Praveen Kumar Patel

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Electronics and Communication Engineering student with hands-on experience in C++, Python, and embedded systems, building real-time IoT and machine learning projects. Developed smart helmet, eye-state detection, and sound monitoring systems, integrating firmware, backend APIs, and dashboards for practical applications.

Education

2024 – 2028 **VIT Bhopal University**, Madhya Pradesh, India
Bachelor of Engineering in **Electronics and Communication Engineering** (Current CGPA: 9.7/10, 1st Sem: 10 GPA)

2024 **Government Model School**, Mhow, Indore
Higher Secondary (Class XII) (Score: 95.6%)

2022 **Government Model School**, Mhow, Indore
Secondary School (Class X) (Score: 96.2%)

Skills & Certifications

Technical Skills	C++, Data Structures & Algorithms, Python, Embedded Systems, Microcontrollers (ESP32 / Arduino), IoT, Basic Machine Learning
Soft Skills	Problem-solving, Teamwork, Communication, Time Management, Adaptability, Quick Learner
Tools & Technologies	ESP32, Arduino, Firebase, React.js (Basic), GitHub, OpenCV, TensorFlow, PyTorch, MATLAB
Certifications	NPTEL – Programming in C++ (12-week), Data Structures & Algorithms (Online Certification), Python Programming (HackerEarth)

WORK EXPERIENCE & PROJECTS

Software & IoT Developer – Self-Driven Projects Oct 2025 – Dec 2025

- Developed **C++ firmware for ESP32** to process real-time sensor data and detect accident events for a smart helmet.
- Implemented **backend APIs** to trigger **WhatsApp and email alerts within 3 seconds**, including GPS location.
- Designed **offline-safe logic** to ensure alert reliability during network failure.

Machine Learning & Computer Vision Developer Jul 2025 – Aug 2025

- Built a Python-based ML pipeline trained on **85,000+ images** to classify eye states (open/closed).
- Implemented **real-time webcam inference** for fatigue detection and optimized preprocessing for stable predictions.
- Integrated outputs into a **dashboard** for real-time monitoring.

IoT & Backend Developer – Sound Monitoring System Jan 2025 – Mar 2025

- Developed **C++ ESP32 firmware** to process **100+ readings/min** with threshold-based alerts.
- Built a **Node.js backend** for real-time data handling and notifications.
- Designed a **live dashboard** to visualize sound levels and alert status.

Achievements

- Ranked **425 globally** among **100,000+ participants** in **TCS CodeVita Season 13**.
- **District Topper (Indore)** in Higher Secondary Education, honored by the **Chief Minister**.
- Solved **250+ DSA problems** and earned **5 in C++ on HackerRank**; admitted under the **STAR Student category** at VIT Bhopal.
- Won **Second Prize** in an **Inter-College Research Paper and Idea Exhibition**.