

Gasikanti Madhan Kumar

Embedded System Engineer

Hyderabad, India | madhangasikanti123@gmail.com | 9381877231

Dedicated and innovative Embedded System Engineer with 2+ years of experience in embedded hardware and software development. Proven expertise in R&D, developing firmware, RADAR technology, and implementing real-time systems. Adept at researching, designing, and deploying complex MIL STD systems. Passionate about advancing embedded technology and delivering robust solutions.

PROFESSIONAL SUMMARY

- Worked as an Anti Drone RADAR R&D System Engineer for 2+ years.
- Hardware and software development of Anti Drone RADAR, WideBand Jammer and Target Simulators.
- Developed and optimized firmware for embedded systems in innovative product prototypes.
- Strong knowledge in RF and Antenna.
- Developed DSP algorithms on microcontrollers(STM32,PIC,ATMEL).
- Expertise in developing low level drivers for RF ICs and MEMS sensors.
- Bare metal programming
- Lead the R&D of High Precision IMU development.
- Worked with MPLAB X IDE, STM32CUBE IDE, Arduino IDE .
- Proficient in scripting languages LINUX shell,python and MATLAB.
- Hands on experience with RF instruments, Oscilloscope, Logic Analyzer, Soldering.
- Strong analytical, design and problem solving skills.
- Strong Team Management, Communication and Client Presentation skills.

EDUCATION

Bachelor of Technology (B.Tech) | Electronics and Communication Engineering (ECE)

Sreenidhi Institute of Science and Technology, Hyderabad, India

August 2018 – June 2022

CGPA: 7.32/10

Intermediate | MPC

Alphores Junior College, Karimnagar, India

June 2016 – March 2018

Percentage: 93.8%

TECHNICAL SKILLS

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|---------------------------|---|---|
| • Programming Languages | : | C, MATLAB |
| • Scripting Languages | : | Python, Shell (BASH) |
| • Operating Systems | : | Linux, Windows |
| • Instruments | : | Oscilloscope(DSO), Logic Analyzer, Signal Generator, Spectrum Analyzer, Vector Network Analyzer, Multimeter |
| • Microcontrollers | : | STM32, PIC, ATMEL |
| • Development Tools | : | MPLAB X IDE, STM32CubeIDE, Arduino IDE |
| • Communication Protocols | : | UART, USART, SPI, I2C, ETHERNET |
| • Peripherals | : | GPIO, TIMERS, PWM, ADC, DAC, INTERRUPTS |
| • Debugging | : | SWD/JTAG |
| • Circuit Simulators | : | Proteus, LTSpice |
| • Communication Standards | : | RS232, RS422, RS485 |

WORK EXPERIENCE AND PROJECTS

Embedded System Engineer | Unistring Tech Solutions Pvt Ltd.

2022 - Present

1. Anti Drone RADAR - 12KM

- Research and Development of Anti Drone RADAR for a Range of 12 KM.
- Optimizing MCU firmware for RF control sequence and sensor handling.
- Developed application for real time processing of Target data and threat analysis.
- MCU Firmware and RADAR Processing Application maintenance with bug fixing, R&D updates for best target analysis and accurate detection in a noisy environment.
- Leading Junior System Engineers, bug resolving, client presentation and demonstrations for INDIAN DEFENCE Officers.
- Developed software for Hardware automated elevation setup.
- Manage Production team and their work to resolve bugs and future improvement in the firmware.

2. High Precision IMU

- Led the Research and Development of High Precision Inertial Measurement Unit, focusing on algorithm design, firmware development.
- Designed a Hardware prototype. Developed drivers for data extraction from COTS MEMS Sensors.
- Developed custom sensor fusion algorithm using MEMS sensors in 32 bit ARM CORTEX M3 processor. Developed MATLAB scripts and performed simulations for advanced signal analysis.
- Developed automatic self calibration algorithm. Worked on Kalman filter, digital low pass, high pass filters and others with memory optimization as a part of Research and Development.
- DC Motor control with PWM and analog sensor handling using ADC.

3. RADAR Target Simulator

- Developed MCU firmware for RF control in the Target Simulator for RADAR.
- Controlling RF modules in perfect timing using PIC microcontroller.
- Delay generation using Timers
- External input response using Interrupts.
- Accessing lower level registers in an RF PLL chip and configure them to generate required frequency.
- Establish communication using I2C for internal modules and UART for entire system communication.

4. Anti Drone RADAR 5KM

- Research and Development of Anti Drone RADAR for a Range of 5KM.
- Developing MCU firmware for controlling RF modules and sensors.
- Developed low level drivers for ADC,UART communication in PIC microcontroller using MPLAB X IDE.
- Hardware Integration and Testing.
- Developed application for real time processing of Target data and threat analysis.
- Team up with GUI team to integrate low level firmware and applications for user control in LINUX.
- MCU Firmware and RADAR Processing Application maintenance with bug fixing, R&D updates for best target analysis and accurate detection in a noisy environment.
- Automation using python for elevation calibration and manual testing to reduce human error and project lead time.
- Leading Junior System Engineers, bug resolving, client presentation and demonstrations for INDIAN DEFENCE Officers.

LANGUAGES

- **English** : *Full Professional Proficiency*
- **Telugu** : *Native/Bilingual Proficiency*
- **Hindi** : *Proficient in Comprehension*

INTERESTS

- **Drawing**
- **Story Writing**
- **Graphic Design**