TRICODE PRO LTD

RC 7670471

Date:	19 October 2025
Product	**TRICODE PRO LTD – NPF Surveillance and Vigilance System (NPF SafeAlert)** PRD
Partner:	**CRYTOFY DIGITAL SERVICES LTD** RC: 7019763
Product Owner	The Nigeria Police Force (NPF)
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DevOps & Cloud	**TRICODE Development Infrastructure CI/CD Setup**
Version:	**1.2**
Appral Status:	**Pending**

EXECUTIVE SUMMARY

The **NPF Surveillance and Vigilance System (NPF-SVS or SafeAlert)** is a **nationwide emergency response and citizen safety platform** designed for the **Nigeria Police Force (NPF)**.
It provides **real-time reporting**, **AI-driven triage**, **identity verification**, and **rapid deployment** of responders via a cloud-based command dashboard.

"To make every Nigerian's safety just one tap away — connecting citizens and police through trust, speed, and technology."

Developed and maintained by **TRICODE PRO LIMITED**, the SVS will be jointly supervised under a newly proposed **Police Geospatial Intelligence & Surveillance (PGIS) Department**, ensuring sustainable deployment, data integrity, and operational transparency.

2. PROPOSAL FOR NEW DEPARTMENT

Creation of the NPF PGIS Department

Department Name:
Police Geospatial Intelligence & Surveillance (PGIS)

Purpose:
To manage, monitor, and maintain digital surveillance, mapping, and intelligence tools — including the **SVS mobile app**, **command dashboard**, **AI-based threat detection**, and **national geo-security database**.

Functions:

1. Operate the **SVS national control center**.
2. Manage **real-time data and geospatial analytics**.
3. Coordinate **multi-agency intelligence sharing**.
4. Maintain **24/7 technical support and cybersecurity oversight**.
5. Supervise **mobile, desktop, and web-based SVS operations**.

Operational Structure:

- **Director, PGIS (DIG/CP-level)**
- **Regional Command ICT Units (6 Geo-political zones)**
- **SVS Technical Maintenance Team (TRICODE PRO LTD partnership)**
- **Data & AI Surveillance Analysts**
- **Public Liaison Desk Officers**

3. CORE OBJECTIVES

- Build a **secure, AI-enabled emergency response platform** for Nigeria.
- Establish **verified digital identities** for every citizen and resident.
- Enable **data-driven policing** through geospatial analytics.
- Foster public trust via **accountability and transparency** in police-citizen interactions.

4. USER STORY & POLICY UPDATE

As a Citizen (Nigerian)

- I register using **NIN, phone number, email, and live-verified address**.
- I can report emergencies or crimes and receive rapid help.
- I am responsible for truthful alerts — repeated false alarms will attract sanctions.

As a Foreigner

- I register with **international passport**, email, and verified address.
- I can use the SOS system for emergency help while in Nigeria.

As a Police Officer

- I receive verified incident alerts and navigate via live map to victims.
- My identity and actions are logged and reviewable for transparency.

As an Admin / Command Center Officer

- I monitor all active alerts nationwide, assign response teams, and manage units via **AI-assisted dashboards**.

5. USER BEHAVIOR & DISCIPLINARY SYSTEM

False Alarm Policy

To ensure responsible usage and prevent abuse of the SVS system:

Offense	System Action
1st False Alarm	Warning issued; account flagged.
2nd False Alarm	2nd warning; account temporarily suspended for **7 days**.
3rd False Alarm	Permanent suspension for **21 days** + ₦5,000 fine (digital payment link).
Repeated Offense	Permanent ban + reported to the PGIS database.

Detection Mechanism:

- Verified by **response unit report** and **GPS check** (false alarm occurs when no real incident or inconsistent location/evidence).
- AI monitoring tracks patterns of repeated non-verified alerts.

Accountability Integration:

- All sanctions are automated and logged under the **user's verified identity (NIN/Passport)**.
- Notification sent via SMS + email with appeal option to PGIS admin.

6. USER JOURNEY

Registration

1. User enters **NIN / Passport**, email, phone, and address.
2. System cross-verifies identity via **NIMC / Immigration APIs**.
3. Address verified via **live GPS coordinates**.
4. User receives **digital SafeAlert ID**.

Emergency Reporting

1. Tap "SOS" → sends live location, timestamp, and optional media.

2. Dispatch center receives report instantly.
3. Patrol unit assigned automatically (nearest available).
4. Citizen tracks response → receives status updates.
5. After resolution → feedback & rating option.

Behavioral Monitoring

1. AI checks for report authenticity via location/audio consistency.
2. Flagged reports go to human review.
3. Repeat offenders automatically sanctioned.

2. PROJECT CONTEXT

Challenges to Solve

Challenge	Proposed Solution
Fake reports and false addresses	Verification via **NIN (National Identity Number)** and **live GPS address matching**.
Unverified foreign users	Onboarding with **international passport verification**.
Delayed response	Direct GPS-based dispatch routing to the **nearest patrol team**.
Communication barriers	Multilingual voice & chat reporting (English, Hausa, Yoruba, Igbo).
Lack of public trust	Transparent feedback system + verified officer identification.

