

CHARAN R

+91 7483226339

charanr02775@gmail.com

linkedin.com/in/charanr2775

Education

Presidency University, Bengaluru

Bachelor of Technology in Electronics and Communication Engineering

2020 – 2024

CGPA - 6.98

Experience

Muse Diagnostics

Dec 2024 – Present

Product Engineer

Bengaluru, Karnataka

- Developed analog AUX output functionality with integrated amplifier circuit using MAX98390DEWV+ for digital stethoscope (TAAL PRO).
- Designed and tuned FIR-based DSP filters to enhance auscultation clarity, achieving a signal gain of over +15 dB SNR.
- Diagnosed and resolved PMIC and mic soldering issues across a 600-unit production batch, improving QA pass rate.
- Prototyped BLE audio streaming using NXH3675, establishing low-latency audio pipeline for initial testing.

Muse Diagnostics

Jun 2024 – Nov 2024

Intern

Bengaluru, Karnataka

- Redesigned PCB in KiCad by removing battery block, adding ESD protection, and rerouting traces for better signal integrity.
- Reduced BOM cost by 20% and improved EMI tolerance through optimized layout and component selection.
- Delivered validated schematics, layout, and fabrication-ready Gerber files aligned with vendor manufacturing standards.

Projects

Smart Waste Monitoring System | Arduino Uno, GSM Module, PIR Sensor

- Developed a smart dustbin using ultrasonic sensing for fill detection and PIR sensor for automatic lid control.
- Integrated a GSM module to send SMS alerts when the bin nears full capacity, ensuring remote status monitoring without manual checks.
- Enabled real-time notifications to collection teams to streamline disposal operations and reduce overflow incidents.

ML Analytics for Heart Disease Detection | Python, Google Colab, scikit-learn

- Developed machine learning models (SVM, KNN, Logistic Regression) to classify heart disease risk from clinical records.
- Achieved 92% classification accuracy on test data through hyperparameter tuning and cross-validation.
- Demonstrated end-to-end data science workflow including data cleaning, training, testing, and performance evaluation.

Smart Home On/Off Switch | Embedded C, Eclipse IDE, ESP32

- Designed and implemented a Smart Home On/Off Switch utilizing an ESP32 microcontroller and IoT technology.
- Developed firmware to enable wireless control of home appliances and devices through a smartphone or web interface.
- Utilized Wi-Fi connectivity for real-time communication and seamless integration with existing home automation.

Technical Skills

Languages: Embedded C, C++, Python, MATLAB

Developer Tools: Eclipse, STM32CubeIDE, Arduino IDE, Git

Technologies/Frameworks: FreeRTOS, KiCad, STM32, Linux, BLE, Github, scikit-learn

Protocols: I2C, I2S, DFSDM(Sigma Delta Filter), UART, SPI, CAN

Certifications

Bluetooth Low Energy (BLE) From Ground Up – Udemy

Instructor: Israel Gbatu, BHM Engineering Academy (15.5 hours)

FreeRTOS From Ground Up™ on ARM Processors (REVISED) – Udemy

Instructor: FastBit Embedded Brain Academy (23.5 hours)

Extracurricular

Full Throttle - RC Car Competition[5th Place]

Presidency University, Bengaluru

- * Designed and programmed an Arduino Uno-based embedded system to control a custom-built RC racing car using a handheld controller.
- * Integrated an H-bridge motor driver with a BLDC motor for precise speed and direction control under race conditions.