

MyGenesisfortune

Real Estate Platform — Project Handover Document

Prepared: July 2026 | Version 1.0

Covers: Web Platform · Mobile Application · Backend API · Deployment Infrastructure

1. Executive Summary

MyGenesisfortune is a multi-tenant, AI-powered real estate platform for the Kenyan market. It connects **property owners, agents, tenants, surveyors, landlords, and administrators** through a unified web application and a companion mobile app. Key differentiators include conversational AI-powered property search, M-Pesa payment integration, automated rent reminders, AI-driven maintenance triage, document verification, and real-time chat.

Component	Technology	Live URL
Web Frontend	React 19 + TypeScript + Vite + TailwindCSS 4	https://mygenesisfortune.com
Backend API	Node.js + Express + MongoDB + Redis	https://api.mygenesisfortune.com
Mobile App	React Native + Expo 54 (iOS / Android / Web)	Deep link: mygf://
Documentation Site	Docusaurus	https://docs.mygenesisfortune.com

2. System Architecture

High-Level Overview

- **Frontend** — React SPA served via Nginx inside Docker, proxied through nginx-proxy with Let's Encrypt SSL.
- **Backend** — Express REST API on port 5000, containerised with Node 20 Alpine.
- **Database** — MongoDB 7 (replica-set compatible, hosted on MongoDB Atlas in production).
- **Cache / Session** — Redis 7 Alpine for OTP tokens, rate-limit counters, and M-Pesa OAuth token caching.
- **Real-time** — Socket.IO WebSocket layer embedded in the backend.
- **Mobile** — Expo-managed React Native app, calls `https://api.mygenesisfortune.com/api/mobile/v1`.
- **Reverse Proxy** — jwilder/nginx-proxy with acme-companion for automatic SSL on all subdomains.

3. Deployment Infrastructure

3.1 Server

Item	Detail
Server IP	34.35.124.132
Hostname	mygenesisfortune
OS	Debian (Cloud)
Reverse Proxy	nginx-proxy + nginx-proxy-acme (Let's Encrypt)
Container Runtime	Docker + Docker Compose
Shared Network	<code>app-network</code> (external bridge — shared with other projects on server)

3.2 DNS Records

Record	Type	Value
mygenesisfortune.com	A	34.35.124.132
www.mygenesisfortune.com	A	34.35.124.132
api.mygenesisfortune.com	A	34.35.124.132
docs.mygenesisfortune.com	A	34.35.124.132

3.3 Docker Services

Container	Image	Role
mygenesisfortune-frontend	nginx:alpine (React build)	Serves web SPA
mygenesisfortune-backend	node:20-alpine	REST API + WebSocket
mygenesisfortune-mongodb	mongo:7.0	Primary database (host-bound port 27017)
mygenesisfortune-redis	redis:7-alpine	Cache / OTP / rate-limit (host-bound port 6379)
mygenesisfortune-docs	node (Docusaurus)	Documentation site
nginx-proxy	jwilder/nginx-proxy	Routes traffic by VIRTUAL_HOST
nginx-proxy-acme	nginxproxy/acme-companion	Manages Let's Encrypt SSL certs

3.4 SSL / TLS

All subdomains use **Let's Encrypt** certificates managed automatically by `nginx-proxy-acme`. Certificates auto-renew; no manual intervention required. `LETSencrypt_EMAIL` is set to `admin@dominicatechnologies.com`.

3.5 Deployment Commands

```
cd /opt/genesis/Genesis
git pull
docker compose up --build -d
```

4. User Roles

Role	Description
Admin	Full platform access, user management, analytics, feature toggles
Agent	Lists and manages properties, handles leads and viewings, receives commissions
Owner	Posts properties for sale, tracks leads and interested buyers
Landlord	Manages rental properties, rent schedules, tenants, maintenance

Tenant	Views properties, pays rent via M-Pesa, raises maintenance requests
Surveyor	Receives survey assignments, uploads reports, manages inspection tasks

5. Web Platform Features

5.1 Authentication

- Email/password registration with OTP email verification
- Google OAuth 2.0 sign-in
- JWT-based sessions (30-day expiry)
- Password reset via email OTP
- Rate-limited login and OTP endpoints
- bcrypt password hashing, RBAC middleware

