LAKSHAY NARANG

Software & Embedded Systems Engineer

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Electronics & Communication Engineering student (Batch 2025) with practical experience in embedded systems, drone simulation, and web development. I build things to learn — prototypes, competition entries, and course projects — with a focus on making technology useful for people who are often overlooked. Comfortable across the stack from hardware firmware to front-end UI; still growing, but serious about the craft.

TECHNICAL SKILLS

Languages	Python, C/C++, JavaScript, TypeScript, HTML, CSS, Bash, SQL
Frameworks	ROS2 Humble, MAVSDK, React, Node.js, FastAPI, Tailwind CSS, OpenCV
Platforms	PX4 SITL, Gazebo Harmonic, Linux (Ubuntu), ESP32, Cloudflare Workers
AI / ML	PyTorch (basics), OpenCV, pyzbar, Anthropic Claude API
Tools	Git, GitHub, VS Code, Figma, Docker (basics)

PROJECTS

SkyScan — Autonomous Drone Survey System | *PX4 SITL · ROS2 Humble · Gazebo Harmonic · MAVSDK · Python · OpenCV*

- Built a full autonomous lawnmower-survey drone stack for an intercollegiate UAV competition: boustrophedon waypoint generation (ENU→NED), offboard watchdog, and MAVSDK v3 async mission executor.
- Integrated a downward-facing camera on the x500_mono_cam model; implemented dual-engine QR detection (pyzbar + OpenCV QRCodeDetectorAruco) for robust detection across lighting conditions.
- Diagnosed and fixed complex simulation environment bugs — Gazebo GUI rendering issue, MAVSDK UDP protocol migration, NumPy 2.x / cv_bridge incompatibility, and PX4 world-loading env variable semantics.
- Wrote a shell alias/launcher system for reproducible dev environment setup across the team.

SignMind — Mental Wellness Platform for DHH Community | *React · Node.js · Tailwind CSS · Claude API · Cloudflare Pages*

- Built an assistive mental wellness web prototype for Deaf and Hard-of-Hearing users as a solo course project, deployed at signmind.pages.dev.
- Integrated Anthropic Claude API for AI-driven conversation flows; designed accessible UI with clear visual hierarchy suited for DHH interaction patterns.
- Presented to academic panel with a focus on honest capability framing and measurable social impact potential.

Parallel Plate Capacitor Physics Simulator | *Three.js · WebGL · PBR Rendering · Vanilla JS*

- Built a standalone interactive 3D physics simulator for an ECE lab project using Three.js with WebGL PBR rendering.
- Implemented real-time electric field-line visualization driven by user-adjustable plate parameters (separation, charge, area).

EXPERIENCE & COMPETITIONS

Innovation Course Project Lead 2025

- Identified SignMind as the problem statement for an innovation course; scoped, designed, and built the prototype solo from ideation to deployed web app.
- Delivered a final pitch to faculty panel emphasising social impact, technical feasibility, and honest claims about what the prototype does and does not do.

EDUCATION

B.Tech — Electronics & Communication Engineering Batch 2025

India · Relevant coursework: Embedded Systems, Signals & Systems, Digital Communication, Mathematics (PDEs)

ADDITIONAL

- Debate & Public Speaking — competitive debater; preference for plain, direct language that lands over formal vocabulary.
- Sustained interest in building for underserved communities — assistive technology, accessibility, and social-impact software.