KUNAL RAYCHANDANI
Electronics Engineer | Embedded Systems Developer
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PROFESSIONAL SUMMARY

Electronics Engineer specializing in Embedded Systems, Linux Kernel Development, U-Boot customization, and USB driver development. Proficient in kernel-to-userspace communication, low-level hardware interfacing, and AI-integrated projects using ESP32. Experienced with SDKs like NRF and Raspberry Pi Linux, with strong focus on real-time embedded firmware, system optimization, and open-source contributions.

TECHNICAL SKILLS

- **Languages:** Embedded C, C++, Python
- **Platforms:** ESP32, Raspberry Pi, NRF SDK
- **Operating Systems:** Linux (Embedded), FreeRTOS, RTOS
- **Expertise:**
    - Linux Kernel & Device Driver Development
    - U-Boot Bootloader Customization
    - IoT & AI-powered Embedded Solutions
    - USB Driver Development & Protocol Analysis
    - Real-time Firmware Development
    - Kernel-to-Userspace Communication
    - PCB Design & Circuit Debugging
- **Tools:** PlatformIO, Logic Analyzer, UART, TFTP, NFS

PROJECTS

ESP32 AI Voice Assistant

- Developed speech-to-text and text-to-speech system using Deepgram and ChatGPT APIs
- Enabled real-time AI interaction on ESP32 with optimized low-latency audio streaming
- Focused on firmware performance, memory management, and task scheduling

Linux Kernel & U-Boot Customization

- Customized U-Boot bootloader for Raspberry Pi with custom boot configs
- Implemented device drivers for peripheral communication
- Configured TFTP boot and NFS for embedded Linux environments

USB Driver Development

- Developed custom USB drivers for embedded Linux systems
- Wrote low-level firmware for USB peripheral interfacing and data protocol handling
- Optimized performance using kernel logs and protocol analyzers

Embedded Systems & SDK Development

- Created real-time sensor and IoT projects using NRF SDK, Raspberry Pi Linux
- Used PlatformIO and FreeRTOS for modular firmware design
- Developed energy-efficient embedded solutions for edge computing applications

INTERNSHIP EXPERIENCE

Embedded Systems Intern
NXON AI PRIVATE LIMITED – *Nov 2024 to Mar 2025*

- Integrated machine learning with embedded systems on ESP32 and Raspberry Pi
- Worked on kernel modules, hardware-level programming, and real-time applications

Embedded Systems Training
Vector India – *Mar 2025 (Ongoing)*

- Gaining hands-on expertise in Linux kernel development and device driver creation
- Working on RTOS-based firmware, microcontroller programming, and system debugging

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EDUCATION

Bachelor of Engineering in Electronics & Communication
LJ University, Ahmedabad — *2022 to 2025*

Diploma in Electronics & Communication Engineering
LJ Polytechnic, Ahmedabad — *2019 to 2022*

CERTIFICATIONS

- Embedded Systems & RTOS Training – Vector India
- Advanced Linux Kernel Development – Internship
- ESP32 IoT Development – Internship