5.2 Property Management

- Full CRUD for property listings (title, description, location, price, type, bedrooms, bathrooms, amenities, images)
- Image uploads via **Cloudinary**
- Property status: active, rented, sold, inactive
- Property boosting (featured listings)
- AI-powered semantic search via **Google Gemini / Groq** — understands natural language queries
- Location fuzzy matching and regional queries

5.3 Leads & Viewings

- Lead capture from property inquiries
- AI-powered lead scoring (engagement metrics, response time, intent signals)
- Viewing scheduling and appointment management
- Lead pipeline with status tracking
- Sales automation — AI deal closure detection

5.4 Payments (M-Pesa)

- STK Push (Lipa na M-Pesa) for tenant rent payments
- Paybill integration for subscriptions and recurring bills
- Till Number integration for one-time payments
- C2B (Customer-to-Business) callback handling
- B2C (Business-to-Customer) disbursements
- Payment status queries and history
- IP whitelisting and signature verification on callbacks

5.5 Rent Management

- Rent schedule upload via Excel
- Automated rent reminders (cron-based) sent via SMS/WhatsApp/email
- Rent payment tracking and arrears management
- Financial reports with ROI, cap rate, and investment analysis

5.6 Maintenance

- Tenant maintenance request submission
- AI-powered issue triage and priority scoring (Google Gemini)
- Assignment to service providers / technicians
- Status tracking (open → in-progress → resolved)

5.7 Document Verification

- AI-powered document analysis (title deeds, IDs, leases) via Google Gemini
- Authenticity scoring and risk flagging
- Verification audit trail

5.8 Surveyor Module

- Surveyor profile management (skills, location, availability)
- Smart surveyor-job matching based on location and skills
- Survey task assignments and report uploads
- Land search and valuation requests
- Chat-based surveyor discovery

5.9 Communications

- Real-time in-app chat (Socket.IO)
- WhatsApp messaging via **Twilio** (inbound + outbound)
- SMS notifications via **Twilio** and **Celcom Africa**
- Email notifications via Gmail SMTP / Gmail API
- Email inquiry tracking — Gmail API polling every 5 minutes
- Push notifications to web and mobile

5.10 Analytics & Reporting

- Property performance analytics (views, leads, conversions)
- AI-generated financial reports
- Admin dashboard (users, listings, revenue, usage)
- Feature usage tracking per user/subscription tier

6. Mobile Application

6.1 Overview

Item	Detail
Framework	React Native 0.81.5 with Expo 54
Language	TypeScript
Navigation	Expo Router (file-based)
Platforms	iOS, Android, Web
Deep Link Scheme	mygf://
API Base URL	https://api.mygenesistfortune.com/api/mobile/v1

6.2 Mobile Features

- Google Sign-In and Apple Authentication
- Role-specific dashboards (Agent, Tenant, Landlord, Owner, Surveyor)

- Property explorer and AI-powered search
- Real-time chat
- Push notifications (Expo Notifications)
- Document and image picker / camera integration
- Maps (Leaflet-based property location)
- Rent schedule viewing and payment initiation
- Maintenance request submission
- Financial reports
- Offline support (AsyncStorage)
- Secure token storage (expo-secure-store)

7. API Integrations

Service	Provider	Purpose
AI Property Search	Google Gemini 2.5 Flash/Pro	Semantic property search, document analysis, maintenance triage
AI Chat (RAG)	Groq (Llama models)	Conversational property discovery with strict data adherence
Authentication	Google OAuth 2.0	Google Sign-In for web and mobile
Mobile Auth	Apple Authentication	Apple Sign-In on iOS mobile
Payments	Safaricom M-Pesa Daraja API	STK push, C2B, B2C, Paybill, Till Number
SMS	Twilio	SMS notifications and alerts
WhatsApp	Twilio WhatsApp Business API	Inbound and outbound WhatsApp messaging
SMS (backup)	Celcom Africa	Alternative SMS provider for Kenya
Email	Gmail SMTP / Gmail API	Transactional emails and inquiry tracking
Image Storage	Cloudinary	Property image uploads, storage, and transformations
Real-time	Socket.IO	In-app chat and live notifications
Cache	Redis	OTP storage, M-Pesa token caching, rate limiting

