Tenura Pinsara Pasandul

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Portfolio TenuraPinsara Tenura2001

Professional Summary

Driven AI and Embedded Systems student with demonstrated expertise in developing intelligent IoT solutions and robotics applications. Specialized in embedded machine learning, microcontroller programming, and PCB design. Proven track record in leading technical projects from concept to implementation, with strong experience in mentoring and community leadership. Passionate about creating innovative technologies that leverage AI to solve real-world challenges.

Education

University of Moratuwa *Mar 2023 – Present*
BSc (Hons) in Artificial Intelligence

Moratu Maha Vidyalaya *2019 – 2021*
GCE Advanced Level

- Z-Score: 2.05 — Physical Science Stream
- Subjects: Physics, Chemistry, Combined Mathematics

Professional Experience

Robotics Mentor *Feb 2025 – Aug 2025*
RoboticGen — Parkland, Sri Lanka

- Designed and delivered comprehensive training sessions on Robotics, IoT, and embedded systems to diverse student groups
- Conducted specialized technical lecture on TinyML (RGen Learning 01), introducing edge AI concepts and practical applications
- Led FPGA workshop (RGen Learning 02), covering hardware acceleration and digital system design principles
- Facilitated hands-on robotics workshop at IIT's Traction event, mentoring students in robot design and implementation
- Represented RoboticGen at Mora Foresight 3.0, presenting emerging technologies and fostering industry connections

Publications

H.W.T.P.Pasandul, B.H. Sudantha, "AI-Powered Air Mouse Using TinyML" *10th International Conference on Information Technology Research (ICITR 2025)*, Sri Lanka, December 2025. DOI:(not provided yet) PDF

H.W.T.P.Pasandul, S.K.Epasinghe , K.P.A.N.Gunarathne, D.M.R.K.Priyadarshana ,A.S.Karunananda ,A.M.A.M Adhikari "smartCommit: an AI-Powered Commit Message Solution," *9th SLAAI International Conference on Artificial Intelligence (SLAAI-ICAI) 2025*, Sri Lanka, November 2025.

Technical Skills

TinyML & Edge AI: TF Lite for MCUs, Edge Impulse,On-Device Inference
ML Development: TensorFlow/Keras, PyTorch, Model Training
Programming & Algorithms: C/C++ (Embedded & Performance-Critical), Python (ML Pipeline)
Embedded Systems Design: PCB Design (KiCad, Altium Designer),Peripheral Interfacing (SPI, I2C, UART)
Development Ecosystem: Git, Linux, Docker, Jupyter Notebook, VS Code, PlatformIO, CMake
FPGA Development: Xilinx Artix-7, Digital Logic Design, Hardware Description Languages
CAD & Mechanical Design: Onshape, TinkerCAD, 3D Printing, Mechanical Assembly

Key Projects

AI-Powered Air Mouse — Embedded Machine Learning *GitHub Repository*
- Developed an intelligent gesture-based control system using MPU6050 sensor and custom TinyML model
- Implemented real-time gesture recognition on ESP32 microcontroller for cursor movement and volume control
- Designed low-latency BLE communication protocol for seamless computer/smartphone interaction

Smart Plug — IoT Product Development *GitHub Repository*
- Engineered complete Wi-Fi-enabled smart plug from concept to prototype, including PCB design and firmware
- Implemented remote control, power monitoring, and mobile app integration with focus on electrical safety
- Optimized design for cost-effectiveness while maintaining commercial product quality standards

IoT Learning Kit — Educational Product Design *GitHub Repository*
- Designed comprehensive ESP32-based learning platform with custom PCB and structured curriculum
- Created hands-on modules covering sensor interfacing, wireless communication, and cloud data logging
- Developed as commercial-ready educational product with complete documentation and learning materials

High-Speed Line Following Robot — Robotics & Control Systems *GitHub Repository*
- Designed and built competition-grade line-following robot with optimized PID control algorithm
- Implemented custom sensor array and motor control system for maximum speed and accuracy
- Achieved smooth trajectory tracking through iterative PID tuning and performance optimization

Smart MediBox — Healthcare IoT Solution *GitHub Repository*
- Developed intelligent medication management system with automated reminders and alert mechanisms
- Integrated ESP32 firmware, custom enclosure design, and mobile notification system
- Designed user-friendly interface specifically for elderly users with accessibility considerations

Professional Certifications

Embedded Product Design for IoT — SkillSurf *Verify Certificate*
Foundation of Digital System Design with SystemVerilog — SkillSurf *Verify Certificate*
Artificial Intelligence in Embedded Systems — SkillSurf *Verify Certificate*
Microcontroller-Based Embedded System Design — SkillSurf *Verify Certificate*
Introduction to Embedded Machine Learning — Coursera / Edge Impulse *Verify Certificate*
AI Principles with Edge Computing — Coursera / Arm Education *Verify Certificate*
PCB Basic Design Certification — Altium Education *Altium Education*

Leadership & Community Involvement

President, IES Labs B22 *May 2025 – Present*
IoT and Embedded Systems Research Lab, Faculty of IT, University of Moratuwa

Co-Chair, Danuma Yathra Organization *Aug 2023 – Present*
Conduct weekly O/L Mathematics classes for Blind and Deaf students

References

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