



**NANYANG  
TECHNOLOGICAL  
UNIVERSITY**



**NATIONAL  
RESEARCH  
FOUNDATION**  
PRIME MINISTER'S OFFICE  
SINGAPORE

## **Joint News Release**

**Singapore, 30 April 2015**

### **ST Engineering and NTU launch laboratory for advanced robotics and autonomous systems**

ST Engineering and Nanyang Technological University, Singapore (NTU Singapore) have set up a joint research lab to develop advanced robotics and autonomous systems that will improve airport operations and disaster rescue efforts.

The **ST Engineering-NTU Corporate Laboratory** was officially launched today by Guest-of-Honour Deputy Prime Minister Teo Chee Hean, who is also the Chairman of the National Research Foundation (NRF).

The joint laboratory which will receive S\$53 million in funding is supported by the NRF Singapore under its Corporate Laboratory@University Scheme which supports the setting up of key corporate laboratories via public-private partnerships.

This partnership will generate new products and services through the development of new technologies, increase employment opportunities for researchers and scientists and provide greater exposure for students in industrial R&D.

NTU Provost, Professor **Freddy Boey** said, "The ST Engineering-NTU Corporate Laboratory will combine both NTU's and ST Engineering's expertise in robotics and autonomous systems. NTU has been especially successful in industry-relevant research and an initiative like this corporate lab allows us to develop robust and practical solutions that will benefit society, ease manpower challenges and create higher value jobs for Singaporeans."

ST Engineering President & CEO, **Tan Pheng Hock** said, “The vision for the ST Engineering-NTU Corporate Lab is to develop the next generation of robotics and autonomous systems that can be applied to various areas such as healthcare, urban development, transportation, environmental conservation as well as defence and homeland security. These will be solutions that will improve and impact our everyday lives.”

NRF CEO, Professor **Low Teck Seng** said, “We are glad that the NRF Corporate Lab @ University scheme enables NTU researchers, PhD and Master’s students to work alongside ST Engineering to translate robotics research projects into new products and services. These same robotics and automation technologies can also be adapted to develop new capabilities for other sectors as well as to be deployed to improve the lives of Singaporeans.”

The two main research areas of the ST Engineering-NTU Corporate Lab will be in airport precision and airside technology (such as baggage transfer systems, aerobridges and aircraft tow trucks) and in enhancing intelligence support for crisis management.

Professor **Lam Khin Yong**, NTU’s Chief-of-Staff and Vice President (Research), said: “The two key areas of research in the corporate laboratory draw on the strengths of both NTU and ST Engineering as we both have strong capabilities in engineering and in the translation of research into industry applications. We are also long-time partners and this new corporate laboratory takes our partnership to a higher level.”

Mr **Fong Saik Hay**, Chief Technology Officer, ST Engineering said: "With ST Engineering Group’s domain knowledge in engineering and deep expertise in the development of mission critical systems, we are confident to advance the technologies from research to the market."

### **Next generation of airport operations**

The joint research aims to develop advanced robotics and autonomous system technologies – systems that can collect data and make decisions on their own. These systems can transport luggage from the check-in counter to the baggage claim area in the most efficient way, minimising the number of human operators.

Airport operations are extremely labour intensive today, with labour cost forming 70 per cent of the total operation costs. Luggage from airport terminals is currently loaded manually on to trailers and driven to aircrafts, then moved by luggage handlers to the aircraft's cargo compartment.

The increasing labour cost and manpower constraints underscore the need for advanced robotics and smart systems, especially when airports worldwide are embarking on expansion.

Such systems will also help to enhance the efficiency and safety of aerobridge operations and aircraft tow trucks. The technology is also applicable to logistics companies, where robotic systems can be used to move large items.

### **Enhancing disaster rescue missions**

A disaster-struck environment can be unsafe for humans. A smart robot, however, can navigate its way, making search-and-rescue missions safer and more effective.

Using sensors such as vision and laser rangefinders that measure the distance to an object, the robot can create a map of the unknown environment. The smart robot will automatically search and locate survivors and their vital signs in the disaster zone, unlike current robots which have to be remotely controlled.

Through advanced computer algorithms, the robot will be able to convert sensor data to images that its human operators can easily understand.

With such advanced capabilities, crisis responders would be able to optimise tasks and deploy resources under challenging conditions during disasters.

