

MEDIA RELEASE

Singapore Polytechnic launches Robotics Solutions Development Centre in partnership with ShenHao (Singapore)

The partnership will elevate engineering knowledge and skills in Robotics, Automation and other emerging technologies for power, rail and manufacturing industries

Singapore, 2 November 2023 – Singapore Polytechnic (SP), in partnership with **ShenHao (Singapore) Pte Ltd**, the local subsidiary of a leading enterprise in China, Hangzhou ShenHao Technology, specialising in smart power grids, intelligent inspection robots, and industrial health monitoring, launched the **Robotics Solutions Development Centre (RSDC)** today at the Regional Industry Networking Conference (RINC) 2023. SP is the first local Institute of Higher Learning (IHL) here that ShenHao is collaborating with.

Launch of the Robotics Solutions Development Centre (RSDC)

The RSDC aims to facilitate the timely exchange of knowledge, technologies and market practices between industry and academia. Additionally, the Centre will provide SP staff, students, and adult learners with direct access to cutting-edge industry equipment and expert insights, enhancing their learning experience and deepening their contributions to research and development in projects led by ShenHao. They will also have the chance to visit ShenHao's international facilities to gain a deeper understanding of the latest robotics and automation technologies. SP staff and students will get to work alongside ShenHao's domain experts to co-develop customised AI-powered robotic solutions that meet industry-specific needs, locally and regionally.

This synergistic collaboration will establish both organisations as key players in the robotics and automation field. The Centre will see an estimated 300 Pre-Employment Training (PET) students from SP's Diploma in Electrical and Electronic Engineering (DEEE) and Diploma in Engineering with Business (DEB) courses and 40 Continuing Education & Training (CET)

learners benefiting per academic year. As Singapore progresses toward Industry 4.0, with robotics and automation playing a pivotal role, SP graduates, equipped with the relevant and latest technical competencies, will be able to sharpen our industry competitiveness. SP staff will also be well-poised to support industries in their transformation journey.

Please refer to [Annex A](#) for more information on the RSDC.

Building a talent pipeline through overseas partnerships

To align with the Ministry of Education's "70-70" initiative, which aims for 70% of students from local IHLs to have overseas exposure and for 70% of this group to have experiences in ASEAN countries, China or India (ACI), RINC 2023 also unveiled new partnerships that SP has forged with top overseas international IHLs to provide overseas exposure to SP students. **SP has inked a Memorandum of Cooperation (MoC) with Politeknik Negeri Batam (Indonesia) and Memoranda of Understanding (MoUs) with Sunway University (Malaysia) and Chongqing University (China).**

SP's collaboration with Sunway University centres around sustainability and innovation. Both parties will tap into each other's expertise in sustainability to provide students with cross-border education and practical experience in addressing sustainability challenges. The partnership will also involve organising talks and hackathons aimed at enhancing students' understanding of leveraging technological innovation for increased sustainability. In a similar vein, SP's collaboration with Chongqing University (CQU) will be anchored on advanced scientific research and technology development for sustainable energy solutions. SP students will have the opportunity to engage in CQU projects or go on industry attachments, where they can leverage their knowledge to value-add while learning from these experiences.

By working in mixed teams and engaging in multi-disciplinary sustainable innovation projects using the Design Thinking methodology, students from the IHLs will come together to solve problem statements pertaining to sustainability and its related challenges facing the industry or community. These two partnerships reinforce SP's leadership in the sustainability agenda and ensure the staff and students from the IHLs are equipped with the knowledge, skills, and experience to assist companies and industries in Singapore and beyond in leveraging technology to develop innovative solutions for a sustainable transformation.

Together with Politeknik Negeri Batam (Polibatam), an Indonesian polytechnic in Batam, SP will gain a better understanding of project-based learning. By drawing from the insights into

the dynamic student-centred approach to learning and visiting the Polibatam Technology Centre and Batam's engineering companies, students from both parties will develop a more profound knowledge of applying technology to address real-world challenges and curate solutions to suit their respective local industries, thereby preparing them for future industry roles.

