

ANUVAB DAS

Full-Stack Software & Embedded Systems Engineer

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PROFESSIONAL SUMMARY

Full-Stack & Embedded Systems Engineer. Third-year ECE student with a track record of shipping end-to-end solutions, from high-performance Rust desktop tools to production-grade shop-floor systems at Volvo Eicher. Expert in Next.js, Rust, and ESP32 firmware, with a focus on building high-impact, AI-integrated software.

EXPERIENCE

Software Engineering Intern - Summer 2026

Volvo Eicher Commercial Vehicles Ltd Pithampur plant, Indore

- Built a dual-platform production tracking system for VECV's Heavy Duty Truck Cab Facility; A Next.js 16 / React 19 shop-floor data entry portal identical to currently used spreadsheet systems, and a Flutter management analytics dashboard, both sharing a single Supabase/PostgreSQL backend with Row-Level Security and Realtime sync so both apps stay live-consistent.
- Designed and built a role-based technician certification & skills-matrix platform (React 19, TypeScript, Supabase) that replaced a manual, paper-based assessment process, using a server-side PostgreSQL RPC (SECURITY DEFINER) to make grading and promotion decisions tamper-proof.
- Worked across the full stack on both projects: Relational schema design, RLS policy authorship, real-time data sync, ExcelJS/PPTX report generation, and both web and cross-platform mobile frontends.

TECHNICAL SKILLS

Languages: JavaScript (ES6+), TypeScript, Python, Java, Dart, C, C++, Rust, HTML5, CSS3

Frontend & Mobile: React.js, Next.js, React Native, Flutter, TailwindCSS, Redux, Zustand, Vite

Backend & Cloud: Node.js, Express.js, Supabase, PostgreSQL, Firebase, Firestore, MongoDB

Desktop & Systems: Rust, Tauri v2, oxc-parser, tree-sitter, Rayon, portable-pty, WebGL / Three.js

Embedded & IoT: ESP32-S3, STM32F401CCU6, FreeRTOS, ESP-IDF, BLE, A2DP, DSP

Tools: Git, GitHub, Docker, VS Code, Postman, Figma, Gemini API, Agora RTC

PROJECTS

RepoScape, A Native Desktop Developer Tool

Rust · Tauri v2 · React 19 · TypeScript · oxc-parser · Gemini AI

- Built a native desktop application using Rust + Tauri v2 that indexes local codebases and renders an interactive force-directed dependency graph in both 2D and 3D.
- Implemented native-speed AST parsing via oxc-parser in Rust: Scans an entire ~1,850,000 line repository in 4.22 seconds on an Apple M4 MacBook Air (24GB RAM) without blocking the main thread, supporting tree-sitter for Python, Rust, Dart, C, and C++.
- Engineered blast-radius simulation: Select any node, simulate a refactor, and watch downstream impact color-code from breaking risk to type adjustment required via DFS traversal.
- Integrated OpenAI, Google Gemini & Local AI (oLlama, LM Studio, etc.) endpoints for automated semantic domain mapping, AI-powered refactoring that rewrites affected files to disk, and a floating file-scoped Q&A assistant.
- Built advanced analysis features including dead code detection, circular dependency highlighting, Git churn heatmap, CVE/OSV vulnerability scanning, and snapshot diffing via SQLite.

NexusAid, A Disaster Relief & Crowdfunding Platform (Team Project)

Next.js · Firebase · Solidity · Razorpay · Gemini AI

- Contributed to a Web3-integrated disaster relief platform built on Next.js 16 and Firebase, combining fiat donations via Razorpay with on-chain transparency via Solidity smart contracts on Polygon.
- Worked on developing database-backed backend features including the event feed, donation panels, and campaign management.
- Integrated Gemini AI for disaster intelligence monitoring and event description generation across a monorepo architecture with Next.js API routes.

Smart Helmet System, The Embedded Companion App & Firmware

Flutter · ESP32-S3 · FreeRTOS · STM32 · BLE · DSP

- Engineered a companion Flutter app with an AI voice assistant, Google Maps turn-by-turn navigation, STT/TTS, contact calling, and real-time BLE telemetry: The primary user-facing software layer for the system.

- Built an adaptive Active Noise Cancellation software pipeline with real-time DSP processing, dual-microphone feedback, and A2DP audio integration.
- Developed a dual-protocol wireless stack (BLE + A2DP) for synchronised audio and telemetry across helmet modules.
- Architected the underlying multi-MCU firmware (ESP32-S3/FreeRTOS, ATTINY85, STM32F401CCU6) with 5-sensor fusion for real-time crash detection, providing the hardware foundation the app and DSP pipeline run on.

Vantage AI, A Multi-Agent LinkedIn Content Platform

Next.js 16 · React 19 · TypeScript · SSE Streaming · Playwright · Vitest

- Architected a collaborative multi-agent ecosystem featuring a three-agent copywriting panel, bidirectional peer-critique arena, and a Master Synthesizer for recursive draft refinement.
- Implemented a self-optimizing RAG loop that captures live engagement metrics (views/likes) to automate few-shot learning for future generation cycles.
- Engineered a robust trend-scraping pipeline with multi-source failover and a four-persona AI focus-group simulation for pre-deployment A/B testing.
- Developed multi-provider LLM integration (Gemini, Anthropic, OpenRouter) with AES-256-GCM encryption for secure, database-free credential handling.

Momentum, A React Native Productivity App

React Native · Firebase · Zustand · Android Native Modules

- Engineered a rule-based recurrence engine for habit scheduling, and a real time multiplayer system for social focus sessions, wrapped in a hand-build neumorphic design system. Designed and shipped solo as a production React Native App, currently supporting ~10 active beta testers.
- Built a custom native Android module (DND-controller) in Java interfacing Android system APIs for automatic Do Not Disturb scheduling, functionality unavailable in standard RN libraries.
- Architected real-time Firebase sync (onSnapshot listeners across friends, messages, focus groups, notifications) with Zustand + AsyncStorage offline-first persistence, plus a full social layer of friend requests, live typing indicators, and group lobbies.

ACHIEVEMENTS & HACKATHONS

Finalist, Hacksagon 2026 Nationals, Organised by IEEE Nationals in collaboration with Student Chapter at Indian Institute of Information Technology and Management Gwalior, a national-level hardware and software innovation competition.

Finalist, Zyro 2026, Hardware and Software Hackathon at Kalyani Government Engineering College, organised by KGEC Robotics Society and IEEE KGEC Student Branch.

2nd Runners-Up, Tekathon 2026, State-level hackathon organised by Techno International Batanagar in collaboration with the Institutional Innovation Council (IIC).

2nd Runners-Up, ShowcaseX 2025, Organised by Google GDG On Campus RCCIIT

LEADERSHIP & EXTRACURRICULARS

IgniteX Club, RCCIIT - IoT & Robotics Sub-Core Associate | Dec 2025 – Present

- Mentored 15+ Junior Students on building a race/obstacle avoidance robot for the college annual technical event, Techtrix .

Student Member | Aug 2024 – Nov 2025

EDUCATION

B.Tech in Electronics & Communication Engineering | 2024 – 2028

RCC Institute of Information Technology, MAKAUT University

Class XII, CBSE | Delhi Public School, Ruby Park, Kolkata | 2024

Class X, CBSE | South Point High School, Kolkata | 2022