

## Students showcased ingenious applications in Siemens Industrial Edge Competition 2023

- **Tertiary students developed practical solutions to address real-world problems**
- **Competitors used Siemens edge computing platform**

Three teams of tertiary students from ITE College East, Temasek Polytechnic and National University of Singapore (NUS) emerged as winners in the Siemens Industrial Competition 2023 with their ingenious industry applications.

The competition challenges tertiary students to develop practical mobile and web applications using Siemens Industrial Edge - an open and ready-to-use edge computing platform designed to unlock the full potential of machine and plant data. It enables data processing at the edge, allowing users to optimize workflows, save resources, improve quality and generate new business models.

Open to ITE, polytechnic and university students in Singapore, the competition require participants to develop innovative solutions that can address real-world problems for any of the following:

- Vertical Farms
- Recycling and Sustainability
- OEM machines

“As a world leader in developing and producing the most advanced technologies to improve lives and impact society, we at Siemens deem it important to nurture the next generation of talents for the industrial field,” said Sascha Maennl, Chief Judge for the competition and Head of Digital Industries Factory Automation, Asia Pacific, Siemens. “We want to use this competition to challenge students to put what they’ve learnt in books to practical applications, foster their growth as future engineers who will contribute to Singapore’s technical advancement, and provide a platform for students to showcase their abilities.”

**The winners are:****ITE Category****Winner: ITE College East**

Project name: IoT FarmMaster

Use of IoT Sensor Gantry System to monitor and optimize various aspects of indoor farming to propel productivity and efficiency. The sensors capture and analyze essential data, such as environmental conditions, nutrient levels and watering schedules. This gives farmers real-time insights, enabling them to make informed decisions to optimize their crop growth.

**Polytechnic Category****Winner: Temasek Polytechnic**

Project name: Robot Fit Monitoring System (Rob-Bhit)

Robot management system in the form of a phone application to monitor health of robots, in view of the increasing use of industrial collaborative robots (cobots) today. The system will detect probability of machinery breakdown, improve performance and efficiency and look at the carbon output of industrial cobots.

**University Category****Winner: National University Singapore**

Project name: Attach&Save

Plug-and-play solution utilizing Industrial Edge to identify quality control issues in the OEM sector. The solution is a simple interface that does not require new operators to run the system, helps to save costs that might be spent on machine maintenance, staff training and product recalls, and reduces wastage.

**Special Prizes****The BIG Idea Award**

**Voted by general public as the most groundbreaking idea with the potential to impact the world positively**

**Singapore Polytechnic**

Project name: Vertical Aquaponic Farm

Addresses agriculture's challenges of inefficient monitoring, unpredictable yields and complex ordering systems with an advanced automated AI monitoring and regulation system. It combines aquaculture and hydroponics for sustainable indoor

farming, and uses vital sensors, AI cameras, pH control and water filtration. It enables remote monitoring via mobile devices, real-time plant health tracking and a streamlined Telegram bot ordering system.

### **Siemens Choice Award**

**Voted by Siemens employees as the most innovative and sustainable solution**

#### **Singapore Polytechnic**

Project name: Vertical Aquaponic Farm

### **Social Engagement Excellence Award**

**Team that has generated the most engagement on social media with its submission**

#### **Singapore Polytechnic**

Project name: Vertical Aquaponic Farm

### **The competition was held in two rounds:**

- **Round 1:** Held at the school level. Each school selects a winning team to represent them in the second round.
- **Round 2:** Held at the ITE, polytechnic and university level.

A total of 26 teams entered the competition. Competitors received one set of Industrial Edge software and licenses to commence their projects, attended a hands-on workshop conducted by Siemens, and were mentored by Siemens employees. They had to get through a qualifying round and win the intra-school round before they get to represent their schools in the National Finals.

### **The judging criteria were:**

- **Business case (25%)**  
A well-defined business case that includes identifying the potential market for the innovation, estimating cost savings and/or projecting financial statements.
- **Clean coding (25%)**  
Clean, well-organized code with proper use of comments and modular coding.

- **Working demo (25%)**  
Working demo of innovation with a good user interface and user experience.
- **Social media impact (25%)**  
Ability to market the innovation via social media and networking skills.

**Prizes:**

Qualifying round:	\$200 + 1 year subscription of SIMATIC Industrial Edge license worth \$500 for the school
Intra-school winner:	\$500
National winner:	\$2,000
BIG Idea:	\$200
Siemens Choice:	\$200
Social Engagement Excellence Award:	\$200

The winning teams – **ITE College East, Temasek Polytechnic and National University Singapore** will showcase their winning projects at the Siemens booth at Industrial Transformation Asia-Pacific (ITAP), from 18-20 October 2023.

Siemens will organize the next edition of the Industrial Edge Competition in May 2024.

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