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EXPERIENCE

Hertzwave Innovations Pvt Ltd

May 2026 – Present

- Software Engineer (May 2026 – Present)
Backend work across database-level tenant isolation, AI-assisted ESG reporting and the data pipelines under them.

Multi-tenant B2B ESG reporting platform (BRSR / GRI / GreenCo); 6-person product team (4 engineers, 2 QA).

Company: winner of the Times Internet Group Award for ESG and Consulting Advisory.

Third Eye Creative

Mar 2025 – Apr 2026

- Flutter Developer Intern (Mar 2025 – Jun 2025)
- Junior Fullstack Developer (Jul 2025 – Oct 2025)
- Fullstack Developer (Oct 2025 – Apr 2026)

CLOUD & DEVOPS

- **Moved Passiton's API to GCP Cloud Run with dual-track CI/CD.** At Third Eye Creative I led DevOps for Passiton, a freecycling marketplace app with 15,000+ users. I migrated its Flask APIs to FastAPI and moved the API from a single-core VPS to GCP Cloud Run and Cloud Scheduler, with GitHub Actions deploying development to the VPS and production to Cloud Run. The cutover had zero downtime, and production cloud spend stayed within a small monthly budget as the app grew.
- **Cut Shell's legacy cash-collection hosting cost 46%.** At Third Eye Creative I right-sized the cloud hosting of Shell's legacy end-of-day cash-collection and reconciliation system, which runs daily for about 350 Shell pumps across India. Downsizing its oversized compute instance cut annual infrastructure cost by 46%.
- **Migrated GHASStep's database and three APIs to DigitalOcean in 15 minutes.** At Third Eye Creative I moved GHASStep's database and three API apps off a cPanel staging server onto DigitalOcean App Platform. The cutover took 15 minutes with zero downtime.
- **One-button PeopleMS client builds, kept separate from the product codebase.** At Third Eye Creative, one client of PeopleMS, a multi-tenant HRMS, needed custom changes deployed on its own servers while the product needed a single clean codebase. I built separate product and client on-premise build tracks with GitHub Actions and Docker Hub, branched the client version off the product and set a team standard for where product and client features live. Shipping a client build went from ad-hoc manual work to a one-button pipeline that runs in minutes.
- **Upgraded Shell's end-of-life stack and containerized it in two weeks.** Shell's end-of-day cash-collection and reconciliation system, used by about 350 pumps, ran end-of-life PHP and Apache with its database inside the app server. I upgraded PHP 7 to 8 and Apache, moved the database off the app server to DigitalOcean, modernized the UI and containerized the stack, and verified against before-and-after snapshots that no financial records were lost.
- **Cut client build-and-deliver from a day to minutes with Jenkins.** Client builds and deploys were manual and stalled on environment setups and shared tokens. I built Jenkins pipelines that build Flutter APKs and deploy Dockerized APIs at the push of a button across five repos, cutting a day of ad hoc work to minutes, and added a free SonarQube quality gate that emailed developers each push's findings.

ARCHITECTURE & DESIGN

- **Led Passiton's team and designed a system that reached 15,000+ users.** At Third Eye Creative I led a 3-person team building Passiton, a freecycling marketplace app. I designed its entire database schema and system around the features likely to come, and owned the backend, DevOps, code review and the UX flow. Passiton launched in March 2026 and grew to 15,000+ users without any change to that original design.
- **Split GHASStep into three backends that scale on their own.** GHASStep's exam runs once or twice a year, so it shouldn't hold the main app's resources all year. I designed it as its own async FastAPI backend, one of three (exam, game and the main app) that scale up or down independently, and load-tested it locally at about 1,000 virtual users.
- **Designed a diagnostics-center app with slot-locked scheduling and branch-ready roles.** For HealthLabs, a diagnostics-center app, I designed the whole system on my own: appointment scheduling with slot locking to prevent double-booking, the data model, the admin flows, and a five-role access model built so new branches need no changes. Development hadn't reached testing by the time I moved on.
- **Designed PeopleMS's multi-tenant HR platform and led hardware vendor talks.** I designed PeopleMS, an HR management product covering attendance, payroll and leave, as a multi-tenant platform meant to scale to large organizations. When it restarted with a new team, I handled its DevOps and integrations, and I led talks with three facial-recognition hardware vendors for an attendance module meeting India's rules on surveillance equipment.

