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Virtual Robots Survive Disaster Scenarios to Win DARPA Challenge

By Chloe Albanesius | June 27, 2013 02:00pm EST | 0 Comments

DARPA today awarded funds and an Atlas robot to more than a half dozen teams who competed in a software challenge leading up to the agency's Robotics Challenge.

While the DARPA Robotics Challenge (DRC) focuses on the development of actual robots, this Virtual Robotics Challenge (VRC) called on teams to develop software that will power robots capable of responding more effectively to natural and man-made disasters.

The Defense Advanced Research Projects Agency (DARPA) within the Defense Department initially planned to select six winning teams, but the "good sportsmanship" of NASA's Jet Propulsion Labs allowed nine teams to progress.

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"Jet Propulsion Laboratory, which also has a DARPA-funded Track A effort with its own robot, decided to merge its two efforts and offer the bulk of the resources it earned in the VRC to other teams," DARPA said.

As a result, seven teams will use the Atlas robots they earned during the virtual challenge to compete in the DRC Trials, which begin in December. JPL donated its robot and some of its winnings to the Lockheed Martin Trooper team, while the combined Team K and Case Western team will use an Atlas robot donated by Hong Kong University and the remaining JPL funds. The full list of winners is below.

DARPA Wants Robotics to Rise to the Challenge of Disasters

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After 126 submissions were narrowed to 26, the teams competed in the challenge between June 17-21 using a DARPA-funded, cloud-based simulator developed by the Open Source Robotics Foundation (OSRF), which calculates and displays the physical and sensory behaviors of robots in a 3D virtual space, in real time.

"The simulator allowed teams to send commands and receive data over the Internet to and from a simulated Atlas robot—information very similar to what would be sent between a physical robot and its operator in the real world," DARPA said.

During the Virtual Challenge, the teams were required to perform three of the eight tasks required in the full DRC: have a robot get into a utility vehicle and drive it on a course on a road; travel over muddy, uneven, and rubble-strewn terrain; and pick up a fire hose, connect to a spigot, and turn a valve.

Gill Pratt, DRC program manager, told reporters during a conference call that technology has evolved in such a way that "we believe we can with some realism, pick the teams that are most competent" using a virtual testing ground.

"It's now possible to rent access to cloud computing machines that can offload computational needs so that you can have a relatively modest computer at your end and have the simulation happen somewhere else," said Brian Gerkey, CEO of the OSRF.

Since the simulator is open source, Pratt and Gerkey said they hope other robot enthusiasts will use it to develop next-gen technology. "Everybody in the world can use this software," Gerkey said.

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For DARPA, meanwhile, the focus has been to build more advanced robots that assist during disasters. Right now, the robots used by the military or by disaster response teams "tend to be pretty small machines, they have treads on
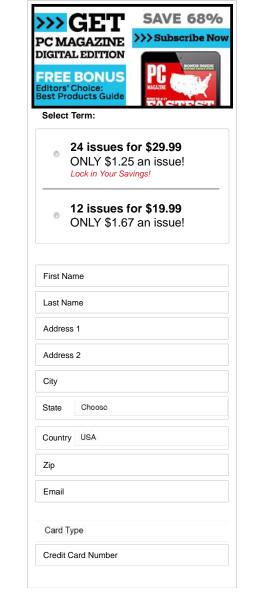
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