

NAVNEETH SHARMA

EMBEDDED FIRMWARE ENGINEER



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[Navneeth Sharma](#)

SUMMARY

Embedded Firmware Engineer with over 2 years of experience in firmware development, Signal processing, debugging & testing. Involved in all phases of the Product Development Life Cycle (PDLC) process. Proficient in C, embedded C, MATLAB programming & basics in python, Verilog programming. Hands-on experience in ARM & DSP controllers such as XMC1300, MM32F0020, C2000, ESP32, QCC5141, MAX78000. Also on communication protocols like UART, I2C, SPI, MODBUS, I2S, SPI. Hands-on experience in developing noise reduction algorithms, improving sound quality, Acoustic testing & debugging. Well-versed in BOM preparation. Passionate about solving complex embedded challenges and optimizing system performance.

WORK EXPERIENCE

Jr. Firmware Engineer, April 2023 – Present

Smart Rotamach Privated Limited, Hyderabad

PROJECTS

Hearing Aids

- Conducted tuning of acoustic parameters to enhance sound quality & user experience in hearing aids.
- Reduced noise interference by 40%, leading to significant improvement in user satisfaction.
- Developed streamlined processes for acoustic calibration, reducing adjustment time by 25%.
- Designed affordable and efficient acoustic test setup which reduces setup costs by 30%
- Designed Acoustic Noise Reduction algorithm & signal processing techniques to achieve improved speech intelligibility and overall device performance.
- Researched & implemented a wireless programming solution to program hearing aid which improves user comfort and enhanced workflow efficiency.
- Developed RCA, Test plan, Test reports documentation.

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 dis-crepancies between Python and C implementations, maintaining consistency across platforms.
- Conducted code optimization to improve performance and reduce processing overhead.
- Implemented and testing of audio quality of voice calling features in earbuds.
- Designed RCA, Test Plan and Test Reports documents.

RCD sensor

- Develop and tested software using Keil u vision 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 documentation 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.
- Designing of SDLC V model related documentation.

TECHNICAL SKILLS AND EXPERTISE :

Firmware Development & Programming:

- Proficient in C, Embedded C, MATLAB programming with a strong focus on real-time performance.
- Basics in python, Verilog programming.
- Expertise in programming microcontrollers based on customer requirements.
- Familiar with version control systems, primarily Git, for source code management.

Microcontrollers & Communication Protocols:

- Hands-on experience in developing firmware for XMC1300, MM32f0020, TMSf00C2000, QCC5141 and MAX78000 microcontrollers and peripherals such as PWM, TIMER, ADC, DAC..
- Specialized in using on-board communication protocols including UART, I2C, I2S, SPI and MODBUS.
- Experience in working on ARM & DSP Controllers for controlling various peripherals & communication protocols, designing filters.

Development Tools & Environments:

- Experience working with multiple Integrated Development Environments (IDEs) including:
 - Dave IDE - Infineon Arduino IDE
 - Keil uVision IDE - Keil
 - Code Composer Studio (CCS IDE)
 - Eclipse IDE
 - Multicore Development Environment (MDE)
 - Arduino

Debugging, Flashing & Testing Tools:

- Proficiency in using debugging and flashing tools such as Segger, J-Link and XDS110.
- Hands-on experience with testing and debugging equipment including:
 - Oscilloscopes for waveform analysis and signal verification.
 - Logic analyzers for digital signal debugging and protocol verification.
 - Signal generators for hardware validation and testing.

Hardware Development:

- Proficient in interpreting schematics.
- Skilled in reverse engineering to understand functionality and design.
- Experienced in unit testing, integration testing, and debugging.

Software Architecture Model :

- SDLC model

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
- Nationality: Indian
- Gender: Male
- Marital Status: Unmarried
- 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