

## S'pore-made driverless car to ply NUS roads

By: David Ee, Straits Times, 29 Jan 2014

*It is being tested as a means to tackle first- and last-mile transport problems*



The Shared Computer Operated Transport - or Scot - car (above), launched yesterday by the Singapore-MIT Alliance for Research and Technology and National University of Singapore. The Singapore-made driverless vehicle makes use of laser sensors, which help it detect and avoid obstacles, and software maps for guidance. -- ST PHOTOS: SEAH KWANG PENG

A NEW driverless car will start tooling around the National University of Singapore (NUS) campus in tests that may one day see such vehicles shuttling people from their homes to destinations like MRT stations.

The Singapore-made car, called the Shared Computer Operated Transport, or Scot, was launched yesterday by the Singapore-MIT Alliance for Research and Technology (Smart) and NUS.

Starting with a Mitsubishi i-MiEV electric car, the researchers retrofitted it at a cost of \$30,000 so it would drive programmed routes.

The car, which seats four and has a top speed of 130kmh, uses laser sensors with a 30m range to detect and avoid obstacles in its path. It also uses remote sensing technology that allows it to function without relying on the Global Positioning System.

The researchers also wrote the maps used by the Scot to get from place to place.

They intend it to be deployed on demand in future, shared by residents like taxis. It could help solve cities' "first- and last-mile problems" - the initial and final legs of journeys between home and transportation hubs that often cause congestion and air pollution.

Such vehicles could be especially relevant to Singapore given its ageing population, which means an increasing number of people with mobility issues, said Smart lead investigator Emilio Frazzoli.

"We are looking at this to provide wider access to mobility for the elderly population in Singapore," he said.

It would also make car-sharing more effective, he added. "When you reach your destination, you can just get out of the car. It will go and park or charge itself, or go pick up the next customer."

But it will be some time before the Scot is a fixture on major roads.

Researchers have been testing a golf cart version on the NUS campus since 2011. They will continue testing the car in such "controlled" environments as the university campus and hospital or resort grounds to ensure its road-worthiness.

They hope to be able to use it as a shuttle service in NUS within 11/2 years of further testing.

"The biggest challenge of all is dealing with humans. What we are trying to do is have the car interact safely, by understanding what humans intend to do," said Prof Frazzoli.

To do this, the researchers are constructing models based on data of driver behaviour collected by the car's sensors during tests. The idea is for the car to predict a safe course of action based on the data, said Professor Marcelo Ang from the NUS Department of Mechanical Engineering.

Driverless cars have made waves both here and abroad in recent years. Last August, the Nanyang Technological University began testing a French-made buggy. Google has been testing its own driverless cars, equipped with nearly \$200,000 worth of technology, since 2012.

Smart and NUS' version, though, emphasises affordability to make deploying it more realistic.

"It's easy to spend a lot of money and get a lot of sensors ... (but) our aim was to create something that is cheaper and affordable, and still does the job," said Prof Frazzoli.

Former Land Transport Authority planner Gopinath Menon flagged the legal complications that may arise if an accident is caused by a driverless car.

He also wondered if people would be willing to entrust cars to drive them around.

But he is certain that driverless cars would hit the road around the world before long.

"There's no doubt about it. First, the technology has to improve further. Then, people just have to get used to it in time."

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