SAM UDAYANGA

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Portfolio - samudayanga.website

PROFESSIONAL SUMMARY

Embedded Systems & Electronics Product Engineer with 9+ years of experience designing industrial IoT hardware, STM32-based embedded firmware, and power-electronics systems including BESS, inverters, and automation devices. Proven success delivering more than 10 commercial products end-to-end — from concept, mixed-signal PCB design, RTOS firmware, validation, DFM, to deployment in the field. Skilled in communications (CAN, RS485, Modbus, Ethernet), safety-critical testing, and production scaling. Passionate about delivering **robust, high-quality electronic products** for the energy and automation industries. **Holds Australian Permanent Residency.**

CORE COMPETENCIES

Firmware: STM32 (HAL/LL), FreeRTOS, C/C++, DMA, Bootloaders, RTOS optimization
Hardware: Mixed-signal PCB design (up to 6-layer, Altium), power electronics, EMC/DFM
Protocols: SPI, I2C, CAN, UART, RS485, Modbus, USB, Ethernet, BLE/Wi-Fi
Testing & Tools: Oscilloscope, Logic Analyzer, JTAG/SWD, Python test automation
Industrial IoT: BMS, PV inverters, ESS, gateway control units, Home Automation.
Software & DevOps: Jira, Git/GitHub, Agile lifecycle.
CAD & Product: SolidWorks/Fusion 360, enclosure design, manufacturing documentation.
Mobile/Cloud: iOS (SwiftUI), Flutter, React, AWS IoT (full-stack prototypes).

PROFESSIONAL EXPERIENCE

Embedded Engineer | Accesstel Pty Ltd | Victoria | Jan 2026 – Present
Embedded Linux power-controller development, system integration and architecture planning.

Responsibilities:

- Develop AM62x / Yocto Linux controller services with Redis-backed application state.
- Integrate CAN and Modbus communication for rectifiers, DC–DC converters and solar systems.
- Plan controller architecture, IP configuration and memory organisation.
- Perform hardware validation, testing, target bring-up and hardware/software debugging.

Key Achievements:

- Implemented rectifier voltage and current-limit controls with device-reported feedback.

Product Engineer | Clenergy Australia. | Clayton, Victoria | Sept 2025 – Jan 2026
Design and develop solar product and accesories for the Australian market.

Responsibilities:

- Develop embedded software for signal processing, digital filtering, and communication protocols. (C++/C)
- Conduct automated and manual testing, document unit test results thoroughly.
- Translate product requirements into efficient C/C++ code for embedded platforms.

- Hardware development for high voltage power electronics systems.
- Develop Full stack IoT solutions (Hardware, Firmware, IoT, APP, cloud components).
- Product development and testing of PV inverter, Energy Storage Systems, Battery Management Systems

Key Achievements:

- Resolved phase-1 PCB design faults prior to pilot field deployment Identified hardware issues of gateway PCB unit in phase 1.
- Enabled 40 kW parallel battery integration via improved BMS/inverter communication
- Improved installation workflow reliability and reduced commissioning time.

Electronic Engineer | Horizon Electronics Company Pty. Ltd. | Knoxfield, Victoria | Mar 2025 – Sept2025

Design and development of cutting-edge electronic products for the Australian market, with a strong focus on embedded systems and firmware.

Responsibilities:

- Developing embedded firmware for ATMEL microcontrollers using Arduino - C/C++.
- Creating and maintaining product documentation and test procedures.
- Coordinating with production teams to streamline DFM and ensure product quality.
- Design and Implement Next Generation Wireless Nurse Call Eco System for Horizon Electronics.

Key Achievements:

- Created documents for implemented devices and assemblies for system configuration.
- Conducted water ingress testing to assess device compliance with IP67 standards, identifying leakage points and root causes. Proposed and implemented design modifications to enhance water resistance and ensure standard compliance.
- Implemented Fall detection and warning alert device for age care and medical homes. (Radar/RF Communication

Chief Electronic Engineer | Kasper Global Pvt. Ltd. | Colombo, Sri Lanka | Feb 2022 – Feb 2025

Responsibilities:

- Directed full hardware lifecycle from concept to production across multiple product lines.
- Worked on Mbed Os (RTOS) based low level firmware implementation for smart home devices. (Flash/Mux/EEPROM/SD card/OTA).
- Oversaw team operations, system architecture design, and design for manufacturing (DFM).
- Liaised with manufacturers and suppliers for PCB and enclosure production.
- Designed, mixed-signal and high-speed PCB designs for IoT systems (6 layers).
- Led QC process implementation and production-line optimization.
- Created hardware QC setups and validation procedures in Linux environment (Python).

Key Achievements:

- Successfully led a cross-functional team in launching 7+ IoT-based automation devices (Generation 2 devices – Compact).
- Improved hardware reliability by 25% by introducing advanced testing jigs.

- Reduced BOM cost by 15% through optimized material selection and vendor negotiations.

Senior Electronic Engineer | Kasper Global Pvt. Ltd. | Colombo, Sri Lanka | Sept 2020 – Feb 2022

Responsibilities:

- Developed and tested prototype hardware and embedded firmware for automation systems. (Sensor Library implementation)
- Designed PCBs using Altium and Eagle for consumer-grade electronics (Power Electronics)
- Integrated JTAG debugging, logic analysis, and thermal profiling into hardware testing.
- Collaborated with mechanical teams for enclosure and housing design using CAD tools.

Key Achievements:

- Developed an innovative smart home automation device integrated with Radar/PIR/Temperature/Humidity and IR.
- Enhanced firmware debugging process, reducing development time.

Electronic Engineer | Kasper Global Pvt. Ltd. | Colombo, Sri Lanka | Feb 2017 – Sept 2020

Responsibilities:

- Spearheaded design and testing of PCB prototypes for smart switches, plugs, and dimmers.
- Selected components for performance optimization and cost efficiency.
- Designed mechanical housings and created technical manufacturing drawings.

Key Achievements:

- Contributed to the launch of the first company-developed smart devices to product line. (Smart Plug – 230v 10A)/ (Smart Switch – 230v 6A).
- Enhanced collaboration between design and production teams, reducing time-to-market.

EDUCATION

B.Eng. (Hons)in Electronic & Telecommunication Engineering
Sheffield Hallam University (Conducted by SLIIT, Sri Lanka)
Second Class Honors
Final Year Research: Autonomous quadcopter with stereo vision-based obstacle avoidance and wireless video transmission. (Year 2014)

CERTIFICATIONS

- **Positive Electronic Engineering Skills Assessment – Engineers Australia.**
- **Altium Designer course by LinkedIn**
- **Advanced Hardware & PCB Design Master Class - Udemy**

AWARDS

Xbotic Robotic Competition 2015 - Organized By University of Ruhuna, Sri Lanka. Robotic competition 3rd place,