

Badal Shrivastava

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Work: New Delhi (India) **GitHub:** <https://github.com/shrivastavab321>

ABOUT ME

Embedded Software Engineer with 3+ years of experience specializing in Linux-based real-time embedded system development for automotive and industrial applications, skilled in driver integration and performance optimization. Proficient in C and Bash, with strong exposure to RTOS concepts, device debugging, and low-level firmware development. Hands-on experience with **Trace32**, **GDB**, and **kernel-level** troubleshooting. Looking to leverage deep system-level knowledge to contribute to stability and performance in mission-critical embedded platforms.

TECHNICAL SKILLS

- **Languages:** C, Embedded C, Bash, Python (basic), C++ (basic)
- **Embedded OS & RTOS:** Embedded Linux (Debian, Ubuntu), FreeRTOS, systemd
- **Development Tools:** GDB, **Trace32**, Git, Docker, Visual Studio, VS Code
- **Protocols & Interfaces:** SPI, I2C, UART, CAN, TCP/IP, MQTT
- **Build Systems:** Yocto, Buildroot, Make, CMake
- **Debugging & Analysis:** **Trace32**, GDB, Oscilloscope, Logic Analyzer, Boot-time profiling
- **Bootloader & Kernel:** U-Boot, Linux Kernel, Device Tree
- **Hardware Platforms:** Renesas R-Car, ARM Cortex-A53/R7, Raspberry Pi, Arduino
- **Cloud/IoT Platforms:** AWS IoT Core, Google Cloud IoT, Home Assistant
- **OS & Scripting:** Linux (MS-DOS/Linux CLI), Shell Scripting, Batch Scripting

WORK EXPERIENCE

Embedded Software developer

Veethree (Indication Instrument Limited) [Sep 2023 – present]

City: Faridabad | **Country:** India

- Spearhead the development of Embedded Linux and Debian systems for automotive applications, specifically focused on Instrument Cluster projects.
- Configure and optimize U-Boot bootloaders to ensure efficient system initialization and performance.
- Develop and maintain device drivers, facilitating effective communication between hardware components and the software stack.
- Collaborate closely with Renesas, utilizing the Renesas R-Car evaluation board to integrate and test software with hardware components.
- Work extensively with the Renesas R-Car evaluation board, leveraging the Cortex-R7 (MCU) and Cortex-A53 (MPU) to develop high-performance applications.
- Implement and optimize software solutions using the Cortex-R7 SDK (RTOS), contributing to efficient system integration.
- Execute software and hardware integration tasks, ensuring seamless operation and functionality in automotive environments.
- Conduct troubleshooting and debugging of embedded systems to improve reliability and user experience.
- Engage in code reviews and promote best practices in embedded software development across the team

Embedded Software Engineer

Coral Telecom Ltd. [Aug 2022 – Sep 2023]

City: Noida | Country: India

- Developed and maintained embedded Linux systems for the IPPA (IP Public Addressing System) product, ensuring robust performance and reliability.
- Utilized Buildroot to streamline the build process, optimizing embedded Linux images for deployment.
- Implemented Debian packaging solutions to facilitate software updates and ensure seamless integration of new features.
- Designed and executed Over-The-Air (OTA) update mechanisms to enhance user experience and device management.
- Managed network configurations to ensure secure and efficient communication within the IPPA system.
- developed a Linux utility to set static and dynamic IP addresses of devices.
- worked on system software tools development, systemd service management, networking, and debugging.

EDUCATION AND TRAINING

B.Tech CSE

IKG Punjab Technical University [2019 – 2023]

City: Ferozepur | Country: India | Final grade: 7.2

Intermediate/+2, Science

Bhagwan Shankar Sn Cr school [2017 – 2019]

City: Vaishali | Country: India

Matriculation

SBN High School -Vaishali [2015 – 2017]

City: Vaishali | Country: India

PROJECTS

Video HelpDesk Device

Linux-based real-time video support system using camera, touchscreen, and speaker/mic for kiosk use.

Voice-Control Home Automation System

Voice-controlled home automation using Zigbee and biometric locking with Android integration.

OPEN SOURCE & CONTRIBUTIONS

Developed custom OTA update mechanisms for Debian-based systems using `.deb` packaging and A/B partition fallback logic.

Working on publishing GitHub repositories related to embedded tooling, **OTA frameworks, and system profiling utilities.**

ADDITIONAL HIGHLIGHTS

Proficient in debugging embedded systems with **Trace32** and **GDB**.

Strong understanding of OS internals, scheduling, memory management, and RTOS principles.

Experience triaging stability issues at the kernel and user space, including race conditions and deadlocks.

Familiar with processor architecture fundamentals, memory maps, MMU configs, and peripheral interactions.