training can use them," said Orin Hoffman, a technical director for iRobot, in CNET. "The more capability we put into our robots and the easier we make them to use, the more people will take them on more missions," Hoffman added. The system will be available next year.

More information: Press release: www.marketwatch.com/story/irob… customers-2014-10-09