Mrinank Gaur

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Professional Summary

Highly motivated Electronics and Communication Engineering undergraduate with strong foundations in full-stack web development, digital design, and robotics. Demonstrated ability to deliver real-world solutions—from embedded systems and SoC architectures to modern MERN applications. Known for a hands-on approach, rapid learning, and collaborative project work. Passionate about system integration, automation, and building tools that bridge hardware and software.

Education

Vellore Institute of Technology *2022–2026*
Bachelor of Technology in Electronics and Communication Engineering **CGPA: 8.94/10**

The Khaitan School *2022*
Class XIIth (CBSE) **Percentage: 89.2%**

Experience

Robotics Engineer Oct 2023 – May 2025
Technocrats Robotics, VIT University *Vellore, India*
- Designed and implemented 8-axis movement control and calibration for an autonomous rover project
- Integrated Arduino and Raspberry Pi with ROS for sensor fusion, motor control, and remote communication
- Collaborated with a team to develop modular software for real-time motion planning and diagnostics

Digital Design Intern May 2024 – July 2024
Maven Silicon *Chennai, India*
- Designed and implemented an APB to AHB bridge as part of a System-on-Chip (SoC) integration project
- Utilized VHDL and Verilog for RTL design and verification of bus protocols
- Worked with Cadence tools for simulation, synthesis, and functional verification of digital designs

Projects

ProdTrack – Productivity Tracker | *MongoDB, Express.js, React, Node.js, JWT* Jan 2025 – Mar 2025
- Developed **ProdTrack**, a full-stack task and productivity tracker web app using the MERN stack
- Implemented secure user authentication using JSON Web Tokens (JWT) stored in HTTP-only cookies
- Built RESTful APIs with Express.js and Node.js for managing tasks, updates, and user sessions
- Designed a responsive React frontend with contextual state management using hooks and context
- Integrated MongoDB for dynamic, schema-flexible task storage and scalability

Number Plate Recognition | *Python, OpenCV, EasyOCR, ESP32, HTML/CSS* Jan 2025 – Mar 2025
- Built a complete number plate recognition system integrating embedded hardware and computer vision
- Used ESP32-CAM to capture vehicle images and send them to a Python-based server via HTTP for processing
- Hosted a custom HTML/CSS web interface on the ESP32 to allow users to trigger image capture with a user-friendly GUI
- Applied OpenCV for image preprocessing and EasyOCR for extracting license plate text from images
- Enabled real-time image transmission and recognition over local network using lightweight protocols

Email Authentication Kit | *MongoDB, Express.js, React, Node.js, Nodemailer, Handlebars* Jan 2025 – Mar 2025
- Developed a full-stack email authentication system using the MERN stack with secure verification flow
- Integrated Nodemailer with Handlebars to send dynamic, well-formatted verification emails
- Implemented token-based email verification logic with expiration and secure user validation
- Created a responsive frontend in React with real-time form validation and feedback
- Built scalable RESTful APIs in Node.js and Express.js, with MongoDB for storing users and tokens

Technical Skills

Languages: Python, JavaScript, Java, VHDL, Verilog, C/C++, SQL (Postgres), HTML/CSS
Frameworks: React, Node.js, Express.js, Flask, FastAPI, Material-UI
Developer Tools: Git, Docker, Cadence, ESP32, Raspberry Pi, Arduino, VS Code
Libraries: OpenCV, EasyOCR, Handlebars, pandas, NumPy, Matplotlib
Other Technologies: MongoDB, PostgreSQL, JWT, Nodemailer, Redis, Celery, ROS