

Vaibhav Singh

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Full-Stack Engineer & Systems Builder. Crafting high-performance web applications and open-source infrastructure.

Education

9.25/10 **BTech in Information Technology**, Maharaja Surajmal Institute of Technology | New Delhi, India

Skills

Languages	TypeScript, JavaScript, C, SQL, HTML, CSS
Frameworks	ReactJS, NextJS 15, ExpressJS, Node.js, Tailwind CSS, NextAuth.js, mailparser
DevOps & Cloud	AWS (EC2, SES, Lambda, SNS, SQS, CloudFormation), Serverless Framework, Vercel, Linux System Administration
Tools & DBs	PostgreSQL, Supabase (Realtime WebSockets & Auth), Razorpay API, REST APIs, Git, GitHub

Projects

StockOS

[Github](#) [Website](#)

INSTITUTIONAL-GRADE WEALTH TERMINAL WRITTEN IN NEXTJS 15, EXPRESSJS AND SUPABASE

- Engineered a split-engine architecture using **Next.js 15 App Router** with a standalone **TypeScript/Express Pulse Sync Engine** worker managing **12 concurrent background jobs** with boot jitter protection.
- Architected a RAM-first dirty-write cache (**MarketStateCache**) that reevaluates prices in memory, reducing **Supabase** database writes by **60–80%** during live market sync.
- Engineered a grounded **AI Research Assistant** pipeline with multi-provider LLM failover (**Groq/OpenRouter**), provenance-tagged retrieval orchestration, dual-tier financial verification, and feedback-driven learning.
- Built an automated multi-broker **Portfolio Import Engine** supporting **Zerodha CSVs**, **Groww Excel** workbooks, and **CAMS/KFintech CAS PDF** statements with zero-config parsing.
- Implemented SaaS monetization using **Razorpay Webhooks** (HMAC-SHA256 verification), active plan protection, and duration-stacking plan extensions.

Flash Mail

[Github](#) [Website](#)

A FULLY SERVERLESS TEMPORARY EMAIL SERVICE WITH AWS SES/LAMBDA MAIL INGESTION AND PER-ADDRESS SUBDOMAIN ROTATION

- Migrated inbound mail processing from a self-hosted EC2 SMTP daemon to a fully serverless **AWS SES → SNS → Lambda** pipeline, provisioned end-to-end via **CloudFormation**, eliminating the dedicated mail server entirely.
- Designed idempotent message processing with a Postgres **UNIQUE** constraint and upsert-based deduplication to safely absorb SNS's at-least-once delivery semantics, backed by an **SQS dead-letter queue** for failure recovery.
- Engineered a deterministic per-address subdomain scheme (hash-derived, effectively unlimited namespace) to reduce exposure to third-party disposable-email blocklists, with zero added domain-management overhead.
- Implemented client-side HTML sanitization using **DOMPurify** and **JSDOM** to eliminate XSS vulnerabilities in untrusted email bodies.

Experience

Achievements

- Maintained a top academic record with a CGPA of **9.25 / 10** in B.Tech Information Technology at Maharaja Surajmal Institute of Technology.
- Independently architected, engineered, and shipped production-grade infrastructure including a split-engine wealth terminal with **RAM dirty-write caching** and a fully serverless AWS mail-receiving pipeline.