Mr Soh Wai Wah, Principal and CEO of Singapore Polytechnic, said, "Our partnership with ShenHao is a strategic one between industry and academia. It aims at enhancing our curriculum and bolstering the talent pipeline in the robotics and automation sector. Our collaborations with overseas IHLs like Politeknik Negeri Batam (Polibatam), Sunway University, and Chongqing University also play a significant role in deepening students' technical knowledge, expanding their horizons and promoting international partnerships. These experiences serve as invaluable networking opportunities and contribute to the development of the students' cultural adaptability in an increasingly interconnected world. These cooperative endeavours with foreign institutions also position SP to play a central role in driving innovation and transformation for local enterprises while emphasising sustainability in these initiatives."

Please refer to [Annex B](#) for quotes from our partners.

Themed "**Engineering the Future – Sustainable Transformation via Innovation**," the annual flagship engineering conference, hosted by SP's School of Electrical & Electronic Engineering (EEE) since 2002, gathers industry stakeholders, academic institutions, government agencies, and associations from across the globe to exchange insights and explore technological advancements and industry trends in key engineering fields.

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About Singapore Polytechnic

Established in 1954, Singapore Polytechnic (SP) is Singapore's first polytechnic. It has 10 schools that offer 30 full-time diploma courses and four common entry programmes for more than 12,800 students. Pedagogical innovation is foremost at SP. We have implemented institution-wide Flipped learning and are at the forefront of using Analytics in Education. SP also leads the global CDIO (Conceive-Design-Implement-Operate) Collaborative in the region. By ensuring our curriculum is just in time with industry developments, we can offer a solution-driven internship programme to our industry partners.

At SP, we are committed to nurturing self-directed, versatile graduates who are also imbued with sound values, so that they can be life ready, work ready, world ready, and be of service to industry and society. We have more than 230,000 graduates; among them are successful entrepreneurs, top executives in multi-national and public-listed corporations, industry leaders and professionals across various industries, and leaders in government.

SP clinched the inaugural ASEAN People's Award in 2015 for its contributions toward the region's community-building efforts. We are also the first polytechnic to be awarded the President's Award for the Environment in 2010, the President's Social Service Award in 2011, and the President's Award for Teachers in 2017, 2018 and 2020.

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SINGAPORE POLYTECHNIC – SHENHAO ROBOTIC SOLUTIONS DEVELOPMENT CENTRE

Background

Singapore Polytechnic (SP) and Shenhao Singapore Pte Ltd (a subsidiary of Hangzhou Shenhao Technology Co., Ltd. ¹) entered into a strategic partnership on 15 August 2023 to build a collaborative platform for industry, academia, and research in the areas of robotics, automation and related technologies. Both organisations will establish the SP-Shenhao Robotic Solutions Development Centre (RSDC) on SP's Dover Road campus and inaugurate it on 2 November 2023 at the Regional Industry Networking Conference (RINC) 2023. SP is the first Institute of Higher Learning (IHL) in Singapore that ShenHao has collaborated with.

Established in 2002, Hangzhou ShenHao Technology is a leading provider of intelligent robotic and monitoring solutions in the fields of electric power grid, rail transportation, and oil and gas chemical. ShenHao has 20 years of fault detection experience, over 10 formulations of national and industry standards, and more than 2,000 successful cases of products or solutions.

Business Objectives


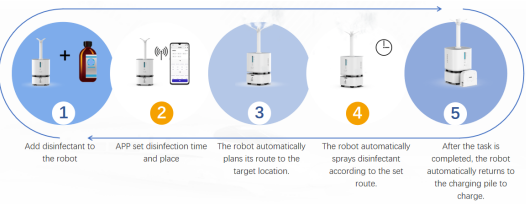


The new Centre, covering 160 sqm, will be equipped with Shenhao's state-of-the-art test equipment and systems. The list of equipment and their features are in the following section.

Launching the Centre at SP is part of the polytechnic's industry co-location strategy to bring in leading companies' expertise, technology, equipment and training know-how to co-create authentic hands-on learning experiences for both Pre-Employment Training (PET) students and Continuing Education & Training (CET) learners. It is aligned with the national thrust of ensuring that our graduates acquire evolving skillsets necessary to meet the fast-changing needs of the industries.

This Centre is critical to the manufacturing industry, with shifting factors of production now favouring technology-intensive economies, which is a key sector underpinning Singapore's economic growth and contributing 8% to Singapore's GDP, with employment amounting to 20% of total manufacturing jobs.