### **ST Engineering-NTU Corporate Lab management**

Housed at NTU's School of Electrical and Electronic Engineering, the joint research lab will be led by Co-Directors – NTU Professor Wang Dan Wei and ST Engineering's Vice President/Director of the Advance Robotics Lab, Mr Paul Tan. They will be assisted by NTU Assistant Professor Justin Dauwels as the Deputy Director.

Running at full capacity, the Corp Lab will have over 100 researchers and staff, including NTU PhD students.

The ST Engineering-NTU Corporate Lab is NTU's second corporate lab under the NRF Corporate Laboratory@University Scheme. The Rolls-Royce@NTU Corporate Lab, a partnership between NTU and Rolls-Royce, was established in 2013.

The NRF scheme seeks to strengthen Singapore's innovation system by encouraging public-private research and development collaboration between universities and companies. It also ensures that universities achieve impact by developing cutting edge solutions for problems faced by the industries.

To date, NRF has established four labs under its Corporate Laboratory@University Scheme.

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**Media contacts:**

Ang Hui Min  
Assistant Manager  
Corporate Communications Office  
Nanyang Technological University  
Tel: 6592-3557; Mobile: 9112-4765  
Email: [huimin@ntu.edu.sg](mailto:huimin@ntu.edu.sg)

Leticia Fong  
Manager, Corporate Communications  
ST Engineering  
Tel: 6772-1881  
Email: [leticiafong@stengg.com](mailto:leticiafong@stengg.com)

Hoh Suk Mun  
Senior Officer, Corporate Communications  
National Research Foundation, Prime Minister's Office, Singapore  
DID: 6694-5036; Mobile: 9150-2036  
Email: [Hoh\\_Suk\\_Mun@nrf.gov.sg](mailto:Hoh_Suk_Mun@nrf.gov.sg)

### ***About Nanyang Technological University, Singapore***

A research-intensive public university, Nanyang Technological University, Singapore (NTU Singapore) has 33,000 undergraduate and postgraduate students in the colleges of Engineering, Business, Science, Humanities, Arts, & Social Sciences, and its Interdisciplinary Graduate School. It has a new medical school, the Lee Kong Chian School of Medicine, set up jointly with Imperial College London.

NTU is also home to world-class autonomous institutes – the National Institute of Education, S Rajaratnam School of International Studies, Earth Observatory of Singapore, and Singapore Centre on Environmental Life Sciences Engineering – and various leading research centres such as the Nanyang Environment & Water Research Institute (NEWRI), Energy Research Institute @ NTU (ERI@N) and the Institute on Asian Consumer Insight (ACI).

A fast-growing university with an international outlook, NTU is putting its global stamp on Five Peaks of Excellence: Sustainable Earth, Future Healthcare, New Media, New Silk Road, and Innovation Asia.

The University's main Yunnan Garden campus has been named one of the Top 15 Most Beautiful in the World. NTU also has a campus in Novena, Singapore's medical district.

For more information, visit [www.ntu.edu.sg](http://www.ntu.edu.sg)

### ***About ST Engineering***

**ST Engineering** (Singapore Technologies Engineering Ltd) is an integrated engineering group providing solutions and services in the aerospace, electronics, land systems and marine sectors. Headquartered in Singapore, the Group reported revenue of \$6.54b in FY2014 and ranks among the largest companies listed on the Singapore Exchange. It is a component stock of the FTSE Straits Times Index, FTSE ASEAN 40 Index, MSCI Singapore and other indices. ST Engineering has about 23,000 employees worldwide, and over 100 subsidiaries and associated companies in 46 cities across 24 countries. Please visit [www.stengg.com](http://www.stengg.com) for more information.

### ***About National Research Foundation, Prime Minister's Office, Singapore***

The National Research Foundation (NRF), set up on 1 January 2006, is a department within the Prime Minister's Office. The NRF sets the national direction for research and development (R&D) by developing policies, plans and strategies for research, innovation and enterprise. It also funds strategic initiatives and builds up R&D capabilities by nurturing research talent.

The NRF aims to transform Singapore into a vibrant R&D hub that contributes towards a knowledge-intensive, innovative and entrepreneurial economy; and make Singapore a talent magnet for scientific and innovation excellence. For more information, please visit [www.research.gov.sg](http://www.research.gov.sg).