# Shanmugam Viyapakan

## IoT Developer - Part Time

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## Profile

I'm an Electrical and Electronic Engineering undergraduate with a strong interest in embedded systems, electronics, and IoT. I enjoy working with microcontrollers, PCB design, and automation projects, and I've gained hands-on experience through both academic and industry work. I like taking on technical challenges, figuring out solutions, and building things that actually work. I'm especially keen on using new technologies like AI and IoT to solve real-world problems and keep improving my skills along the way.

## Education

**BSc (Hons) in Electrical and Electronic Engineering**
*University of Sri Jayewardenepura, Sri Lanka*
Expected Graduation: Aug, 2026                    GPA:3.25

## Project Experience

- **Smart Farming (industry project)**
  *Duration: 6 months, Status: On-Going*
  *Area: IoT & Machine Learning  AI & Embedded Systems & Smart Aggriculture*
  Description: Designed and developed a complete smart farming solution from scratch. Integrated LoRa, MQTT, HTTP, SPI, and UART communication for reliable data transfer between devices and the cloud. Currently testing the product with added machine learning models to optimize decision-making in farming operations. Alongside, developing a powerful mobile application to provide real-time monitoring and control for end users.

- **Smart Face Detection and Attendance System**
  *Duration: 2 months, Status: Completed, Date: July 2024*
  *Area: Machine Learning, Image Processing, Language: Python*
  Description: Developed a face detection system that logs attendance in an Excel file. Used libraries like face recognition, OpenCV, NumPy, and Pandas for recognition and data management. Source

- **Automated Shop Server**
  *Duration: 3 months, Status: Completed, Date: January 2024*
  *Area: Robotics & Embedded Systems, Microcontroller: Arduino — Stepper Motors*
  Description: Designed a mini robot car for food delivery in a hotel-like environment. Used an IR sensor array for line-following and an HC-05 Bluetooth module for communication. Source

- **Voltage and Current Measurement System**
  *Duration: 2 months, Status: Completed, Date: January 2024*
  *Area: Embedded Systems, Language: C/C++*
  Description: Developed a system to measure voltage and current using STM32 microcontroller and Cube IDE. Implemented data logging and real-time monitoring.

- **Robefest 2023**
  *Duration: 3 months, Status: Completed, Date: September 2023*
  *Area: Robotics, Controller: Arduino, DC motors*
  Description: Led the creation of a robot for the Robofest 2023 challenge. Overcame challenges with ultrasonic sensor wall detection and motor control. Source

- **PCB Design and Schematic Development (Hobby Project)**
  *Status: Ongoing*
  *Area: Embedded Systems, Tools: KiCad, PCB Wizard*
  Description: Worked on multiple PCB designs and gained hands-on experience in circuit design and PCB layout. Source

## Skills

- **Programming Languages:** C++, C, Python, HTML
- **Microcontrollers:** ESP32, STM32, RasberryPI, Arduino
- **Design and Simulation Tools:** AutoCAD, Proteus, PSpice, MATLAB, TinkerCAD
- **Embedded Development Tools:** Arduino IDE, KiCad, CubeIDE, Keil, PCB Wizard
- **Programming IDEs and Frameworks:** Visual Studio, PyCharm, Dev C++
- **Networking and Robotics Tools:** Cisco Packet Tracer, ROS2
- **Soft Skills:** Project Management, Critical Thinking, Problem Solving, Leadership, Effective Communication
- **Languages:** Tamil (Native), English (Fluent), Sinhala (Basic Proficiency)

## Proffesional Experiences

**Associate Engineer (Intern),**                                          **Adveccio (Pvt) Ltd** *Feb 2025 - Aug 2025*
- Designed and developed a smart farming system & Integrated machine learning for smarter decision-making in farming operations.

**Research Writer,** *Source*                                          **Protonest (Pvt) Ltd** *Currently Part time*
- Conducted research on antennas and robotics. Improved time management and met tight deadlines.

**RJ Trainee,**                                          **Tamil FM** *January 2023 – February 2023*
- Performed administrative duties, scheduling, communication handling, and event coordination.

## Extracurricular Activities

- Executive Committee Member, Career Guidance Cell (2024). Source
- Magazine Crew Head - Tamil Students Committee (2024). Source
- Content Crew Director - Tamil Students Committee (2024). Source
- Event Manager & Task Master - Announcing Division Jpura Voice. Source
- Lead Announcer and Event Host - Tamil Students Committee. Source
- Announcer - Jpura Voice. Source
- Content Writer & Member - TSC, Jpura Voice, SEDS. Source
- Member - IEEE, E2 Club.
- Sports - Baseketball, Cricket, Kabbadi. Source

## Achievements

○ Won overall second place in the **Mechmakers Challenge** organized by the Faculty of Engineering, University of Sri Jayewardenepura. *Source*.

○ Led the magazine crew for the **first-ever annual magazine** of the Tamil Students Committee (TSC) at the University of Sri Jayewardenepura, and successfully released it. *Source*.

○ Became the **first Tamil live reporter** for the University by reporting the 49th convocation in 2023. *Source*.

## References

- **Dr. Nishan Dharmaweera**
  Dean/Former Head of Department,
  Dep of Electrical and Electronics Engineering,
  Faculty of Engineering,
  University of Sri Jayewardenepura.
  nishanmd@sjp.ac.lk

- **Dr. Uditha Wijewardhana**
  Head of Department, Senior Lecturer
  Dep of Electrical and Electronics Engineering,
  Faculty of Engineering,
  University of Sri Jayewardenepura.
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## Declaration

I hereby declare that the above written particulars are true to the best of my knowledge and belief.
**Viyapakan.S**