

NAVNEETH SHARMA

Embedded Systems Developer



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[Navneeth Sharma](#)

SUMMARY

Embedded Firmware Engineer with over 2+ years of experience in real-time firmware development and embedded C programming. Involved in all phases of the Product Development Life Cycle (PDLC) process. Proficient in C, embedded C, MATLAB programming and integration of hardware with communication protocols like UART, I2C, SPI, MODBUS, SPI. Hands-on experience in developing, debugging, and optimizing real-time embedded software for ARM & DSP controllers such as XMC1300, MM32F0020, C2000, ESP32, QCC5141, MAX78000. Passionate about solving complex embedded challenges and optimizing system performance.

TECHNICAL SKILLS

Languages : C, Embedded C, MATLAB, Python basics, Verilog basics

Embedded Platforms : ESP32, XMC1300, MM32F0020, MAX78000, QCC5141, TMS320C2000, Ezairo7160

Protocols : UART, I2C, SPI, MODBUS, I2S, GPIO, ADC, DAC

Tools/IDEs : Keil uVision, Dave IDE, Code Composer Studio, Eclipse, Qualcomm MDE, Arduino IDE, MATLAB

Debug/Test : J-Link, XDS110, Oscilloscope, Logic Analyzer, Signal Generator

Software Practices : SDLC (V-Model), Agile Concepts, Version Control (Git)

Documentation : V-model Designing and testing related documents, Test reports, RCAs.

WORK EXPERIENCE

Smart Rotamach Privated Limited, Hyderabad

Jr. Firmware Engineer,

April 2023 – Present

- Developed firmware for embedded systems in IoT and audio devices including smart earbuds and hearing aids.
- Created modular drivers for peripherals such as UART, I2C, ADC on MCUs like XMC1300 and ESP32.
- Enhanced system functionality with real-time response optimization and algorithmic efficiency.
- Ported Python-based algorithms to C, focusing on computation speed and embedded performance.
- Designed wireless communication features for device programming, reducing hardware dependency.

Project – RCD Sensor Integration

- Engineered MODBUS-based communication for RCD sensor data acquisition and logging.
- Programmed over-threshold current and voltage detection logic for power protection systems.

Project – BLDC Motor Control

- Developed motor control firmware with PWM, ADC, temperature & current protections.
- Integrated SDLC-compliant design documentation and conducted unit-level testing.

PROJECTS

Hearing Aids

- Conducted tuning of acoustic parameters to enhance sound quality & reduced noise by 40% leading to significant user experience in hearing aids.
- Developed streamlined processes for acoustic calibration, reducing adjustment time by 25%.
- Designed affordable & efficient acoustic test setup which reduces setup costs by 30%.
- Designed digital filters, Acoustic Noise Reduction algorithm & signal processing techniques to achieve improved speech intelligibility and overall device performance.

Smart Earbud

- Developed the Empirical Mode Decomposition (EMD) module by porting functionality from Python to C, ensuring equivalent performance and accuracy.
- Diagnosed and resolved functional output discrepancies between Python and C implementations, maintaining consistency across platforms.
- Conducted code optimization to improve performance and reduce processing overhead.
- Implemented audio quality of voice calling features in earbuds using A2DP, HFP protocols.

RCD sensor

- Develop and tested software using Keiluvision IDE to trigger above threshold current and voltage.
- Hands on experience on MODBUS protocol.
- Develop and tested module for high speed data communication using MODBUS protocol which helps in enhanced workflow efficiency by reducing 30% manual data updating time while testing.
- Developed and tested integrated software using UART, I2C, ADC peripherals.
- Designing of SDLC V model related designing & testing documentations like CATP, SyRS, SRS, SDD, STP, Test Reports.

BLDC Motor Controller

- Developed and tested software using Dave IDE to drive the BLDC motor using the PWM.
- Developed and tested software to drive BLDC motor based protections like temperature, high currents.
- Developed and tested integrated software using UART, ADC, GPIO, Timer.

EDUCATION

S.no	Qualification	Name of institution	University/Board	Year of passing	%/CGPA
1	B.Tech(ECE)	St.Peters Engineering College	JNTU Hyderabad	2023	7.02
2	Diploma(ECE)	CITD, Balanagar	JNTU Hyderabad	2020	82.2
3	SSC	Nagarjuna High School	SBTET	2017	9.2

PERSONAL DETAILS

- Date of Birth: 31-July-2001
- Languages Known: English, Hindi, Telugu
- Hobbies: Listening Music, Editing videos & Photos.

DECLARATION

I here by declare that the details above are correct and true to the best of my knowledge.

Place: Hyderabad

Date:

Navneeth

Signature