

SRIVISWESWARA MOHAN SANTHI

+44 7366 016423 | vichu26092003@gmail.com | LinkedIn: [Srivisweswara](#) | github.com/vicXsri | [Portfolio](#)

SKILLS

Programming: C, C++, **Rust** (Intermediate), ARM Assembly basics

Embedded & Architecture: Arm Cortex-A9, Cortex-M3/4/7, ARMv7-A/M, bare-metal firmware, FreeRTOS, interrupts, timers, DMA, startup/linker scripts, bootloaders, encryption & cryptography (AES, RSA).

Performance & Validation: NEON SIMD intrinsics, DSP, FIR/FFT filtering, benchmarking, runtime measurement, scalar vs vector output verification, embedded validation, test-vector validation

Interfaces & Tools: CAN 2.0B, SPI, UART, I2C, SDMMC, TCP/IP, FatFs, STM32CubeIDE, ARM DS IDE, Intel Quartus, MATLAB/Simulink, ST-Link, SWV, Git/GitHub, Altium, KiCAD, **Zephyr**

Professional Skills: Attention to detail, structured debugging, documentation, teamwork, conceptual depth

PROJECTS

DE1-SoC Cortex-A9 DSP & Performance Optimisation Library

Repo: [link](#)

- Built a bare-metal Cortex-A9 **DSP** stack on DE1-SoC using direct register access, **HPS** drivers, **FPGA**-mapped IP, FatFs, UART, I2C, SDMMC, GPIO, GIC and private-timer services.
- Benchmarked scalar C against **NEON SIMD FIR/FFT** pipelines, cutting Audio FIR from 190 ms to 30 ms, SDR FIR from 25 ms to 5 ms, and **SDR FFT** from 671 ms to 72 ms while verifying output correctness.

STM32F4 & Cortex-M Bare-Metal / Bootloader Experiments

Repo: [link](#)

- Developed STM32F4 **bare-metal** components for peripheral drivers, memory-mapped I/O, **interrupts**, timers, **startup/linker** flow and deterministic Cortex-M behaviour.
- Explored **bootloader** concepts including vector table relocation, custom linker sections, image verification, UART protocol, flash programming and controlled handover to application firmware.

EV Telemetry Testing & Validation Data Logger

- Built an STM32 CAN 2.0B telemetry logger for **BMS** and motor-controller data, supporting repeatable **EV** debugging, validation evidence, fault analysis and test reviews.
- Implemented **FatFs** SD logging with **FreeRTOS** task-based acquisition, verifying byte ordering, signal scaling and timing gaps to improve trace consistency.

Electric Go-Kart - Gandiva Racing

Repo: [link](#)

- Led EV **electrical architecture** across three go-kart iterations, coordinating schematics, wiring harnesses, module integration, embedded firmware and vehicle-level testing.
- Designed STM32F103C8T6 steering wheel PCB/firmware integrating **CAN 2.0B**, **SPI**, **UART**, telemetry, HMI, SD logging, WS2812B feedback and **FreeRTOS** task handling.

Formula Student EV - Leeds Gryphon Racing

Repo: [link](#)

- Supported Formula Student EV accumulator design with focus on safety, packaging constraints and system-level integration.
- Brought up firmware for a pre-manufactured parent-daughter board, identified **KiCAD** schematic discrepancies and implemented workarounds to restore functionality.
- Coordinated with the electrical sub-team to align accumulator design choices with safety, packaging and integration constraints.

CERTIFICATIONS

• MATLAB Onramp	link	Jan 2022
• Responsive Web Design: HTML5 + CSS3	link	Jul 2022
• C Programming Bootcamp	link	Aug 2022
• FileSystems & SD Card Drivers	link	Sep 2024
• Embedded Bootloader Development	link	Apr 2025
• Embedded Systems Cryptography & Encryption	link	May 2026

PROFESSIONAL EXPERIENCE

Embedded Engineer (R&D) - Konwert India Motors, India	Jun 2024 - Dec 2024
• Designed and integrated an instrument cluster for a three-wheeler EV, covering requirements capture, schematics, firmware integration and validation. • Implemented a CAN 2.0B data logger to capture real-time vehicle telemetry for debugging, validation and fault analysis. • Produced technical documentation and reports, and created Altium schematics for the instrument cluster.	

Embedded Intern - Pinnacle Lithium Powers, India	Jul 2023 - Oct 2023
• Designed a CAN transceiver PCB for an inverter control and monitoring context. • Developed an anti-theft GPS data transmitter concept for EV battery packs. • Gained practical exposure to battery-pack electronics, communication interfaces and embedded hardware design constraints.	

EDUCATION

University of Leeds - MSc Embedded Systems Engineering, Leeds, UK	Expected Sep 2026
Relevant coursework: FPGA Design for System-on-Chip, Embedded Microprocessor System Design, Control Systems Design, Data Communications & Network Security, Wireless Communication System Design.	

SKCET - B.E. Electrical and Electronics Engineering, Coimbatore, India	Apr 2025
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LEADERSHIP

- **Chief of Electrics** - Leeds Sustainable Marine Team, University of Leeds, responsible for electrical system planning and coordination for an EV boat platform.
- **Vice-Captain** (2024-25) and **Chief Electrical Officer** (2022-24) - Gandiva Racing Electric Go-Kart team, coordinating electrical architecture, integration and competition readiness.

AWARDS & ACHIEVEMENTS

- Smart India Hackathon 2023 - National Winner for autonomous drone-based geo-tagged plantation monitoring.
- EKVC 2024 and EKVC 2025 - Champions, GKDC 2025 - All-India #3 in Electric Go-Kart competitions.
- Additional engineering projects: github.com/vicXsri