# Dinupa Devinda
## Electrical and Electronic Engineering Undergraduate

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🎂 2002.07.20  🌐 Sri Lankan

## 👤 PROFILE

Electrical and Electronic Engineering undergraduate skilled in automation, electronics, embedded systems, applied AI/ML and computer vision. Passionate about solving technical challenges, with additional competencies in computer science and management accountancy.

## 🎓 EDUCATION

### Academic Qualifications and Professional Qualifications

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| 2022 – Present | **Undergraduate in BSc. (Hons) in Electrical and Electronic Engineering** <br> *Sri Lanka Institute of Information Technology (SLIIT)* | Malabe, Sri Lanka |
| 2023 – Present | **Undergraduate in BSc. in Physical Science** <br> *University of Kelaniya* | Kelaniya, Sri Lanka |
| 2021– Present | Charted Institute of Management Accountants (CIMA) – Part Qualified <br> ▪ **CIMA Cert BA** Completed \| **CGMA Dip MA** In Progress | |
| 2012 – 2021 | **Secondary Education** <br> *Thurstan College* <br> Advanced Level: Physics – B \| Chemistry – C \| Combined Mathematics – C \| General English -A | Colombo, Sri Lanka |

## 💼 EXPERIENCE

| June 2025 – September 2025 | **Sri Lanka Telecom – Digital Lab.** <br> *Engineering Intern – Research and Development* |
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- Developed an **embedded C/C++ A7680C 4G modem library** (AT-command handling) enabling **MQTT/MQTTS, HTTP/SMTP, SMS/Call** features for IoT devices.
- Built an **Industrial Machine Monitoring** prototype (ESP32 and LTE) capturing **current and temperature sensors** and streaming **1 Hz telemetry** to a cloud dashboard with alarms/health monitoring.
- Developed an **ATM environment monitoring & AC control** solution (temp/humidity sensing and **IR learn-and-replay**) with safe control logic and remote status reporting.

| June 2024 – September 2024 | **Variosystems (Pvt) Ltd.** <br> *Inplant Trainee – Electronic Manufacturing Services Floor* |
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- Completed **Automation & electronics projects**: Automated Guided Vehicle project, SMT conveyor automation, FLG 201 flame-treatment upgrade.
- Gained practical exposure to **SMT/THT production** and **testing** (ICT/functional tests; **SPEA 3030/4050**), plus FactoryLogix & NPI workflow.

## 🧰 SKILLS

- **Engineering & Design Tools**: Proteus (Advanced), Multisim (Advanced), LTspice (Advanced), MATLAB (Intermediate), Simulink (Intermediate), PSIM (Intermediate), AutoCAD (Intermediate), FreeCAD (Intermediate), SolidWorks (Basic), COMSOL Multiphysics (Intermediate), Cisco Packet Tracer (Basic)
- **IDEs:** MPLAB X IDE (Advanced), Eclipse IDE (Intermediate), IntelliJ IDEA (Intermediate), Arduino IDE (Advanced)
- **Programming Languages:** C (Advanced), C++ (Advanced), Java (Intermediate), Python (Intermediate), Assembly (Advanced), VHDL (Basic), SQL (Basic)
- **Databases & Platforms:** Google Colab (Intermediate), Anaconda (Intermediate), Jupyter Notebook (Intermediate), Raspberry Pi OS - Linux-based (Intermediate), Oracle Database (Basic)
- **Frameworks and Libraries:** TensorFlow (Intermediate), OpenCV (Basic), YOLO (Intermediate), CUDA (Basic), NumPy (Basic), Matplotlib (Basic)

## 📋 PROJECTS

October 2025 – Present        **Vehicular Black Box: Vehicle Violation Detector**

- Developing a **tamper-proof vehicular black box system** using multi-sensor fusion (IMU, GPS, dual video cameras, and audio sensing) to detect and time-stamp traffic violations such as speeding, tailgating, harsh braking, and driver distraction (Intentional or drowsiness).
- Implementing **embedded signal processing and deep-learning–based computer vision/audio models** with encrypted onboard storage and **secure GSM/cloud data transmission**, enabling centralized violation analytics, event indexing, and evidence-grade reporting for law enforcement.

October 2025 – Jan 2026        **ServiceLink: On-Demand Local Hiring Platform**

- Built a full-stack service marketplace platform designed to connect customers with service providers, enabling users to browse services, create bookings, and manage service requests through a centralized system.
- Developed using **Spring Boot** (REST APIs, business logic), **MongoDB** (NoSQL data storage), and **React** (frontend UI), with features including user authentication, role-based access (customer/service provider), CRUD operations, and API-driven communication, providing hands-on experience in scalable backend design and modern full-stack architecture.

