

Umesh Kumar Rajbanshi

Electronics & Communication Engineer

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Dedicated Developer and Electronics Engineering graduate with a strong foundation in system architecture and a growing focus on integrating hardware with scalable software solutions. I pride myself on a disciplined approach to debugging and error handling, ensuring project stability through effective version control and CI/CD workflows. As a versatile and continuous learner, I am currently expanding my technical toolkit with containerization and cloud operations, committed to maintaining high standards in technical project management and system reliability.

Technical Skills

- **Languages:** Python, C, C++, JavaScript, SQL
- **Web Development:** Django, React, REST APIs, HTML/CSS
- **Electronics & Hardware:** Arduino, MATLAB, Sensor Integration (Bio-sensors), System Triggering & Alert Systems
- **AI/ML & Data Science:** Langchain, RAG, Transformers, Attention Mechanisms, CNN, RNN, YOLO, MIDAS
- **Cloud & DevOps:** AWS (EC2, S3, IAM, VPC), Docker, CI/CD, Git/GitHub
- **Tools:** PyTorch, Tensorflow, VS Code, Linux

Soft Skills

- **Problem Solving:** Disciplined Debugging & Error Handling
- **Management:** Technical Project Planning & Documentation
- **Research:** Technical Feasibility & System Architecture
- **Collaboration:** Open Source Contribution & Version Control

Major Projects

Voice Guided Object Detection and Navigation System (Blind Vision)

May, 2025 – Present

- Integrated YOLO and MIDAS models to facilitate real-time object detection and depth estimation for assistive navigation.
- Optimized integration logic to achieve high efficiency and low latency, essential for real-time mobile applications.
- Conducted technical feasibility research and architected the system to ensure a stable bridge between deep learning models and voice-guided output.

Minor Projects

Paralysis Patient Health Monitor System

Jul, 2024 – Apr, 2025

- Developed a comprehensive health monitoring system utilizing Arduino integrated with flex sensors and accelerometers to track patient movement.
- Implemented real-time biometric tracking for temperature and heart rate monitoring.
- Engineered a real-time triggering and alert system to notify caregivers in case of abnormal health readings or emergencies.

Personal Research & Open Source

Trading Dashboard (Current)

- Collaborating on a real-time trading dashboard utilizing Docker for containerized deployment and setting up automated CI/CD pipelines via GitHub Actions.
- Developed the UI using React and Lightweight Charts, establishing a stable backend foundation focused on data accuracy and system reliability.

Backend Research (GitHub Portfolio)

- Actively maintaining a portfolio of backend projects including Django-based applications and E-commerce architectures.
- Focus on writing clean, modular code and utilizing collaborative version control (Git) for project transparency and scalability.

Training / Certifications

AWS Cloud Foundations

2025

ACEM — In collaboration with Prix Academy (3 Weeks)

- Performed hands-on configuration of core services including EC2, S3, IAM, and VPC, focusing on secure infrastructure setup and resource management.
- Gained practical experience in monitoring system health and managing global cloud resources within the AWS Management Console.

Django Web Development

2025

ACEM (15 days)

- Developed a strong foundation in MVT architecture to build scalable web applications, focusing on REST API development and secure database management.
- Gained hands-on experience in implementing user authentication, CRUD operations, and integrating backend logic with modern frontend interfaces.

Education

Bachelor in Electronics and Communication Engineering

ACEM, Kathmandu

+2 Science

Adarsha Secondary School, Biratnagar

Languages

English, Nepali