¹ <https://www.shenhaorobotics.com/>

Key Equipment Features

Equipment	Feature	Benefits
<p>Health Guard Robot</p> 	<p>Non-contact temperature measurement, facial recognition</p>	<p>a. The non-contact temperature measurement feature provides a more sanitary way of taking the temperatures of visitors while ensuring a safe environment, as only visitors who are well can be admitted to the Centre.</p> <p>b. The non-contact facial recognition feature enhances the safety aspect of the Centre by capturing the visitors' faces.</p>
<p>Indoor Intelligent Spray Disinfection Robot</p> 	<p>Autonomous movement, automatic obstacle avoidance, automatic charging</p>	<p>The setting of disinfection time allows for greater efficiency and ensures a more thorough and robust disinfection of the premise, providing a more pleasant environment for visitors and staff alike.</p>
<p>Rail-mounted Inspection Robot</p> 	<p>Ultra-dry atomisation</p>	<p>By combining different types of sensors, such as visible light, infrared, and partial discharge with intelligent algorithms, the system can more effectively identify and resolve environmental and equipment anomalies.</p>
<p>Substation Switch Room Indoor-wheeled Inspection Robot</p> 	<p>Autonomous movement and obstacle avoidance</p>	<p>By combining visible light, infrared, and other sensors with intelligent algorithms, the system can effectively identify and resolve environmental and equipment anomalies.</p>
	<p>Intelligent recognition and Analysis with early warning capabilities</p>	
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Business Goals and Deliverables

The Centre will help position SP as a technology forerunner in the development and industrialisation of pan-industrial system health monitoring technology, and systems and applications with the adoption of Robotics, Automation and emerging technologies including but not limited to artificial intelligence, cloud, IOT, 5G.

The Centre will also support in nurturing a growing pool of talents with in-demand job skills, contributing to the uplifting of Industry 4.0 and the robotic industry in Singapore applied to energy and power, transport, smart building, and manufacturing industries, and thereby advancing the skills and employability of engineering professionals in Singapore.

The goals of the partnership for the next three years include the following:

- Develop SP staff's expertise and capability through staff training and staff industrial attachments;
- Co-design the PET curriculum for SP's Diploma in Electrical and Electronic Engineering (DEEE) course and Diploma in Engineering with Business (DEB) course;
- Co-create the CET curriculum to train adult learners enrolling in Advanced Diploma (AD) and Specialist Diploma (SD) with industry automation curriculum;
- Co-supervise SP students on robotic solutioning projects;
- Co-curate local and overseas internship programmes; and
- Co-create joint industry workshops, webinars or Learning Journeys

Quotes from Partners

Chen Ru Shen, Chairman of Hangzhou Shenhao Technology Co., Ltd.: We attach great importance to the strategic significance of our collaboration with Singapore Polytechnic. In a world filled with uncertainties, one thing is certain: Artificial intelligence is becoming increasingly integral to human work and life. Meanwhile, the trajectory of AI robots in reading and utilising data for the betterment of mankind is unmistakable. Singapore Polytechnic plays a pivotal role in consistently nurturing talent across various industries such as electricity, railways, petrochemicals, and underwater domains. We look forward to seeing Shenhao and Singapore Polytechnic forge a deep and effective fusion of academia and industry, with the specific aim of advancing the application and invaluable knowledge in the AI robot inspection field. Together, we aspire to attract international talents and collaboratively build a bridge to the future, one that leads to high-quality development and Industry 4.0, all in the service of humanity.

Prof Ran Jingyu, Party Director for the School of Energy and Power Engineering and Director for Institute of Energy & Environment, Chongqing University, China: Chongqing and Singapore share strong economic, trade, and cultural ties. For our partnership with Singapore Polytechnic, we hope to provide an enriching overseas learning experience for its students and envisage a win-win situation where SP students could value-add to our industry attachments or university projects as much as they learn from these. We also hope to tackle grand challenges in sustainability and renewable energy together with SP.

Professor Sibrandes Poppema, President of Sunway University, Malaysia: “We look forward to our partnership with Singapore Polytechnic and hope to deepen technical competencies of students from both sides especially in the domain of sustainability. Cross-fertilisation of ideas has the agency to result in more effective solutions for the industry, which is another key objective that both organisations hope to achieve.”