June 2025 – Sep 2025        **A7680C GSM (4G) Library for ESP32 - MQTT(S), SMS/Call, HTTP & Email (SMTPS)**

- Built a **production-ready C++ ESP32 library** that wraps **A7680C AT commands** for modem bring-up (APN/CSQ/session), **MQTT/MQTTS (TLS, 8883)**, HTTP GET/POST, SMS/Call and **SMTP email alerts**.
- Added **TLS hardening** (CA-certs, SSL config before connecting) plus a **web configuration portal** for Wi-Fi/GSM/APN setup and field diagnostics, enabling faster device integration than raw AT scripting.

June 2025 – Sep 2025        **Industrial Machine Monitoring System**

- Built an end-to-end monitoring solution using **ESP32 and A7680C**, integrating industrial sensors (**K-type thermocouple via MAX6675, CTs via ACS712, IR temp via 4–20 mA module**) and validating readings through comparative testing.
- Implemented secure **MQTTS telemetry** to a **ThingsBoard dashboard**, added SIM/connection health checks and a web config panel (Wi-Fi/GSM/APN), supporting multi-device pilot deployment and operator-friendly monitoring.

November 2024 – April 2025        **Smart Fish Habitat Management System**

- Developed an automated aquarium management system using **Raspberry Pi 4** with pH/temperature/water-level sensing, servo-based feeder scheduling, gradual water-change control (10–20%), and temperature stability of **±0.5°C** using a heater, Peltier cooler and solenoid valves.
- Integrated **TensorFlow Lite vision** for water clarity/contaminant detection and applied **fuzzy-logic control** to adapt filtration and environmental parameters for improved fish health.

June 2024 – Sep 2024        **Automated Guided Vehicle (AGV) Development**

- Designed and built an **Arduino Mega** AGV for factory line-following using a **Pololu Dual G2 motor driver** and four **24V gearmotors with encoders**, with **11 IR sensors** for path tracking and **HC-SR04 ultrasonic sensors** for obstacle avoidance.
- Engineered a 100 kg-capable mechanical build (aluminum/steel chassis, bearings, caster + suspension, 12V 28Ah battery) and demonstrated a cost-saving case of **4,449 CHF / 1.53M LKR per year** by reducing manual transport time.

June 2024 – Sep 2024        **Automated PCB Conveyor System**

- Developed an automated PCB conveyor to replace manual SMT transfers between pick-and-place and reflow, using **SMEMA 4-pin communication**, dual **Arduino Uno** control, **TB6560** stepper drivers, and **SICK WTB4** sensors for real-time PCB detection and synchronized operation.

**Other Projects:** Automation of Flame Treatment for pad printing(Teca-Print FLG201 modified using TB6560),Variable Angle Oscillation Fan, EduPress Store - queue-free print, stationery e-commerce platform (PHP/MySQL/XAMPP), Simple Music Streaming Platform (C# .NET WinForms and SQL Server), Boarding-Room Management System API (Java 21/Spring Boot), 2nd-Order MFB Bandpass Filter (Multisim/Proteus and hardware), PIC16F877A Assembly RTC (Simulation), MiuHub Java music management system, 12V DC power supply design, and Public Transport file-based database system in C.

## 📋 EXTRA CURRICULAR ACTIVITIES

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| 2024 | **SLIIT CODEFEST Algothon Finalist** |
| 2013 - 2021 | **U17 U15 U13 Thurstan College Chess Team Member** |

- Team Champion - All island School Chess B Division 2013 Under 13
- 1st Runner up - Colombo District Youth Chess Championship 2017 Under 15
- 1st Runner up - Colombo District Junior National Chess Championship 2015 Under 14
- 1st Runner up – Colombo District Youth Rapid Chess Championship 2015 Under 14

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| 2024 | **SLIIT Chess Pool Member** |
| 2011-2014 | **Member of Junior Scouts and Senior Scouts, Thurstan College** |

## ⚙️ REFFERENCES

**Mr. J.P. Weerasinghe,** Consultant Engineer.
No:23, Balasuriya Mawatha, Hapugoda, Kadana.
0718203018

**Mr. Nimal Jayasundara**, General Manager, Selmo (Pvt) Ltd.
No:59/1, Narampola Road, Moragalla, Dekatana.
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