

Italy to China in driverless vehicles

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In this Thursday, July 15, 2010 video cameras are seen on the front of an unmanned electric-powered vehicle as a technician works on another similar vehicle in Parma, Italy. Next week, four electric-powered orange vans depart on what has been conceived as the longest-ever test drive of unmanned vehicles: a 13,000-kilometer (8,000-mile), three-month road trip from Italy to China. The vehicles, equipped with four laser scanners and seven video cameras that work in concert to detect and help avoid obstacles, will brave the traffic of Moscow, the intense summer heat of Siberia and the bitter cold of the Gobi desert before the planned arrival in Shanghai at the end of October.(AP Photo/Antonio Calanni)

(AP) -- It's a modern-day version of Marco Polo's journey halfway around the world - but is anyone at the controls?

A team of Italian engineers on Tuesday launched what has been billed as the longest-ever test drive of driverless vehicles: a 13,000-kilometer (8,000-mile), three-month road trip from Italy to China, not in search of silk, but to test the limits of future automotive technology.

Two bright orange vehicles, equipped with laser scanners and cameras that work in concert to detect and help avoid obstacles, are to brave the traffic of Moscow, the summer heat of Siberia and the bitter cold of the Gobi desert before the planned arrival in Shanghai at the end of October.

"What we are trying to do is stress our systems and see if they can work in a real environment, with real weather, real traffic and crazy people who cross the road in front of you and a [vehicle](#) that cuts you off," said project leader Alberto Broggi.

The road trip consists of two pairs of vehicles, each with a driven lead van followed by a driverless vehicle occupied by two technicians, whose job is to fix glitches and take over the wheel in case of an emergency.

The driverless vehicle takes cues from the lead van, but will have to respond to any ordinary obstacles or dangers. The two pairs alternate stretches along the route to China.

"We will definitely need some help by humans. It is not possible to have 100 percent driverless. This is why I call it a test, not a demonstration," Broggi said.

Governments have yet to write rules of the road for driverless vehicles, so the team has obtained prior permission from all countries along the route to carry out the experiment. To protect themselves from liability, they are placing one of the technicians in the driver's seat, ready to assume the controls or slam a red shutdown button if necessary.

The technology developed by Vislab, an [artificial vision](#) and intelligent systems lab at the University of Parma run by Broggi, might one day allow driverless vehicles to transport goods across Europe.

Analysts say such technology is feasible in the foreseeable future, but

some question its utility.

"It begs the question why. In Australia, you have big trucks with three or four trailers attached in the desert. Why do you need an autonomous vehicle if you can connect them with a piece of steel?" said Andrew Close, an analyst at IHS Automotive.

Close said he expected it to take at least a decade before a convoy of driverless vehicles following a lead would be ready to hit the road on a transport job. Broggi said driverless vehicles are probably 20 years away.

But elements of the technology could find applications much quicker.

For example, the scanners being tested could soon allow farmers to program tractors to plow and seed fields through the night, Broggi said. Vislab is also working with Caterpillar Inc., to develop unmanned vehicle technology for extreme environments, like mining.

"We would like now to do a long experiment and try this technology for 24 hours a day, with diverse temperatures and traffic, to see if our systems recognize these situations," Broggi said.

A test drive off campus on Thursday illustrates the many hazards. A tractor trailer blocked visibility entering a busy traffic circle, forcing the lead vehicle to inch tentatively into oncoming cars. When it did find a break, there wasn't enough time for the second vehicle to follow before another car inserted itself between them, cutting off communication. The technician aboard the second vehicle had no choice but to hit manual and start driving.

Failure is part of the plan. The goal is to determine precisely the situations where the technology does not work - and fine-tune it using 100 terabytes of information that will be gathered along the journey.

Such a convoy formation could one day be used to caravan trucks across long distances, and is a highly sought after military application that would expose fewer soldiers to risk in hostile environments.

In ordinary life, the technology might one day be used in a passenger car to allow drivers stuck in traffic jams to sit back and read the newspaper, Broggi said.

"This is a study that will bring us closer to that day," said automotive analyst Close.

The vehicles travel at a maximum 50 or 60 kilometers an hour (30 or 37 miles an hour), and must be recharged for a full eight hours after every two to three hours of driving. They expect to get in four hours a day of driving. The idle pair will be carried along the route on a truck.

One of the many challenges facing the team will be to find places to recharge the vehicles in remote areas of Siberia and Mongolia. Just in case, they have packed gasoline-powered generators.

The journey will be filmed by a group of Italian vehicle adventurers and also streamed onto Vislab's Web site.

The project has been funded with a euro1.8 million (\$2.3 million) grant from the European Commission's European Research Council, and Vislab has technical sponsors including Piaggio, which has provided the Piaggio Porter vans.

More information: <http://www.IntercontinentalChallenge.eu>
<http://www.overland.org>

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