8. API Endpoints Reference

8.1 Web API (/api/)

Route	Description
POST /api/auth/register	User registration
POST /api/auth/login	Login, returns JWT
POST /api/auth/verify-otp	Email OTP verification
POST /api/auth/forgot-password	Password reset request
GET /api/auth/google	Google OAuth sign-in
GET/PUT /api/users/profile	User profile management
GET /api/properties	List/search properties
POST /api/properties	Create property listing
PUT /api/properties/:id	Update property
DELETE /api/properties/:id	Remove property
POST /api/properties/smart-query	AI semantic property search
POST /api/payments/mpesa/stk-push	Initiate M-Pesa STK push
POST /api/payments/mpesa/c2b/callback	M-Pesa C2B callback
POST /api/payments/mpesa/b2c/result	M-Pesa B2C result
GET /api/payments/history	Payment history
GET /api/leads	List leads
POST /api/leads	Create lead
GET /api/maintenance	Maintenance requests
POST /api/maintenance	Submit maintenance request
GET /api/notifications	User notifications
POST /api/ai-chat	AI property search conversation
GET /api/financial-reports	Financial analysis reports

POST /api/verification	Document verification (AI)
GET /api/surveyor	Surveyor profile and tasks
POST /api/rent-schedules/upload	Upload Excel rent schedule
GET /api/tenants	Tenant management
GET /api/analytics	Property and platform analytics
GET /api/admin	Admin controls
POST /api/twilio/webhook	Twilio WhatsApp inbound webhook
POST /api/celcomafrika/sms	Send SMS via Celcom Africa
GET /api/health	Health check (DB, email, WebSocket, APIs)

8.2 Mobile API (/api/mobile/v1/)

Route Group	Description
/auth	Mobile registration, login, Google/Apple OAuth
/properties	Property listing and search
/users	Profile management
/payments	M-Pesa payment processing
/leads	Lead management
/tenants	Tenant operations
/maintenance	Maintenance requests
/rent-schedules	Rent schedule access
/chat	Messaging
/notifications	Push notifications
/agent	Agent-specific endpoints
/verification	Document verification

9. Database Schema

Collection	Description
users	All user accounts — email, password hash, role, profile data, OAuth IDs
properties	Property listings — title, location, price, type, images, status, owner
leads	Lead records with scoring, source, contact info, status
viewings	Property viewing bookings — date, status, property, tenant
maintenancerequests	Maintenance issues — description, priority (AI), status, assignee
rentschedules	Tenant rent payment schedules and due dates
payments	General payment records
b2ctransactions	M-Pesa Business-to-Customer transactions
c2btransactions	M-Pesa Customer-to-Business transactions
chats	Chat messages between users
conversations	Chat threads / conversation groups
notifications	Push and email notification records
authlogs	Authentication audit trail — logins, OTP attempts, failures
documentverifications	AI document analysis results and risk scores
financialreports	AI-generated property investment analysis
landsearchrequests	Land valuation and search requests
surveyreports	Surveyor inspection reports
surveytasks	Survey job assignments
technicians	Service provider / technician profiles
usagetrackings	Per-user feature usage (subscription tier enforcement)
valuationrequests	Property valuation requests
serviceproviders	Service provider directory
pendingwhatsapps	Queued outbound WhatsApp messages

10. Automated Jobs (Cron)

Job	Schedule	Description
Gmail Inquiry Polling	Every 5 minutes	Polls Gmail API for new property inquiry emails
Rent Reminders	Configurable	Sends SMS/WhatsApp/email reminders for upcoming rent due dates
Lead Scoring	Periodic	Recalculates lead quality scores based on engagement
DB Index Setup	On server start	Ensures MongoDB indexes are in place

11. Security

- **Authentication:** JWT (30-day), bcrypt password hashing, OTP verification
- **Authorization:** Role-Based Access Control (RBAC) middleware on all protected routes
- **HTTP Security:** Helmet.js headers, CORS whitelisting, XSS-clean, NoSQL injection prevention (express-mongo-sanitize)
- **Rate Limiting:** Redis-backed rate limiting on login, OTP, and general API routes
- **M-Pesa Callbacks:** IP whitelisting (Safaricom IP ranges), signature verification, token validation
- **SSL/TLS:** Let's Encrypt certificates on all public subdomains, auto-renewed
- **Container Security:** Non-root user execution (`nodejs:1001`), no secrets in images

12. Environment Variables

⚠ Never commit actual credentials to version control. All secrets are stored in `.env` on the server.

