

NTU Singapore and Delta Electronics' research efforts in smart technologies expanded

Nanyang Technological University, Singapore (NTU Singapore) and Delta Electronics are expanding their research efforts in innovative manufacturing processes, and in improving learning and living experiences.

The S\$45 million Delta – NTU Corporate Laboratory for Cyber-Physical Systems was launched in 2016 with the support of the National Research Foundation (NRF). Now, the partners are opening a second laboratory space to accommodate the expansion in research activities.

The joint lab has developed innovative solutions such as a universal smart navigation system where logistics robots autonomously move goods around factory floors.



(/article-images/185234/Image_1_popup.jpg)

The expanded lab already has 15 projects, which look to improve and streamline industry processes and enhance learning technologies by integrating computation, networking, and physical processes, or what is known as cyber-physical systems.

Apart from the smart navigation kit, the researchers have also developed a reconfigurable testbed that will allow factories to digitise and change their production line processes quickly.

These technologies are testbedded on NTU's Smart Campus, which is home to a wide range of innovations developed with leading industry partners.

NTU President Professor Subra Suresh, said, "In a short span of two years, the Delta-NTU Corporate Laboratory has developed innovative solutions that can help companies stay ahead of the curve by embracing cutting-edge cyber-physical systems.

The Delta-NTU Corporate Lab is one of 12 Corporate Labs supported by the NRF, which facilitates the setting up of Corporate Labs via public-private partnerships.

NRF CEO Professor Low Teck Seng, said, "Researchers at the Delta-NTU Corporate Laboratory have made headway in the development of advanced robotics and sensor technologies that can automate operations and improve productivity in our manufacturing and logistics companies. We believe that companies need to embrace the latest technologies to stay competitive in today's economy, and we look forward to see how the technologies developed in this lab can be adopted by companies to improve processes and generate more returns."

Since 2016, the Delta-NTU Corp Lab has filed five patent submissions, secured two licenses, and published about 50 papers. It also supports more than 60 NTU research staff and graduate students, as well as scientists and engineers from the Delta Research Centre in Singapore.

The expansion of the lab has accommodated the rapid growth in research activities and also allows the joint research team to explore several new projects that involve partners from industry, government and academia.

Enhancing working and learning experiences

The innovations developed by the Corp Lab are commonly referred to as cyber-physical systems, which combine physical objects and virtual systems to create a networked world of intelligent cyber-physical elements interacting through the Internet.

The research projects focus on four broad research areas: smart manufacturing, smart learning, smart living and smart commercialisation.

One of the projects involves developing a reconfigurable testbed, which aims to enable factories to digitise and modernise their manufacturing processes. Known as IMPACT, the Industry 4.0 system integrates cyber-physical systems and allows factories to benefit from automation, AI and the IoT. Factories and manufacturing facilities would not only be able to quickly testbed working prototypes but conduct production line changes within ten minutes.

Under the Smart Learning research track, the Corp Lab has also developed a Smart Learning Platform that will equip professionals and enterprises with the latest Industry 4.0 skills.

Author

Bethan Grylls (/site/contact-form.aspx?)

to=xHf5b%2bLkpxMpVBWWvEGftmr3jJGhPlp3RiiPaGO03Ex2%2fgCPIxxsuRoxDl9nCynbWYHwUkOXyRb8liFhXteiNw6ocY0BRsgUSL%2faAzt8z8%3d)

Comment on this article