Yogitha Sneharatna Vegi

Hyderabad, Telangana, India | yogithavegi@gmail.com | +91 9182477229

https://www.linkedin.com/in/yogitha-sneharatna-vegi-24798b249

SUMMARY

Entry-level Embedded Systems Engineer with strong experience in firmware engineering, wireless communication work- flows, and microcontroller-based real-time systems. Skilled in C/Embedded C, ARM Cortex-M, Free RTOS, DMA/ISR-driven pipelines, and peripheral driver development. Hands-on with SDR (USRP X410), BPSK/QPSK modulation, GNU Radio, and MATLAB-based RF analysis. Proven ability to debug hard- ware–software interactions, quantify performance improvements, and deploy optimized embedded solutions for research and engineering environments.

SKILLS

- **Programming Languages:** C, Embedded C, Data Structures, Basic Python.
- **Embedded Systems:** Free RTOS, Timers, RTOS, Linux, Firmware Development, ARM Architecture.
- **Micro Controllers**: STM32F446RE, STM32F103C8T6, Arduino Uno, LPC2148, 8051, ARM Cortex-M, ESP32.
- **Communication Protocols**: UART, I2C, SPI, CAN.
- **Development & Simulation Tools:** STM32Cube IDE, Visual Studio, MATLAB, Proteus, Multisim, Dev C++, KiCad,GNU Radio.
- **Wireless/SDR:** BPSK/QPSK, USRP X410, GNU Radio, MATLAB DSP.
- **Domains:** Firmware Engineering, Real-time Signal Processing Embedded Product Development.

INTERNSHIP

TiHAN-IIT Hyderabad | *R&D Intern* Hyderabad | **05.2025 – Present**

- Implemented video transmission from drone to ground station using OFDM modulation in C.
- Designed and executed jamming test scenarios to validate drone communication reliability under interference conditions.
- Architected an end-to-end OFDM-based transceiver pipeline in GNU Radio, enabling robust wireless 1080p video streaming across variable RF environments.
- Optimized system throughput by tuning FFT sizes (up to 1024) and 16-QAM modulation, achieving real-time 10 Mbps data rates.
- Reduced end-to-end latency by 25% by optimizing signal processing blocks and SDR buffer management.
- Implemented real-time firmware on ARM Cortex-M, achieving sub-1Sec task latency with deterministic real-time behavior.
- Built and validated SDR-based wireless prototypes using USRP, GNU Radio, and MATLAB, ensuring reliable transmission under interference-prone conditions.

Robocoupler | *Intern* Visakhapatnam, AP | **05.2024 – 06.2024**

- Developed a blood pressure monitoring system using Arduino, supporting real-time data acquisition and embedded system validation.
- Designed and implemented Embedded C code for accurate sensor calibration and reliable hardware-software integration.
- Conducted debugging, validation, and unit testing, improving system stability and performance.

- Optimized data acquisition and processing techniques, ensuring consistent and accurate health parameter readings.
- Collaborated with the team to refine design and testing workflows, reducing development time and enhancing system efficiency.

PROJECTS

Project 1: Automatic Toll Gate Simulation - [Arduino, Ultrasonic Sensor, Servo Motor] –*View Simulation*

- Simulated an automatic toll gate system using Arduino Uno, ultrasonic sensor, and servo motor in Tinker cad.
- Programmed gate control logic in Embedded C to detect vehicles and automate gate operation in real time.
- Achieved reliable simulation performance through accurate sensor integration and control sequencing.

Project 2: Real-Time Task Management with Free RTOS - [STM32, Free RTOS, Embedded C]

- Implemented multitasking using Free RTOS on STM32(STM32F103C8T6) to control multiple tasks including servo motor and LED blinking.
- Wrote task definitions in Embedded C for concurrent servo control and LED toggling with real-time scheduling accuracy.

Project 3: DVB-T Based Video Transmission System using Multi-Level Modulation- [GNU Radio,B210]

- Designed and implemented a DVB-T compliant video transmission system using QPSK, 16-QAM, and 64-QAM modulation techniques.
- Evaluated system performance by analyzing modulation trade-offs in terms of data rate, robustness, and signal quality under varying conditions.
- Developed the transmitter and receiver processing chain for reliable video delivery between source and destination.

CERTIFICATIONS

- Certified in Electronic System Design (NPTEL) – Hands-on circuits and PCB design using CAD software.
- Completed Embedded Systems training with practical exposure to microcontrollers and real-time applications.
- Certified in Basics of Digital Design & VLSI, strengthening digital electronics fundamentals.
- Participated in Teckzite-2k20, a national-level technical fest, showcasing technical innovation and teamwork.
- Awarded Dr. A.P.J. Abdul Kalam Prathibha Puraskar for academic excellence and outstanding performance.

EDUCATION

Rajiv Gandhi University of Knowledge Technologies, Nuzvid Nuzvid, AP | **11.2021 – 05.2025**

- B. Tech in Electronics and Communication Engineering.
- CGPA: 8.3/10.

Rajiv Gandhi University of Knowledge Technologies, Nuzvid Nuzvid, AP | **09.2019 – 11.2021**

- Pre-University Course
- CGPA: 9.39/10

S.N.S.P.Z.P. High School | SSC Komaragiripatnam, AP | **06.2018 – 05.2019**

- CGPA: 10/10.