Variable	Purpose
NODE_ENV	production / development
PORT	API server port (5000)
MONGO_URI	MongoDB Atlas connection string

JWT_SECRET	JWT signing secret
JWT_EXPIRE	Token expiry (30d)
REDIS_URL	Redis connection string
FRONTEND_URL	CORS allowed origin
GOOGLE_CLIENT_ID	Google OAuth client ID
GOOGLE_CLIENT_SECRET	Google OAuth client secret
GEMINI_API_KEY	Google Gemini AI API key
GROQ_API_KEY	Groq AI API key (recommended primary)
MPESA_CONSUMER_KEY	Safaricom Daraja consumer key
MPESA_CONSUMER_SECRET	Safaricom Daraja consumer secret
MPESA_ENVIRONMENT	sandbox / production
MPESA_PAYBILL_SHORTCODE	M-Pesa Paybill number
MPESA_PAYBILL_PASSKEY	M-Pesa Paybill passkey
MPESA_TILL_NUMBER	M-Pesa Till number
MPESA_TILL_PASSKEY	M-Pesa Till passkey
MPESA_CALLBACK_URL	Public URL for M-Pesa callbacks
TWILIO_ACCOUNT_SID	Twilio account SID
TWILIO_AUTH_TOKEN	Twilio auth token
TWILIO_WHATSAPP_NUMBER	Twilio WhatsApp sandbox / business number
CELCOM_AFRICA_API_KEY	Celcom Africa SMS API key
CELCOM_AFRICA_PARTNER_ID	Celcom Africa partner ID
CELCOM_AFRICA_SHORTCODE	SMS sender shortcode
EMAIL_HOST	SMTP host (smtp.gmail.com)
EMAIL_USER	SMTP email address
EMAIL_PASSWORD	SMTP password / app password
CLOUDINARY_CLOUD_NAME	Cloudinary cloud name
CLOUDINARY_API_KEY	Cloudinary API key

CLOUDINARY_API_SECRET	Cloudinary API secret
LETSENCRYPT_EMAIL	Email for SSL cert notifications

13. Operational Notes

13.1 Useful Commands

Task	Command
Deploy latest	<code>cd /opt/genesis/Genesis && git pull && docker compose up --build -d</code>
View backend logs	<code>docker logs mygenesisfortune-backend -f</code>
View frontend logs	<code>docker logs mygenesisfortune-frontend -f</code>
Clear property dummy data	<code>docker exec mygenesisfortune-backend node scripts/clear-property-data.js</code>
Run seed data	<code>docker exec mygenesisfortune-backend node seed.js</code>
Check health	<code>curl https://api.mygensisfortune.com/api/health</code>
Restart all services	<code>docker compose restart</code>

13.2 Default Admin Account

Field	Value
Email	admin@mygenesisfortune.com
Password	Admin@2026!
Role	Admin

 Change the default admin password immediately in any production environment.

13.3 Key Repository Links

Repo	URL
Genesis (web + backend)	https://github.com/mikecurious/Genesis
Mobile App	~/Code/Mygf_Mobile (Expo project)

13.4 Known Issues / Notes

- The `mygenesisfortune-docs` container shows as *unhealthy* — investigate healthcheck configuration if docs site needs to be live.
 - Google OAuth is configured but requires valid `GOOGLE_CLIENT_ID` and `GOOGLE_CLIENT_SECRET` to be set in the server `.env` file.
 - M-Pesa callbacks must come from Safaricom IP ranges — ensure server firewall allows these.
 - Gmail API polling for email inquiries requires a valid refresh token — regenerate using `backend/scripts/gmail-auth.js` if emails stop tracking.
 - Celcom Africa SMS is configured as a backup SMS provider alongside Twilio.
-