NTU-NXP To Develop Smart Mobility Test Bed

The US$16.4 million NTU-NXP Smart Mobility Test Bed will test and develop Vehicle-to-Everything (V2X) technology.

Asian Scientist Newsroom | April 20, 2015 | In the Lab

AsianScientist (Apr. 20, 2015) - Nanyang Technological University Singapore (NTU) and NXP Semiconductors N.V., a technology leader in secure connected cars, are building a high-tech living test bed for smart cars and traffic systems on the NTU campus.

Supported by Singapore Economic Development Board, the NTU-NXP Smart Mobility Test Bed will test and develop new technologies for vehicles to communicate with each other and with designated roadside infrastructures. Known as V2X (Vehicle-to-Everything) technology, this will push new frontiers in mobility.

The agreement was signed today by NTU Chief of Staff and Vice-President for Research Professor Lam Khin Yong and Mr. Drue Freeman, Senior Vice President of Global Automotive Sales & Marketing at NXP. The signing was witnessed by Mr. Lim Kok Kiang, Assistant Managing Director of the Singapore Economic Development Board.

Built using the latest technology from NTU Singapore and NXP, companies, research institutes and government agencies will be able to deploy, test and validate future V2X solutions in a real world scenario with this S$22 million (~US$16.4 million) campus-wide test bed. Such V2X applications will involve wireless communications between vehicles and
with intelligent infrastructure such as traffic cameras and traffic lights.

NTU Singapore’s campus, the largest amongst the universities in Singapore, has a robust internal transportation network involving cars, buses and even electric vehicle prototypes. This smart mobility test bed will involve 100 vehicles and 50 roadside units to research V2X technologies over the next four years.

Lam said the collaboration with NXP is a natural one, given NTU’s deep expertise in information technology, intelligent systems and applied engineering and NXP’s technology leadership in secure connected cars.

“Over the past year, we have started to transform NTU into a living lab, starting with our EcoCampus initiative, which saw the deployment of Singapore’s largest solar power plant, the test bedding of various electric vehicles, and the installation of smart building technologies,” Lam said.

Freeman added on the need for better integration and smarter ways of managing traffic in growing cities:

“More roads, tunnels, or overpasses will not solve the traffic challenges in global megacities in the long run. What we need is more intelligent transport systems.”

“With this joint initiative with NTU Singapore and other leading industry partners, we are embracing an opportunity to make the secure, smart connected city a reality sooner and bring Singapore to the forefront of smart mobility innovation.”

In a V2X demonstration held at NTU, three connected cars were shown to interact directly with one another and exploit real-time data from each other and the roadside infrastructure. The intelligent V2X system, which is capable of wirelessly collecting and analyzing data from other vehicles and the surrounding smart infrastructure over a distance of up to two kilometers, will ultimately be required to enable widespread adoption of fully autonomous driving.

According to a study conducted by the US Department of Transportation, V2X safety functions can reduce multi-car accident figures by more than 80 percent. V2X-capable vehicles will also be capable of receiving information from intelligent road signs and automatically recognize the operating cycle of traffic lights.

The NTU-NXP joint initiative will focus on various core areas critical to the real world adoption of V2X. These include enhancement of V2X communications to ensure maximum reliability and security against potential cyber threats, essential for ensuring the safety of passengers as well as protecting drivers’ personal data.

The collaboration will also pave the way to realize Singapore’s Smart Mobility 2030 vision to optimize transport systems and enhance commuter travel experience with the latest
advances in transport technologies.