

UJJWAL KUMAR

Senior IOT Engineer

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Gurugram, Haryana



SUMMARY

IoT and Embedded Systems Engineer with 2+ year of experience in firmware development, PCB debugging, hardware validation, and smart device R&D. Experienced in developing and testing IoT products including smart water purification systems and Medical devices. Skilled in C/C++, Python and hardware interfacing, communication protocols, and system debugging across IoT platforms.

EDUCATION

B.Tech (Electronics & Communication Engineering)

Ajay Kumar Garg Engineering College, Ghaziabad (AKTU)
2020 to 2024

Senior Secondary

CBSE - 2019 with 85.4%

High school

CBSE - 2017 with 81.7%

SKILLS

Technical skills

- Programming:** C, C++, Embedded C, Python, Shell Scripting
- Microcontrollers:** ESP32/ESP8266, Arduino, Raspberry Pi.
- Communication Protocols:** UART, I2C, SPI
- IoT Protocols:** MQTT, HTTP
- Tools & Software:** Eagle, Proteus, TCAD, Postman, Microsoft Suite, RVIZ2.
- Hardware Skills:** PCB Design & Debugging, Multimeter/DSO usage, Sensor Integration, Circuit Design.
- SENSORS:** Camera(IMX-708), IR, Ultrasonic, TDS, Flow, temerature etc
- Operating Systems:** Linux, Raspberry Pi OS, Windows

Soft skills

- Communication skills
- Negotiation skills
- Cross team collaboration
- Leadership

Languages

- English
- Hindi

PROFESSIONAL EXPERIENCE

Zunroof Tech Pvt. Ltd. Gurugram | Nov 2024 – Present

Senior IOT Engineer

- Developed and tested Smart IoT RO systems: PCB debugging, firmware optimisation, hardware-level validation.
- Improved embedded code stability and enhanced product reliability for RO and Smart Switch systems.
- Conducted testing and software refinement for Remote Monitoring Systems (RMS) used in solar applications.
- Led R&D and fault analysis for Induction & Infrared Cooktops; redesigned components to prevent failure under voltage fluctuation.
- Performed research, testing, and circuitry understanding for Solar Inverters.
- Prepared testing documentation, test cases, and validation reports for all products.
- Working on research and development of Smart camera devices.

Centre for AI Research (DSVV Haridwar)

Electronics Engineer || Aug 2024- Oct 2024

- Developed IoT-based medical devices including an alternate nostril breathing device and robotic arm prototype.
- Integrated sensors and micro-stepper motors; implemented control logic and testing.

Bot Shreyasi | April 2024 -August 2024

Embedded systems engineer

- Worked on autonomous humanoid robot development.
- Implemented sensor fusion and computer vision using Raspberry Pi 5, IMX-708 camera, and navigation stack.
- Contributed to path planning, SLAM, and real-time perception tasks.

INTERNSHIPS

AKGEC Skills Foundation | Sep 2023 -Oct 2023

- Worked with IR, temperature, ultrasonic and humidity sensors.
- Learned basics of Linux, shell scripting, and microcontroller interfacing.

PROJECTS

- **Zunpure: IOT based smart RO** | Firmware and hardware development, debugging and testing.
- **ZUN-EM**: Energy monitor used in solar system. Debugged and tested the functionality.
- **Automatic door lock unlock system** | IR sensor to detect the person at the door and used solenoid lock for automatic door lock and unlock using ESP 32.
- **Pranayam device** | Device for autonomous breathing using micro stepper motors.
- **Robotic arm** | Implemented forward and reverse kinematics for waste picking.
- **ROBO Restaurant** | Robot to serve food to guests using autonomous navigation.
- **Human counter** | To count the number of people inside a room a IR sensor is used with ESP32. Number of person is being displayed on LCD screen at the door of the room. It was based on up-down counter.
- **Library automation** | Autonomous book issuing system. Noise controlling system. Occupancy in library display on gate using LCD screen
- **Competitive Robots** | Developed a Robot having Raspberry pi 5, implemented sensor fusion, NAV stack, visualized it in RVIZ2, SLAM also fabricated PCB and various mechanism of robots.

POWERGRID | July 2023 - August 2023

- Understood design and functioning of control panels used in grids.
- Observed machinery used in power distribution environments.

Verzeo | April 2021 - July 2021

- Built basic and advanced embedded circuits.
- Gained foundational working knowledge of IoT hardware.

AWARDS AND HONOR

- AIR 15 at DD Robocon 2022
- Secured 5th Rank at TRYST IIT Delhi Startup Deck
- Won 3rd Prize in Inter-College Electronics Competition