

Kannan S

MERN Stack Developer

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Profile Summary

Full Stack Developer with hands-on experience building and deploying end-to-end web applications using the MERN stack. Strong focus on backend development, authentication systems, payment integrations, and role-based access control. Driven to build scalable, secure, and maintainable software aligned with real-world business workflows.

Technical Skills

Languages: JavaScript, TypeScript, C, HTML, CSS

Libraries & Frameworks: Node.js, Express.js, React.js, Tailwind CSS, Bootstrap, React Router, EJS

Databases & Caching: MongoDB, Mongoose, MySQL, Redis, Firebase Firestore

AI & Integrations: Groq AI (Llama 3.3 70B), Google Gemini API, LLM API Integration, pdf-parse, Multer

Tools & Platforms: Git, GitHub, Postman, Nginx, PM2, AWS EC2, AWS S3, Docker

Design & Prototyping: Figma

Concepts: REST APIs, WebRTC, Socket.io, CI/CD, Data Structures, Algorithms

Projects

zenCode: Real-Time Coding Interview Platform

Live | GitHub

React, Node.js, Express.js, MongoDB, Redis, Docker, Socket.io, WebRTC, TypeScript, AWS

- Engineered a **real-time collaborative workspace** combining **WebRTC** peer-to-peer video/audio, a **Socket.io-synchronized Monaco Editor** shared between mentor and candidate, **in-session chat** with typing indicators, and live code execution result broadcasting — all within a single resizable panel layout.
- Built an isolated **Docker-based code execution engine** (Python/Node.js) with Base64 command tunneling for shell injection prevention, **Redis rate-limiting** (20 req/min), and a marker-based **hidden test case evaluator** achieving sub-second execution times.
- Architected a secure **Express.js & MongoDB** backend following **layered clean architecture** (Routes → Controllers → Services → Repositories), with **JWT + Google OAuth** authentication and **Redis-backed** session and OTP management.
- Integrated the **Google Gemini API** to deliver context-aware, progressive **AI programming hints** per problem without exposing solutions, and built a **Stripe subscription billing system** with **webhook-based lifecycle management** to gate premium content access.
- Configured an **automated CI/CD pipeline** via **GitHub Actions** to build and deploy the full-stack application to **AWS EC2**, with **Nginx** as a reverse proxy, **PM2** for process management, and **AWS S3** for mentor avatar storage via presigned URLs.

SkillMount: AI-Powered Resume Analysis & Career Intelligence Platform

GitHub

React, Node.js, Express.js, MongoDB, TypeScript, Groq AI

- Built a **modular monolith** backend with 7 independent feature modules designed for microservices migration.
- Integrated **Groq AI (Llama 3.3 70B)** to analyze resumes and return structured JSON with ATS score, strengths, weaknesses, and improvement suggestions.
- Implemented **skill gap detection** by diffing resume skills against target job role datasets, with mapped course recommendations.
- Built **career pivot prediction** engine scoring all job roles by skill match percentage with transition difficulty labels.
- Developed **CV tailoring** feature using AI to rewrite resume sections per job description, with auto-apply stub for future Chrome extension integration.
- Implemented **JWT-based auth** with role-based access — users manage their own resumes, admins review all resumes and approve career paths via admin vault.

Chapterless: E-Commerce Bookstore Platform

Live | GitHub

Node.js, Express.js, MongoDB, EJS, Bootstrap, Razorpay

- Engineered a **full-stack e-commerce platform** with inventory-aware ordering, dynamic pricing, and scalable product catalog architecture.

- Built a **secure authentication system** using session-based auth, OTP verification, and **role-based access control** for admin/user separation.
- Integrated **Razorpay payment gateway** with server-side **signature verification**, ensuring transaction integrity and preventing tampered payments.
- Designed a **complex order and refund system** handling lifecycle states, partial cancellations, returns, and **payment-method-aware wallet refunds**.
- Developed a **promotion and incentive engine** combining coupons, category/product offers, and a **referral system** with wallet-based rewards and usage constraints.

Automatic Self-Parking Car

Sree Narayana Polytechnic College, 2023

C, Arduino, Ultrasonic Sensor, IR Sensors, Servo Motors, H-Bridge Driver

- Led a team in designing and developing an **autonomous self-parking car** using Arduino, ultrasonic and IR sensors, servo motors, and H-bridge motor drivers.
- Implemented **parking logic in C** for real-time obstacle detection, distance measurement, and motor control with precise sensor-to-actuator signal handling.
- Designed and integrated **hardware components**, ensuring reliable interaction between sensors, microcontroller, and motor systems across all development phases.
- Developed and tested **control sequences** for accurate parking alignment and collision avoidance, delivering a fully functional prototype.

Education

Diploma in Electronics Engineering

2020 – 2023

Sree Narayana Polytechnic College, Kerala