

Vrushti Patel

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Education

Ahmedabad University, India

Bachelor of Technology (B.Tech) in Computer Science and Engineering
School of Engineering and Applied Science

Aug 2023 – Present

Embedded Systems & IoT Projects

Home Security System — Arduino, Python, RFID, Servo Motor

- Designed an IoT-based access control system using RFID authentication.
- Integrated servo-based locking mechanism and unauthorized-access alert system.

River Water Cleaner Boat — Arduino, DC Motors, Conveyor System

- Built an Arduino-controlled robotic boat to collect floating waste.
 - Implemented conveyor mechanism and weight measurement for collected waste.
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Academic & Research Projects

Traffic Light Optimization — Python, SUMO Simulation

- Optimized urban traffic flow using genetic algorithms and probabilistic models.

Deblurring and Enhancing Astrophotographs — Python, Digital Image Processing

- Designed PSF-based image restoration pipeline using star detection and sub-pixel centering.

Research Project: ACOUSLIC-AI (3D Ultrasound Segmentation) — Ongoing

- Working on 3D U-Net based segmentation to improve Dice coefficient accuracy.
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Software Projects

Virtual Assistant — MERN Stack

- Developing a web-based assistant supporting voice commands and task scheduling.

JavaScript Calculator — HTML, CSS, JavaScript

- Built a responsive calculator supporting arithmetic and advanced operations.
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Technical Skills

Languages: Python, C, Java, JavaScript, TypeScript

Embedded Systems: Arduino, Sensors, RFID, Servo Motors

Frameworks & Libraries: React, Node.js, Express.js, Django

Databases: MongoDB, MySQL, PostgreSQL

Tools: Docker, GitHub, GitLab, AWS (Basics), VS Code

Domains: Embedded Systems, IoT, Artificial Intelligence, Web Development

Certifications

- Data Analytics Job Simulation — Deloitte (Forage)
 - Visualizing Filters of a CNN — Coursera
 - Build a Computer Vision App with Azure — Microsoft (Coursera)
 - SQL Foundations — Microsoft (Coursera)
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Leadership & Volunteering

- Event Head — Ingenium Tech Fest 2025, Ahmedabad University
- Volunteer — Gyan Prakash Charitable Trust (Dec 2024)