PERFORMANCE & REAL-TIME

- **Cut GHASStep's screen navigation from ~5 s to under 1 s.** At Third Eye Creative, navigating GHASStep, an exam-prep app, made 15–20 sequential API calls across the flow, about five per screen. I consolidated them into async FastAPI endpoints with caching, cutting navigation latency by more than 80%, from about 5 seconds to under 1.
- **Cut GHASStep's two-player score-update latency by over 90% with Redis pub/sub.** At Third Eye Creative I designed the game module of GHASStep, an exam-prep app, including a two-player mode, and synced scores between players over Redis pub/sub channels. Score updates went from 5 seconds to under 500 ms, and the module held a peak of about 500 concurrent players at a live college contest.
- **Built Passiton's curated Redis-backed feed: 300+ listings in under 2 s.** At Third Eye Creative I iterated the home feed of Passiton, a freecycling marketplace app, through three versions. The final version builds each user's curated feed from intersected Redis sorted sets, including distance-sorted listings, and loads 300+ listings in under 2 seconds.
- **Fixed a connection-pool bottleneck; uploads held 1,000 virtual users.** Passiton's listing-upload flow choked on its database connection pool under concurrent load. I enlarged the pool and cleaned up leftover connections, then load-tested the flow with JMeter up to 1,000 virtual users: it held with zero errors.
- **Cut Passiton's heavy-API response times about 40% with targeted indexes.** Passiton's heaviest API calls ran on complex joins across its listings, requests and user-profile tables. I added targeted PostgreSQL indexes for those queries and timed the calls in Postman before and after: response times fell about 40%.

DATA & RELIABILITY

- **Resolved a 1-hour GHASStep outage with a zero-downtime database cleanup.** At Third Eye Creative I traced a one-hour outage in GHASStep to base64 images stored inside database rows. A Python script moved the images to object storage without downtime, the database shrank by 60%, and the admin panel now uploads image URLs instead of base64 to prevent a repeat.
- **Restored a Shell service in 30 minutes by trimming its database 80%.** A cash-reconciliation service for Shell went down because its database had outgrown its size limit and was dropping connections. I removed millions of obsolete rows from years before, keeping the two most recent years as the client asked and preserving a backup, and service was back within 30 minutes of the report.

- **Migrated Passiton's ~8,000 records to Supabase with zero downtime.** At Third Eye Creative I moved Passiton's database from cPanel to a VPS PostgreSQL instance and then to Supabase, and its assets from local storage to Cloudinary and then Bunny CDN. About 8,000 records moved with zero downtime and full audit logs.
- **BillBridge: a Python invoice-extraction tool with 100% accuracy in testing.** At Third Eye Creative I built BillBridge, a drag-and-drop Python tool for a client that pulls data out of compressed batches of vendor invoices into one consolidated spreadsheet. It handled Turkish and Egyptian versions with two receipt formats each, processed typical batches of 5,000 invoices concurrently, and extracted with 100% accuracy in testing.
- **Gave every Passiton listing a CO2-saved figure with a self-improving fallback.** Passiton shows users how much CO2 their reused items save, but Climatiq had no figure for about 1 in 5 listings and was sometimes down. I built a fallback that averages Climatiq's past figures for items of the same weight and category, so every listing now gets a figure and the estimates sharpen as more listings come in.
- **Resolved production incidents on my own in 5 to 20 minutes each.** I handled production incidents independently at Third Eye Creative: a database server overflow fixed in 20 minutes, an admin-panel crash in 10, and a bad schema push rolled back in 5.

