Four vehicles finish in $2 million robot race

PRIMM, Nevada (AP) -- Four robotic vehicles finished a Pentagon-sponsored race across the Mojave desert Saturday and achieved a technological milestone by conquering steep drop-offs, obstacles and tunnels over a rugged 132-mile course without a single human command.

The vehicles, guided by sophisticated software, gave scientists hope that robots could one day wage battles without endangering soldiers.

"The impossible has been achieved," cried Stanford University's Sebastian Thrun, after the university's customized Volkswagen crossed first. Students cheered, hoisting Thrun atop their shoulders.

Also finishing was a converted red Hummer named H1ghlander and a Humvee called Sandstorm from Carnegie Mellon University. The Stanford robot dubbed Stanley overtook the top-seeded H1ghlander at the 102-mile mark.

"I'm on top of the world," said Carnegie Mellon robotics professor William "Red" Whittaker, who said a mechanical glitch allowed Stanley to pass H1ghlander.

The sentimental favorite, a Ford Escape Hybrid by students in Metarie, La., was the fourth vehicle to finish Saturday. The team lost about a week of practice and some lost their homes when Hurricane Katrina blew into the Gulf Coast.

The Pentagon's Defense Advanced Research Projects Agency, or DARPA, plans to award $2 million to the fastest vehicle to cover the race in less than 10 hours. The taxpayer-funded race was intended to spur development of robots that could be used on the battlefield without remote controls.

The race announcer did not immediately declare a winner because 22 of the 23 robots left the starting line at staggered times at dawn, racing against the clock rather than each other. Stanley finished in less than 7 1/2 hours.

Thron says the technology developed for the race will help the Pentagon reach its goal of having one-third of its vehicles be driverless within ten years, but will mean safer cars within a few years.

Race officials planned to resume the race Sunday so the sole remaining vehicle, a mammoth six-wheel truck, could compete in daylight.
The so-called Grand Challenge race is part of the Pentagon's effort to cut the risk of casualties by fulfilling a congressional mandate to have a third of all military ground vehicles unmanned by 2015.

Last year’s much-hyped inaugural robot race ended without a winner when all the self-navigating vehicles broke down shortly after leaving the starting gate. Carnegie Mellon’s Sandstorm chugged the farthest at 7 1/2 miles.

Of the 23 robots that competed Saturday, 18 vehicles failed to navigate the entire 132-mile course, but most still managed to beat Sandstorm’s mileage last year.

The unmanned vehicles must use their computer brains and sensing devices to follow a programmed route and avoid hitting obstacles that may doom their chances.

Vehicles have to drive on rough, winding desert roads and dry lake beds filled with overhanging brush and man-made obstacles. The machines also must traverse a narrow 1.3-mile mountain pass with a steep drop-off and go through three tunnels designed to knock out their GPS signals.

This year’s field was more competitive. Even before Saturday’s race, many teams tested their vehicles in parts of the Southwest desert under race-like conditions including some that practiced on last year’s course from Barstow, Calif., to Primm.

The vehicles were equipped with the latest sensors, lasers, cameras and radar that feed information to several onboard computers. The sophisticated electronics helped vehicles make intelligent decisions such as distinguishing a dangerous boulder from a tumbleweed and calculating whether a chasm is too deep to cross.

Cornell University’s military light strike vehicle traveled about nine miles when it failed to cross a bridge. Team members were trying to figure out what went wrong.

"We’re at a loss,” said Ephrahim Garcia, a Cornell mechanical engineer. "It’s a disappointment."

The military currently has a small fleet of autonomous ground vehicles stationed in Iraq and Afghanistan, but the machines are remotely controlled by a soldier who usually rides in the same convoy. The Pentagon wants to eliminate the human factor and use self-thinking robotic vehicles to ferry supplies in war zones.

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