NEWS RELEASE

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NTU Singapore launches three new space projects under Singapore's newest Space Access Programme

Nanyang Technological University, Singapore (NTU Singapore) is launching three new space projects under Singapore's Space Technology Development Programme (STDP), marking a major step in accelerating the commercialisation of space technologies developed in Singapore.

Among the projects is a satellite that will carry edge-computing artificial intelligence capable of processing data directly in space.

Images captured by the satellite will be analysed on board using small AI models and an edge engine, reducing the need to transmit large volumes of raw data back to Earth and enabling faster, more intelligent decision-making in orbit.

The project, led by scientists from NTU's **Satellite Research Centre (SaRC)**, will be integrated into a nanosatellite built by space technology firm **Satoro Space**.

The 3U (30cm x 10cm x 10cm) nanosatellite will also demonstrate and test next-generation perovskite solar cells in space. These lightweight solar panels are being developed by scientists from NTU's School of Electrical and Electronic Engineering, NTU's School of Materials Science and Engineering, and local technology start-up Singfilm.

The three new projects are among the first supported under the Space Access Programme (SAP), which is part of the STDP by the **Office for Space Technology & Industry, Singapore (OSTIn),** targeting annual launches in 2026, 2027, and 2028.

The national programme is designed to give local researchers and companies faster and more cost-effective access to space for in-orbit testing and validation.

Dean of the NTU College of Engineering, Professor Warren Chan, said the new Space Access Programme marks a significant step for Singapore's space ecosystem and represents a new phase for NTU, the birthplace of Singapore's satellite and space education programme.

“This new programme reflects how space technologies are evolving towards faster development and smarter operations,” Prof Chan said. “With over two decades of experience, NTU has built a strong track record in co-developing and deploying satellite technologies rapidly and cost-effectively.”

Chairman of SATORO SPACE, **Mr Maverick Shih**, said, “We are very happy to be a part of NTU’s joint project, as the cooperation between NTU’s Satellite Research Centre and SATORO not only allows us to build up the proven and reliable CubeSat solutions, but also implement the project locally with SaRC in Singapore, which helps Singapore research institutes to develop cutting-edge space technology rapidly”.

Second SAP: Propulsion and Atomic Oxygen Detector

In addition to the AI-enabled satellite, the second SAP project will deploy another nanosatellite designed to make manoeuvres in space

The new 16U (measuring 40cm x 30cm x 30cm) nanosatellite weighs up to 30 kilogrammes and will house a MUlti-Stage Ignition Compact (MUSIC) engine, a unique propulsion system developed by NTU spin-off **Aliena**.

The engine works by electrically ionising a gas propellant and accelerating the ions using carefully controlled electric and magnetic fields, producing a steady and efficient thrust that can be used by satellites for orbit raising or lowering

“Aliena’s participation in the Space Access Programme reflects our commitment to delivering versatile propulsion systems across a wide range of satellite platforms,” said **Dr Lim Jian Wei, Mark**, **Co-founder and CEO of Aliena**.

“With the growing number of satellites in low Earth orbit, advanced in-orbit mobility is no longer optional. It opens up new mission possibilities that are critical for emerging space applications and an absolute necessity for satellite constellations to operate effectively and sustainably.”

The satellite will also house an Atomic Oxygen Detector developed by **NTU Temasek Laboratories**, which will study the durability of advanced materials to withstand atomic oxygen, which is a highly corrosive gas that could damage satellite components in Very Low Earth Orbit.

Third SAP: Optical Imaging

The third project will test a **Singapore-developed electro-optical imaging payload (LEOCAM)** on the **International Space Station**, providing in-orbit validation for high-resolution Earth observation technologies.

Locally designed with a unique triple-mirror set-up, LEOCAM is capable of delivering high-resolution images, as each pixel can capture finer ground details, such as objects a metre wide or larger.

Dr Phua Poh Boon, Chief Technology Officer of LightHaus Photonics, said: “We are excited to test our optical imaging payload on the International Space Station, which will be a key milestone for LightHaus as the first Singaporean company to build a space-based optical system.”

Together, the projects reflect a broader shift in the global space sector towards smaller, more agile satellites that can be developed, launched and tested more quickly than traditional large-scale missions.

Professor Warren Chan added that NTU’s established strengths in artificial intelligence and space technologies position the University well to spearhead the development of edge-computing AI in space, where data can be processed directly on-board satellites.

“Developing AI capabilities in orbit reduces reliance on ground-based processing and enables quicker, more intelligent decision-making,” Prof Chan said. “This is a strategic advantage for Singapore as it builds a more agile and competitive space ecosystem, and it will help our partners bring innovations to market sooner.”

The three new Space Access Programme projects are scheduled to begin this year and will run for the next 3 years, further strengthening NTU’s role in advancing Singapore’s space capabilities and growing its commercial space ecosystem.

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About Nanyang Technological University, Singapore

A research-intensive public university, Nanyang Technological University, Singapore (NTU Singapore) has 35,000 undergraduate and postgraduate students in the Business, Computing & Data Science, Engineering, Humanities, Arts, & Social Sciences, Medicine, Science, and Graduate colleges.

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

Under the NTU Smart Campus vision, the University harnesses the power of digital technology and tech-enabled solutions to support better learning and living experiences, the discovery of new knowledge, and the sustainability of resources. Ranked amongst the world's top universities, the University's main campus is also frequently listed among the world's most beautiful. Known for its sustainability, NTU has achieved 100% Green Mark Platinum certification for all its eligible building projects. Apart from its main campus, NTU also has a medical campus in Novena, Singapore's healthcare district.

For more information, visit www.ntu.edu.sg

About SATORO Space

SATORO PTE. LTD. specializes in turnkey small satellite solutions, offering customers an affordable and rapid pathway to access space. The company focuses on Satellite-as-a-Service with 3U to 16U CubeSat, designed to accommodate a wide range of customer payloads and mission objectives in low Earth orbit (LEO). SATORO provides a true one-stop service covering the entire mission lifecycle—from payload integration and system-level testing to launch qualification, regulatory coordination, and securing launch opportunities. To date, SATORO has successfully launched 10 operational satellites, establishing itself as a trusted and agile partner in the small satellite industry and enabling customers to deploy their missions quickly and with confidence.

About Aliena

Aliena Pte Ltd is a Singapore based space propulsion provider that aims to bring space closer to home for satellite operators and terrestrial businesses through high resolution datasets acquired from their constellation of very-low-Earth-orbiting microsatellites. Their novel propulsion systems aim to equip disruptive next-generation satellites with advanced manoeuvring capabilities that can empower satellite operations of tomorrow including operations at VLEO for their own microsatellite constellation. A technology spin-off from Singapore's Nanyang Technological University (NTU), Aliena currently operates out of a privately-owned jet propulsion test facility that gives the R&D and manufacturing environment to provide their systems to the most demanding of customers internationally.

For more information visit https://www.aliena.sg/

About LightHaus Photonics

LightHaus Photonics Pte Ltd is a high-tech company founded in 2011. It has a team of experts specialising in Optics/Photonics, Imaging, Electronics and System Integration. Their core business is in R&D and customized solutions for their clients, which include government agencies, institutions, statutory boards as well as MNCs.

LightHaus has also developed several new technologies towards high resolution imaging payload and spectral imaging. These imaging payload inventions give unique functionalities, compactness and cost advantages as compared to existing imaging cameras in the market.