Tan Shao Xiang

011-1652 7268 | jamestansx@gmail.com | github.com/jamestansx | linkedin.com/in/jamestansx | codeberg.org/jamestansx

EDUCATION

Universiti Teknikal Malaysia Melaka Durian Tunggal, Melaka
Bachelor's Degree in Electronic Engineering *March 2023 — Present*
- 3.95 CPGA | Dean's List
- 2nd place in INOTEK UTEM 2025 for project "Mobile-Augmented Queue Management System"

Universiti Teknikal Malaysia Melaka Durian Tunggal, Melaka
Diploma in Electronic Engineering *August 2020 — March 2023*
- 3.97 CPGA
- Recipient of Academic Vice Chancellor's Award, UTeM 19th Convocation
- 1st place in INOTEK UTEM 2022 for project "Solar-Powered Charging System"

WORK EXPERIENCE

Trainee IoT Engineer August 2025 — September 2025
LED Vision Sdn. Bhd. *Hang Tuah Jaya, Melaka*
- Worked with MYIR MYD-LMA35 (Nuvoton MA35D1) on embedded Linux development.
- Configured and tested Secure Boot to ensure trusted firmware execution.
- Developed a secure MQTT over TLS Proof of Concept using OP-TEE, where credentials were stored in TEE secure storage and dynamically injected into OpenSSL at runtime.
  - Project: https://codeberg.org/jamestansx/mqttee
- Designed a runtime configuration API in C++ for an embedded IoT edge application, enabling live configuration updates and automatic synchronization across modules using the Observer design pattern

Degree Internship July 2024 — September 2024
Sophic MSC Sdn. Bhd. *Puchong, Selangor*
- Developed PLC and C# HMI programs for weighing and chemical preparation systems using Modbus protocols.
- Assembled and configured industrial control panels and I/O modules (WISE-2200-M) for automation projects.
- Assisted in vision system setup and troubleshooting during client site visits; supported SCADA and AMR diagnostics.
- Prepared user manuals and UAT documentation for a web-based E-Form system; contributed to EECA 2023 technical showcase.

Diploma Internship October 2022 — January 2023
Cheng Hua Engineering Works Sdn. Bhd. *Klang, Selangor*
- Assisted in HMI designing and PLC programming using Mitsubishi GT Works3 and GX Works2
- Gained hands-on experience in secondary wiring I/O checking and troubleshooting method
- Participated in quality assurance testing of Control Panel

PROJECTS

Mobile-Augmented Smart Queue Management System October 2024 — January 2025
- Developed a mobile-first hospital queue system using Flutter and Rust's Axum backend with SQLite database.
- Implemented a dynamic priority queue to prioritize patients based on age and appointment proximity.
- Integrated MQTT protocol for real-time data from IoT wearables to monitor heart rate and fall detection.
- Built a web-based dashboard for hospital staff to manage appointments and monitor patient vitals.
- Enabled QR-based check-in, mobile notifications, and wearable-device pairing for elderly patients.
- The project repository can be found https://github.com/jamestansx/qms.

Solar-Powered Charging System March 2022 — June 2022
- Developed a solar-powered charging system designed to charge Li-ion battery via a solar panel and providing power to other devices through a USB port.
- Utilized TP4056 as the battery Li-ion charger controller for reliable charging and MT3608 as a boost converter to step up voltage for USB output.
- Used KiCad for creating the schematic and designing the PCB layout.
- Used FreeCAD for modeling the charger cover, and 3D printed it using Ender-3 printer with ABS material.

SKILLS

- **Programming Languages**: Rust, Python, C/C++, JavaScript, Flutter
- **Technologies**: KiCad, FreeCAD, MQTT, Embedded Linux