

PATHUM DISSANAYAKE

Final year Electrical & Electronics Engineering Undergraduate

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PROFESSIONAL SUMMARY

Final-year BSc (Hons) Electrical & Electronic Engineering undergraduate at South Eastern University of Sri Lanka, currently serving as a part-time Associate Electronics Engineer at Vega Innovations. Expert in embedded systems, C++, and embedded Linux, with specialized focus on EV fast-charging infrastructure development.

EDUCATION

B.Sc.(Hons.) in Electrical & Electronics Engineering *South Eastern University of Sri Lanka — 2021 - 2025*

Relevant Coursework: Digital Electronics, Computer Architecture, Data Structures and Algorithms, Operating Systems, Signals and Systems, Digital System Design, Industrial Electronics .

TECHNICAL SKILLS

Programming	C++ – Object-oriented programming, firmware architecture, C – Strong proficiency in embedded development, Python Scripting, automation, debugging tools
Embedded Systems	STM32, Raspberrypi, Bare-metal programming and peripheral drivers, XCP Protocol, EEPROM Wear Leveling
Embedded Linux	Linux Configuration, Device Drivers, Systemd, Buildroot, Dev rules
PCB Design	Altium Designer, Eagle, Proteus, PCB Troubleshooting, Soldering
Tools & Protocols	Eclipse IDE, STM32 CUBE IDE, MobaXtream, VS Code, SPI, I2C, Ethernet, CAN

INDUSTRIAL EXPERIENCE

Associate Electronics Engineer *Vega Innovations— June 2025 – Present*

- ▶ Associate Electronics Engineer at Vega Innovations with hands-on experience in C++ Programming, Embedded Linux development and EV Fast-Charger middle-ware Development.

Electronic Engineering Intern *Vega Innovations— Dec 2024 — Mar 2025*

- ▶ Built a C++ terminal tool for real-time MCU memory manipulation using XCP protocol.

Electronic Engineering Intern *Vega Innovations— Oct 2023 — Jun 2024*

- ▶ Delivered a production-level testbench capable of evaluating multiple ETX EVCU functions, including digital and analog I/O, relay control, and communication lines.
- ▶ Created a custom wear leveling algorithm to extend EEPROM lifespan, leveraging SPI bus communication.

ACADEMIC PROJECTS

Remote Live Debugging System for Embedded Vehicle Chargers [🔗 Remote.Live.Debug](#)

- ▶ Built a custom XCP v1.1 slave library for STM32 (May 2025), supporting CONNECT, SET_MTA, UPLOAD, and DOWNLOAD over SPI with DMA
- ▶ The library uses a modular two-file design (xcp.c for protocol logic, spi.c for transport) with interrupt-safe memory access, atomic operations, and strict address validation against RAM/FLASH boundaries.
- ▶ WebSocket-based EV charger diagnostics framework with proven ≤ 50 ms LAN latency.

EEPROM Wear Leveling Library (C Programming) [🔗 EEPROM Wear Leveling Library](#)

- ▶ Developed a custom wear leveling library for the M95M02 256KB SPI EEPROM, distributing write/erase cycles across memory to extend lifespan beyond 1 million cycles per cell.
- ▶ Implemented dynamic page allocation and block management using a lightweight state machine, supporting configurable data blocks via EEPROM_init() and atomic read/write with CALL_EEPROM().

CERTIFICATIONS

Certifications: 🌟 Fundamentals of Digital System Design (ENTC - UOM) • 🌟 Beginner's Guide to Linux Kernel Development • 🌟 Electronic Design Automation - EDA

Languages: English (Fluent), Sinhala (Native)

Additional: Strong problem-solving and team collaboration skills