

Rahul Dasharath Navalkar.

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PROFILE SUMMARY

- Embedded software Engineer with **2 years 9 months** of experience.
- Experienced in analysis, design, development, testing, and implementation of various embedded software systems.
- Adept at designing and building applications with usability and high performance in mind.
- Good knowledge of software development life cycle and associated tools.
- Having 1 year experience in security implementation for embedded devices.

TECHNICAL SKILLS

- C, C++, Embedded C, Data Structures and python.
- FreeRTOS, Linux (Ubuntu, kali OS) and bare metal.
- UART, SPI, I2C, RS232, CAN(TWAI).
- TCP/IP, UDP, MQTT, ETHERNET, ICMP, MQTT, COAP.
- STM32F1, STM32F2, STM32F4, STM32L4, STM32H7 (dual core), ESP32, ESP32 S3.
- ESP-IDF With FreeRTOS.
- WIFI, Bluetooth, BLE.
- STM32cubeIDE, Simplicity studio, CCS IDE, KEIL, VS Code and Wireshark.
- Displays: OLED (ssd1306), 1.28" TFT (st7789), 1.8" TFT Lcd(st77916), 8 Bit Parallel, Lcd 1602.
- LVGL, Square line studio, EEZ studio, IO Ninja, PCAN View.
- Experienced in state Machine design and bootloader design with firmware rollback mechanism.
- J1939, UDS, ISOTP, OBD 2, DOIP, XCP/CCP Protocols (Automotive).
- Texas Instrument CC3220SF, Silicon Labs EFR32BG13, PB-03F BLE module, TPMS sensor.
- Development and debugging of embedded Linux applications and Device Driver.
- Subsystem requirement writing, component design module development in model V SDLC.
- Experienced in project development tools like JIRA, GIT, confluence, Bitbucket.
- Well versed in debugging and troubleshooting embedded applications using JTAG, SWD, serial.
- Hardware board bring up and connection testing.
- Memory interfaces SPI flash, OSPI EMMC.

WORK EXPERIENCE

Autopeepal Pvt. Ltd- Pune.

Oct 2024 – Present

Firmware Developer

Project: Can2x_Guage (Kirloskar Oil Engineering Ltd.)

- Developed firmware for esp32 s3 with the help of special framework architecture (ESP-IDF) in embedded C source code with VS Code IDE and EEZ Studio.
- Developed user interface (ui) with the help of Open-Source Library (LVGL).
- Developed CAN and UI display firmware for esp32 s3 and 1.8" tft 360 * 360 circular display (st77916 driver).
- Have debugged and resolved several critical customer and QA reported issues in the firmware.

Project: TPMS_Display (company product)

- Developed firmware for esp32 in embedded C source code with VS Code IDE.
- Developed BLE firmware for esp32 as dual mode, act as BLE client and BLE server.
- Developed CAN, UI display, BLE firmware for esp32 and 1.8" tft circular display.
- Debugged and resolved several issues in the firmware related specific to BLE communication with mobile app and tpms ble sensor.

Softdel System Pvt. Ltd- Pune.

May 2023 – Sept 2024

Embedded Software Engineer

Project: Smart lock (Spectrum Brands)

- Domain expertise during the period: C programming language. BT/BLE protocol, ARM Cortex M3 debugging.
- Have debugged and resolved several critical customer and QA reported issues in BT/BLE firmware.
- Developed OTAU (Over The Air Update) feature including secure boot and secure firmware update functionalities of STM32CubeU5 TFM application (PSA certified).
- Developed BLE application for smart lock Simplelink SDK from Silicon Labs.

Project: Lift (Vantage Elevation)

- Developed software features and basic software inside special framework architecture provided by customer in embedded C source code with STM32cube IDE as well as Misra C.
- Developed bare metal scheduler for application firmware.
- Developed CAN and I2C firmware code for 4 boards used for lift.
- Contributed firmware development for controllers like STM32H7,G4.

ECIL, BARC- Mumbai.

December 2021 - September 2022

Embedded engineer

Project: GPS blocker for security.

- Developed and implemented embedded system for Jammer Frequency Triggering Device.
- Developed firmware using communication protocols UART, I2C.
- Documented technical specification using user manuals and test procedures for reference and future development.
- Implementation of jamming feature using firmware code.

Integrated Test Range, DRDO– Balasore, Odisha.

March 2020 – October 2021

Graduate Apprentice

Project: Velocity and position control of Gimbal

- Developed position control of gimbal using dc servo motor.
- Developed control loop using PID (Proportional Derivative integration) controller.
- Developed root locus, using MATLAB software.
- Developed firmware for small printed circuit board (PCB) board.

EDUCATION

Post Graduate Diploma in Embedded System Design. (2023)

70%

CDAC Sunbeam, Pune.

B. E in Electronics and Telecommunication (2018)

70%

Bharati Vidyapeeth college of engineering, Kolhapur.

I hereby affirm that the information that all the above given information is correct to the best of my knowledge.

Place: Pune.

Sign

Date: