Tristan Villasaya

tristanvillasaya1@gmail.com +44 7555947058 linkedin.com/in/tristan-villasaya/ github.com/trisaya1

EDUCATION

BEng Electronic Engineering with Placement Year, *University of Sheffield* Sep 2024 – Present
- Averaged a First Class (73%) in first year.
- Specialising in Embedded Systems, IoT, and Digital Design, with hands-on project experience.
- Relevant modules: Electrical Circuits, Digital & Analogue Electronics, Communications, Programming, Mathematics.

A-Levels, *Landau Forte College Derby* Sep 2022 – Jun 2024
- Achieved AAA in A-Level Mathematics, Chemistry, and Biology.

SKILLS

Programming: C, Python, Verilog, Git, Linux, Bash, MATLAB

Embedded & IoT Development: STM32CubeMX, FreeRTOS, MQTT, ARM CMSIS, Arduino IDE, VS Code

Digital Design & Simulation: Xilinx Vivado, EDA Playground, RTL Design & Verification

Circuit & PCB Design: Fusion 360, LTSpice, Soldering, Breadboarding, Circuit Debugging & Prototyping

PROJECTS

4-bit CPU (Simulation, Personal Project)
- Designed a single-cycle 4-bit CPU in Verilog using Vivado with an ISA, ALU, register file, PC, ROM/RAM, and decoder.
- Verified correctness with unit and top-level self-checking testbenches; added debug ports for clear waveform tracing.
- Performed solid RTL practices (sync writes, comb reads, explicit resets) and documented architecture/ISA.
- Developed digital design and verification expertise relevant to processor design.

IoT-based Environmental Sensor (Personal Project)
- Programmed STM32 firmware using CMSIS, FreeRTOS, and coreMQTT to transmit real-time sensor data via Wi-Fi.
- Deployed an end-to-end IoT pipeline by connecting an embedded system to AWS via MQTT, storing sensor data in PostgreSQL, and visualising it through a Flask-based web dashboard.
- Applied interrupt-driven routines and modular cloud design, building strong skills in IoT system integration.

Remote-Controlled Fan with Automation and Display (Personal Project)
- Built an Arduino-based control system with a DHT11 temperature sensor, IR remote, and LCD via a register, reducing Arduino pin usage by 50%.
- Executed a modular design with diagnostic test scripts to ensure reliable subsystem integration.
- Implemented real-time control logic and user interaction, demonstrating hardware/software co-design in developing embedded systems.

Audio Amplification System (Academic Project)
- Constructed an R-2R DAC with Arduino, generating audible sine waves by programming timing and driving output through an audio amplifier.
- Applied top-down design with modular subsystem integration.
- Designed both the circuit and PCB schematic in Fusion 360.
- Enhanced practical electronics skills and debugging proficiency while implementing a fully functional audio system from circuit to speaker.

WORK EXPERIENCE

Front of House, *YO! Sushi Meadowhall* Aug 2025 – Present
- Collaborated with colleagues in a fast-paced environment, strengthening communication, adaptability, and teamwork under pressure.
- Applied attention to detail and accuracy while managing multiple tasks and meeting tight deadlines.
- Developed strong interpersonal skills by engaging with diverse customers and promoting tailored solutions.

Assistant Repair Technician, *Hi-Tech Mobiles and Laptops* Jun 2025 – Aug 2025
- Diagnosed and repaired consumer electronics using a structured, analytical approach to fault finding.
- Communicated technical issues and solutions clearly to non-technical customers, enhancing client trust.
- Maintained a safe, organised workspace, adhering to high safety and quality standards.