

# QlutchGrid Tech Stack

## Frontend (QG-UI)

- Next.js 15 (React 18, App Router) â web app framework and routing.
- TypeScript â static typing for safer front-end development.
- Tailwind CSS v4 â utility-first styling system.
- Ant Design â ready-made UI components for forms and tables.
- Axios â API client for calling backend services.
- Framer Motion â animations and UI transitions.
- @react-google-maps/api â maps and location-based UI.
- Firebase SDK â client-side messaging and integrations.
- Capacitor (Android) â wraps the web app as a mobile application.

## Backend (QG-BackEnd)

- NestJS 10 (Node.js) â main API framework and service layer.
- TypeScript â typed backend development.
- TypeORM â database ORM and migrations.
- PostgreSQL â primary relational database.
- JWT Auth (passport-jwt) â authentication and authorization.
- Swagger/OpenAPI â API documentation and testing.
- AWS S3 SDK â file uploads and storage integration.
- Razorpay â plan and booking payments.
- Web Push â browser notifications.
- Firebase Admin SDK â server-side integrations.

## Infrastructure & Ops

- PM2 â Node process manager for uptime and restarts.
- Nginx â reverse proxy and SSL termination.
- Docker (optional) â containerized deployment support.
- Amazon EC2 â current production hosting.

## Third-Party Integrations

- Surepass KYC APIs â PAN/GST verification during onboarding.
- MSG91 (DLT/SMS) â OTP and transaction messages.
- Razorpay â payment gateway for plans and bookings.
- Web Push (VAPID) â browser push notifications.