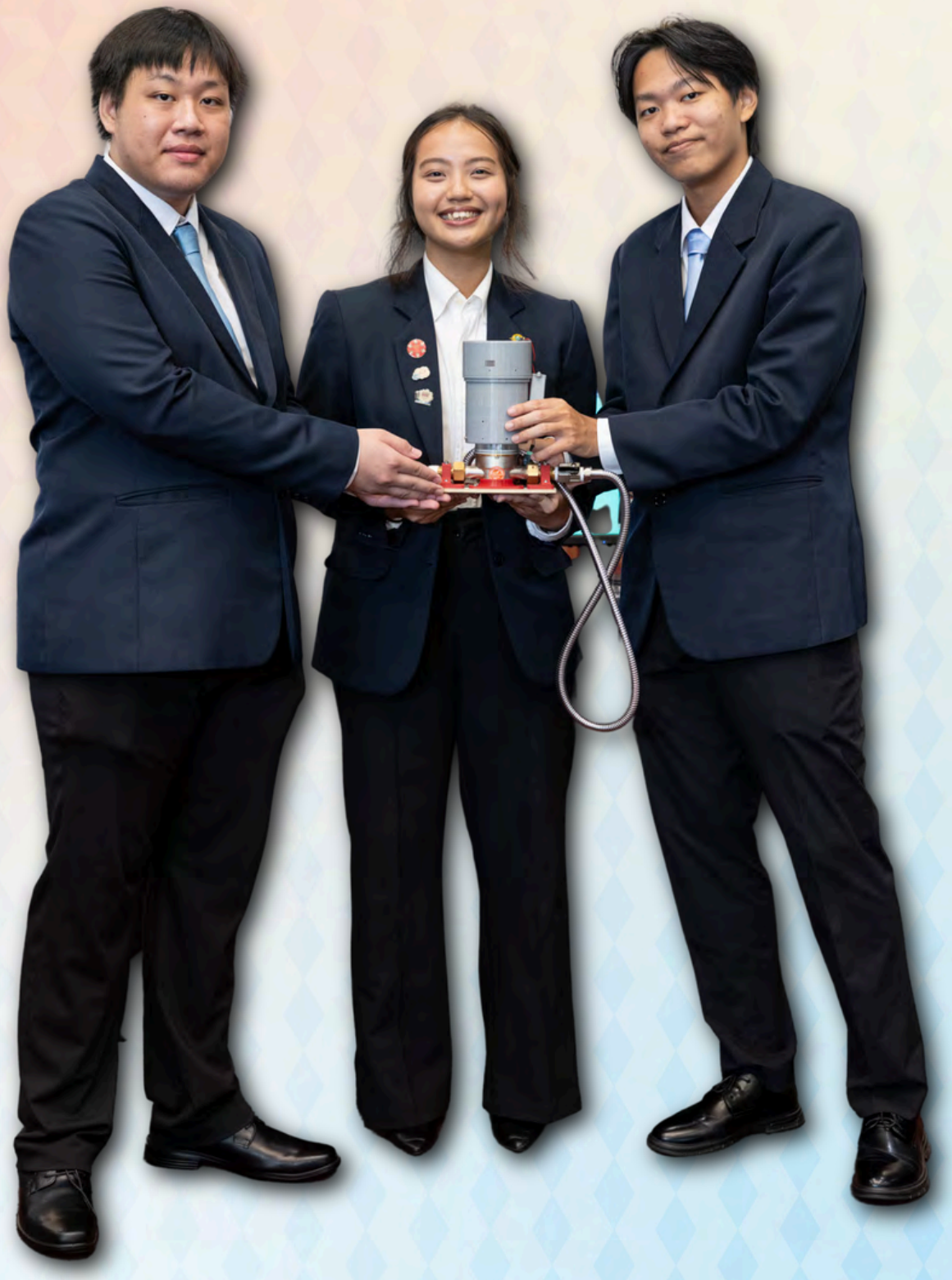
ITE STUDENT ACHIEVERS' AWARDS 2025

Lee Kuan Yew Technology Award



CNN-BASED IOT TRANSFORMER

Smart Meters in Disguise

In Singapore, the process of manually reading water meters for each household is tedious and labour-intensive. Meter readers are required to visit each residence to record readings by hand, making the process time-consuming and inefficient. This traditional approach not only increases manpower and operational costs but also the chances of human error.

Recognising this challenge, the team came up with an innovative solution to transform traditional water meters into IoT-enabled devices without requiring replacement or modification. By using a cost-effective, non-intrusive converter, traditional water meters can be upgraded seamlessly. The device features an in-built camera and AI-powered image processing to capture and interpret meter readings automatically. The data is then transmitted to a cloud-based dashboard for real-time monitoring and analysis, eliminating the need for manual reading and reducing manpower requirements.

Innovators' Inspiration

"Growing up, I learned to view every challenge as an opportunity to innovate. Just like the meter readers who diligently check each household, I realise that their work is essential yet often overlooked. With the knowledge I have gained from ITE, I am inspired to research and develop a converter that not only eases their workload but also enhances efficiency. Imagine a world where smart meters provide accurate billing, eliminating the guesswork and ensuring fairness for everyone."

~ Chan Tian Ci

What's So Special

- The device is an innovative and practical approach to IoT adoption in water metering.
- It provides a seamless, plug-and-play upgrade for traditional water meters, making automated data collection accessible without disrupting existing systems.
- By integrating AI, IoT, and cloud analytics, this solution not only modernises meter readings but also enhances efficiency, accessibility, and sustainability in a scalable manner.
- Unlike conventional water meters, this solution is adaptable, cost-effective, and ideal for short-term monitoring.
- The website can read out meter readings, which is especially useful for visually impaired users.

Members:

Chan Tian Ci
Lim Boon Yu

Laetitia Lim Ruoyun

Course & College:

***Higher Nitec* in Mechatronics Engineering**

***Higher Nitec* in Business Administration**
ITE College West