Y. Manjunath Reddy

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Professional Summary

Embedded Systems and Robotics graduate with hands-on experience in Embedded C, Embedded Linux, Linux System Programming, and hardware-software integration. Proficient in developing and debugging embedded applications, interfacing sensors and peripherals, and implementing communication protocols (CAN, UART, SPI, I^2C). Experienced with Linux-based development environments, system-level programming, and embedded project development. Seeking an entry-level Embedded Systems, Firmware, or Embedded Software Engineer role to contribute to software development, system integration, and product innovation.

Core Skills

- **Programming Languages:** C, C++, Data Structures & Algorithms
- **Embedded Systems:** Embedded C, Embedded Linux, Linux System Programming, PIC18F4580 Microcontroller
- **Communication Protocols:** CAN, UART, SPI, I^2C, ADC
- **Linux Development:** Linux System Calls, IPC Mechanisms, Process Management, Signal Handling, Shell Scripting
- **Development Tools:** GCC, GDB, Makefiles, Ubuntu Linux
- **Embedded Development:** Sensor Interfacing, Hardware-Software Integration, Firmware Development, System Debugging
- **Robotics & UAV:** ROS, LIDAR Mapping, Robot Navigation, UAV Integration, Telemetry Systems, Pixhawk, Cube Orange

Professional Experience

Embedded Systems Trainee — **Emertxe Information Technologies, Bangalore**
Jan 2025 – Present

- Undergoing advanced training in Embedded C, Embedded Linux, and Linux System Programming covering real-world firmware development workflows.
- Developed applications using Linux system calls, file handling, IPC mechanisms, process management, signal handling, and shell programming.
- Worked extensively in Linux-based development environments using GCC, Makefiles, and GDB for compilation, build automation, and debugging.
- Performed debugging, testing, and troubleshooting of software modules to improve reliability and functionality.
- Strengthened understanding of embedded software development workflows, software testing, and system-level programming concepts.

UAV Engineering Intern — **ExoDrone Systems, Hyderabad**
Jan 2025 – May 2025

- Assisted in field deployment, testing, and troubleshooting of fixed-wing and multirotor UAV systems including quadcopter and VTOL platforms.
- Supported configuration and integration of flight controllers (Pixhawk, Cube Orange), telemetry systems, ESCs, sensors, and communication modules.
- Participated in debugging hardware and software integration issues during UAV testing and deployment phases.
- Assisted in flight testing, calibration, preventive maintenance, and system validation activities.
- Maintained technical documentation, calibration records, and deployment logs.

Projects

MiniShell – Linux System Programming Project

- Developed a Unix-like shell supporting internal and external command execution using Linux system calls (`fork`, `exec`, `wait`, `pipe`).
- Implemented process management, parent-child process handling, signal handling, and job control mechanisms.
- Debugged process execution and command handling pipelines using GDB.

CAN-Based Automotive Dashboard

- Designed and developed a CAN-based automotive dashboard using PIC18F4580 microcontrollers demonstrating multi-ECU communication.
- Implemented CAN message transmission and reception between Electronic Control Units (ECUs) for real-time data exchange.
- Integrated UART, I^2C, ADC, switches, LEDs, CLCD, and sensor interfaces; developed Embedded C firmware for sensor monitoring, indicator control, and communication management.

ROS-Based LIDAR Mapping Robot

- Developed a mobile robot for environmental mapping and autonomous navigation using LIDAR sensors.
- Worked on sensor integration, robot navigation, and ROS-based mapping and localization concepts (SLAM).

Fixed-Wing UAV Integration and Testing

- Integrated flight controllers, telemetry systems, sensors, and embedded electronic components into fixed-wing UAV platforms.
- Assisted in calibration, debugging, and flight testing for reliable UAV operation and system validation.

Education

B.Tech in Robotics and Automation **2022 – 2025**
Vignan Foundation for Science, Technology and Research (VFSTR)
CGPA: 7.65 | Minor: IoT and Embedded Systems

Diploma in Mechanical Engineering **2019 – 2022**
State Board of Technical Education and Training (SBTET)
Percentage: 75.11%

Achievements and Publications

- Authored a book chapter on "The Need for Human Intervention in Automation."
- Presented a research paper at ICCSCE-2025 on an IoT-enabled humanoid robot for obstacle detection and hospitality services.
- Finalist in the JANATICS Automation Skill Competition.