PRODUCT & APPS

- **Built NESmartConnect solo as an intern: an offline-first farm IoT controller.** Farmers ran their SMS-controlled devices by hand and worked around power cuts. As an intern I built NESmartConnect alone: a Flutter app that parses 30+ kinds of device SMS replies in the background and works offline, plus its API and admin panel. When Play Store policy blocked SMS-inbox parsing, I shipped it through the Indus App Store within three days.
- **Rescued Karnataka's climate-action dashboard and took it live statewide.** The dashboard that tracks Karnataka's State Action Plan on Climate Change came to me half-built: only login worked. As the sole engineer I redesigned its core tables and APIs, built the super-admin view of departmental progress over the plan's five years, and moved it to the government's servers with zero downtime. Forty departments use it, and the officials in charge praised its reliability.
- **Built aalishan001.com, a portfolio my bragDoc keeps current on its own.** Keeping up a social presence is hard for me, so I built a site that stays current with little effort: my bragDoc, GitHub and Medium feed it through my own publishing pipeline, open source as opencockpit. I designed the system and wrote the detailed specs, and built it with Claude Design and Claude Code in Astro. It scores 100 in Lighthouse for accessibility, best practices and SEO. | Live: <https://aalishan001.com> | opencockpit, the pipeline behind it: <https://github.com/aalishan001/opencockpit>
- **Moved GHASStep's game to subscriptions and solved Apple's new receipt check.** When GHASStep's players stopped buying in-game currency, the business moved the game module behind a subscription. I reworked the database, API and Flutter app for it, and on iOS worked out Apple's newly changed purchase-receipt verification while its documentation wasn't out yet.
- **Built Passiton's maps on OpenStreetMap with no paid map API.** Paid geocoding and geolocation APIs are expensive, so I built Passiton's maps on OpenStreetMap district and state data from the start. The admin panel toggles operational areas, draws custom radius zones and shows a heatmap of 'enable this area' requests, across every Indian district.
- **Got Passiton launch-ready: 300 listings live and test data wiped clean.** So Passiton's first users had real listings to browse on launch day, I ran the pre-launch listing operations and put up many of them myself. I also built a cascading cleanup in the admin panel that wiped connected test accounts and listings, and streamed runtime logs into the admin panel for ops monitoring.
- **Built GHASStep's in-app notes and moved its video to Bunny Stream.** GHASStep is a NEET PG prep app with about 1,200 users. I built in-app PDF notes in Flutter, uploaded from the Next.js admin panel to object storage, for 19 subjects' worth of courses, and moved lecture video from Cloudflare Stream, which was slow and buffered, to Bunny Stream.

- **Refactored GHASStep's app UI and designed 10+ admin-panel flows.** GHASStep's Flutter UI was slow and kept shifting under changing client requirements. I refactored it for speed and fewer clicks, designed and built more than 10 admin-panel flows, and was the bridge between the client and the frontend and backend engineers on a team of four.
- **Automated Backup Spares' lead follow-ups and modernized its website.** Backup Spares, a Bengaluru auto-parts sourcing platform with about 15,000 customers, chased leads by hand. Working alone for about two weeks as an intern, I set up push notifications, automated WhatsApp lead campaigns, confirmation emails for leads and bids, and a modernized, responsive website.
- **Designed and built a UPSC-prep app's Flutter interface from scratch.** As freelance work, I designed and built the Flutter interface of IAS Ally, a UPSC exam-prep app, on my own, including a heatmap calendar of the courses and questions a learner works through each day. The client stopped responding before it was finished.

LEADERSHIP & DELIVERY

- **Led client communication across up to six concurrent projects.** Without being asked, I became the technical contact on client calls at Third Eye Creative and made it the norm: over a hundred meetings, most client interaction on most projects, and requirements turned into system designs and roadmaps for up to six projects at once. I also reviewed code and managed pull requests for a team of four.
- **Hired and trained interns who became full-time lead developers.** I interviewed candidates and hired, trained and managed three interns over eight months, across development, DevOps and QA. The two who stayed were hired full time and now lead the very projects I trained them on, and they took over maintaining mine.
- **Trained about 70 government employees to run Karnataka's climate dashboard.** Once the climate-action dashboard was live, departments across Karnataka had to report through it. I ran a two-day hands-on workshop for about 70 government employees, and the departments now use it.
- **Managed releases for five apps across three app stores.** I managed releases and testing tracks for five client apps across Google Play, the App Store and the Indus App Store, about three production releases each.

AI & LLM SYSTEMS

- **Cut AI listing failures from 1 in 3 to 1 in 30.** Passiton turns an item's photos into a listing with Vertex AI, which at first returned broken JSON or hallucinated details on about 1 in 3 calls. I added output format checks, retries, a lower temperature and tuned token limits, and failures fell to 1 in 30 in testing. Nearly all of Passiton's 1,735 listings have been created this way.
- **Final-year AI assistant: rebuilt on Pinecone RAG after an OpenAI outage.** My final-year project was an AI assistant that summarizes PDFs and emails and schedules events from natural-language commands. Right before submission, a three-hour OpenAI outage broke the GPT-based version, so I rebuilt it on a Pinecone RAG pipeline with the Google Calendar API. It was graded 98/100.
- **Trained a text-to-speech model to recite Sanskrit in Vedic style.** A client wanted any Sanskrit text recited in traditional Vedic style. Over two weeks I compiled transliterations and translations of the Bhagavad Gita and trained a Coqui TTS model on four to five hours of recitation, which learned to recite its phrases in a priest-like voice. The client stopped responding and the project ended there.

SECURITY & MULTI-TENANCY

- **Built role-based access and privacy controls for a citizen services app.** For a government citizen services app, I designed modular role-based access for its department and admin side, enforced on every API and in the interface, so new roles need no code changes. I raised data-protection compliance myself and built the personal-data protections that passed a legal sign-off, and reworked the app's slow APIs.

