

RAJAN KUMAR

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Professional Summary

Seeking a challenging role where I can apply my knowledge of firmware development, IoT, and hardware design to develop innovative, real-time, and connected solutions. Eager to contribute to projects that enhance automation, efficiency, and intelligent system integration.

Education

B. Tech—Electronics & Communication

Jodhpur Institute of Engineering and Technology, Jodhpur | 2020–2024 | CGPA: 8.86 / 10.0

Relevant Coursework: Analog Circuits, Microcontroller, Digital Electronics, IoT

Senior Secondary (12th)

D.A.V. College, Siwan | 2018–2020 | Percentage: 71.2%

Professional Experience

Embedded System Developer

TIF Labs Pvt. Ltd., Bangalore | April 2024 – May 2025

- Worked on an industrial IoT project for NTPC, focusing on real-time data acquisition using ESP32 microcontrollers.
- Developing firmware for ESP32, STM32, and other microcontrollers, integrating IoT protocols like MQTT.
- Designing and testing embedded hardware, such as real-time data collecting systems and PCB prototyping.
- Conducting training sessions and workshops on IoT and embedded systems, covering development, communication protocols, and cloud integration.

Embedded System Intern

TIF Labs Pvt. Ltd., Bangalore | 9 May 2023–9 Nov. 2023

- Utilized multiple microcontrollers, including ESP32, Arduino, Raspberry Pi, and STM32, to develop innovative solutions.
- Demonstrated proficiency in communication protocols, working with GSM modules (SIM800L, SIM900A) and LoRa modules with Arduino, ESP32, and Raspberry Pi.
- Created custom HMI graphics and dashboards using Open-PLC and Scada-BR on Raspberry Pi for project automation.
- Diagnosed and resolved issues in sensor and actuator systems; published technical blogs documenting best practices.

Embedded System Trainee

Learn and Build, Jaipur | 29 June 2022–02 Sep. 2022

- Learned about the basics of microcontrollers, wireless communication devices (HC-05, NODE MCU, GSM800I), and sensor programming on Arduino IDE and Raspberry Pi.
- Completed comprehensive training programs in microcontrollers, wireless communication devices, and sensor programming.
- Successfully executed one major project and two mini-projects, demonstrating practical skills and problem-solving abilities.

Projects

HID Device Integration with MQTT for Inventory Management

Tools & Tech: ESP32-S3, C++, MQTT, HID over USB, Wi-Fi

- Designed and developed a system using ESP32-S3 to interface a USB HID barcode scanner for real-time product tracking. The scanned data was parsed and published over MQTT to a cloud server, enabling automated listing and monitoring of incoming and outgoing items in a warehouse environment.

Wireless Smart Mesh Communication for NTPC Thermal Power Plant

Tools & Tech: ESP32, C++, Smart Mesh Wireless HART

- Designed and developed a wireless communication system for NTPC's thermal power plant, using Smart Mesh Wireless HART to monitor sensor data in real time. The system included an ESP32, which collected data and transmitted it over UART communication to the Smart Mesh Wireless HART end node. The system used Deep Sleep mode to minimize power consumption and utilized transistors for transmitter turning on and off. The data was analyzed on a laptop for monitoring the transmitter data and analyzing the efficiency of the plant.

Skills

- **Languages:** Embedded C, C++, Python, HTML
- **Tools & IDEs:** Arduino IDE, ESP-IDF, PlatformIO, STM32CubeIDE, Ki-Cad, EasyEDA
- **Networking:** MQTT, HTTP
- **Platforms:** Linux, Raspberry Pi
- **Protocols:** GSM, LoRa, Wi-Fi, BLE, Ethernet
- **Others:** Flask, GIT

Achievements & Certifications

- Best Intern Award – Resonance-2022, JIET
- Participant—Smart India Hackathon 2022 (Smart Automation Idea)
- Completed Infosys Springboard course: Internet of Things
- Attendee—Workshops on VLSI Design, Embedded IoT Systems (Feb 2023)