- **Added per-IP rate limits and role-based access to Passiton before launch.** Before Passiton launched, I added per-IP rate limits to its OTP, API and AI-generation endpoints, so they couldn't be abused to drain the budget, and built JWT role-based access checks across the frontend and backend. It was preventive work, in place from day one.

TESTING & VERIFICATION

- **Built a free load-testing suite and found a hosting ceiling before launch.** Client apps shipped without any load testing, so I built a free, containerized suite: JMeter first, then k6 with Grafana for better reports, driven by a config of critical endpoints and producing client-ready sign-off reports. Before one government app launched, a 500-user test showed where its hosting tier topped out.

SKILLS

- **Languages:** TypeScript, JavaScript, Python, SQL, Dart, Kotlin, Java, C, Bash, Go (introductory), Rust (introductory)
- **Backend & Frameworks:** Node.js / Express, FastAPI, Flask, Next.js, React, Flutter, Capacitor.js, AsyncLocalStorage (request context), Headless-browser PDF rendering, Astro
- **Databases & Data:** PostgreSQL (advanced), Redis, MySQL (personally learned), MongoDB (personally learned), Neo4j (personally learned), Supabase, Firebase, Pandas, Tableau (personally learned), PostgreSQL declarative partitioning, Valkey
- **Cloud & Infrastructure:** GCP Cloud Run, GCP Cloud Scheduler, GCP IAM, GCP Billing, Vertex AI, Google Gemini, AWS EC2, AWS S3, DigitalOcean App Platform, DigitalOcean Droplets, DigitalOcean Storage, Vercel, Docker (proficient), Docker Hub, Bunny CDN, Cloudinary, Hostinger VPS, cPanel, Linux, Firebase Studio, Cloudflare DNS
- **AI Engineering:** LLM pipeline architecture, Provenance-based routing, Search grounding, RAG (Pinecone), LongLLMLingua compression, Token-level cost instrumentation, Multi-agent systems, Coqui TTS, OpenAI GPT API, Claude Code
- **APIs & Integrations:** Google Calendar API, Climatiq API, OpenStreetMap GeoJSON, Firebase Cloud Messaging (FCM), AISensy (WhatsApp)
- **Security:** PostgreSQL row-level security, Least-privilege access control, RBAC, JWT authentication, Rate limiting, DPDP compliance, k-anonymity, Content Security Policy
- **Tooling & QA:** Git (proficient), GitHub Actions, Jenkins, SonarQube, k6, Grafana, JMeter, Postman, Android Studio (proficient), Xcode, VS Code (proficient), Antigravity (proficient), Play Console, App Store Connect, Indus App Store, TestFlight, Jest (integration testing against real Postgres), TypeScript compiler API (static analysis), Differential testing, Mutation testing, Claude Design, Playwright, Lighthouse, axe-core

EDUCATION

B.E. in Computer Science & Engineering | Visvesvaraya Technological University — SJB Institute of Technology (SJBIT), Bengaluru | Graduated Jun 2025 | CGPA 7.36 / 10.0

Capstone: Smart Assistant — AI scheduling assistant (Google Calendar API, Pinecone RAG), graded 98/100

COMMUNITY & LEADERSHIP

- **Taught 90+ hours at Tessa Cloud; every student shipped a deployed project.** As a paid instructor at Tessa Cloud, I taught Python full stack and DSA over 90+ hours in three courses to nearly 50 students, running the class like a client project with real change requests through build, debug and deploy. Every student shipped a working full-stack project deployed on Vercel.
- **Hosted and produced Dev Dispatch, a tech podcast.** I hosted and produced two episodes of Dev Dispatch, a tech podcast about agentic misalignment and the AI buzzwords of the moment, averaging about 240 views each. | Dev Dispatch episode: <https://www.youtube.com/watch?v=L2DWwwmyi6k>

- **Volunteer with the Robin Hood Army's weekly food and teaching drives.** I volunteer with the Robin Hood Army, coordinating the planning messages for weekly drives that feed over a hundred people and teach about 80 children, from maths and spoken English to chess. I also give blood regularly.
- **Business-plan runner-up, hackathon finalist and club design head at SJBIT.** At SJBIT my team of three was runner-up of 25 teams at the Dynapreneur 2022 business plan competition with an idea for multi-level EV parking that also charges the cars, built into petrol pumps' unused space. I also reached the top five at several inter-collegiate hackathons and, as head of design for the Technical & Innovation Club, organized three events.