USER STORY

As a Nigerian Citizen:

- I want to **register using my NIN, phone number, and verified home address**,
- So that I can report emergencies and receive fast response from verified police officers.
- My address should be validated using **real-time GPS verification** to prevent fake locations.

As a Foreigner:

- I want to register with my **international passport**, email, and phone number.
- I should also have my **residential address auto-verified via live location**.

As a Police Officer (PMF, IRT, RRS, etc.):

- I want to receive **verified incident alerts** near my assigned zone.
- I can view **citizen location, evidence, and profile verification status** before dispatch.
- My actions (en route, arrived, resolved) are logged and monitored for accountability.

As a Command Center Administrator:

- I want to view **all ongoing alerts on a live map**, assign patrols, and monitor real-time response.
- I can generate reports, analyze heatmaps, and manage police unit performance metrics.

USER JOURNEY

Onboarding Flow

1. **Launch App → Register**
   - Nigerian users enter: **NIN + Phone + Email + Address**
   - Foreign users enter: **Passport + Phone + Email + Address**
2. **Live Location Verification**
   - System checks that address coordinates match live GPS location.
   - If mismatch, user prompted to reverify.
3. **Profile Approved**
   - Once verified, user receives a *digital SafeAlert ID*.

Emergency Flow (Citizen)

1. Tap **SOS Button** (visible on home screen).
2. System sends **GPS location**, **user ID**, and optional **media (photo/audio/video)**.
3. Nearest command center receives the case in **<3 seconds**.
4. Dispatcher assigns nearest patrol (AI-based distance + traffic scoring).
5. Citizen sees live status — *"Officer en route → Arrived → Case closed."*
6. Citizen rates response and can follow case progress via unique **Case ID**.

Police Flow

1. Officer receives assigned incident with **map route & citizen data**.
2. Officer identity is verified via **QR code / NPF ID validation**.
3. Officer uploads field report + photo/video evidence.
4. Command center logs completion and updates metrics.

Admin / Command Flow

1. Dashboard view of all alerts nationwide (map overlay).
2. AI triage sorts alerts by urgency and proximity.
3. Command assigns case and monitors patrol unit ETA.
4. System auto-logs response times, officer activity, and success rate.

TARGET MARKET

Segment	Description	Population Reach
Urban Residents	Lagos, Abuja, Port Harcourt — where crime and emergency response demand is highest.	~45M
Rural Communities	For road safety, banditry alerts, kidnapping, etc.	~35M
Commuters / Drivers	Includes Bolt, Uber, and private drivers using mobile panic alerts.	~12M
Foreign Nationals	Visitors, NGOs, embassy staff, and residents using passport verification.	~1.5M
Corporate Clients	Banks, malls, schools, security firms using enterprise dashboard.	~3,000 institutions

Market Entry Plan:

1. **Pilot** in Lagos & Abuja → 500,000 users.
2. **Phase II:** 10 states (integration with 112).
3. **Phase III:** Nationwide adoption → integration with FRSC, NSCDC, NEMA.

DATABASE DESIGN & VERIFICATION LOGIC

Core Database Tables

Table	Key Fields	Purpose
Users	user_id (UUID), name, NIN/passport, email, phone, role, address, lat, long, verified_status	Store citizen & police registration data.
Reports	report_id, user_id, type, description, media_url, status, created_at, updated_at	Log emergency reports and evidence.
Verification	user_id, NIN/passport_no, address_lat, address_long, live_lat, live_long, verification_status, timestamp	Cross-checks user address via GPS.
PoliceUnits	unit_id, name, division, region, vehicle_no, officer_ids[]	Track active response teams.
Responses	response_id, report_id, unit_id, status, dispatch_time, arrival_time, feedback_score	Monitor operational response metrics.
Analytics	region, incident_type, frequency, response_time_avg, risk_score	For command center insights.

Verification Logic

1. **Citizen Registration**
   - NIN/Passport validated via **NIMC API / Immigration API**.
   - Address GPS (captured from device) must match registered address within ±200m.
   - Status = VERIFIED or FLAGGED.
2. **Live Verification**
   - During emergency, system verifies if alert location matches user's registered address.
   - Prevents misuse (fake reports, prank calls).
3. **Foreign User Flow**
   - Passport number validated through Immigration database.
   - Visa category stored for additional profiling (optional integration).

7. TARGET MARKET

Segment	Description
Urban Citizens	Focused on Lagos, Abuja, Port Harcourt for first pilot.
Rural Communities	Low-network support via SMS/USSD alerts.
Corporate Clients	Institutions needing secure police link (schools, banks, malls).
Foreign Nationals	Using passport for temporary registration and emergency support.

8. DATABASE & VERIFICATION SYSTEM

Primary Tables

Table	Description
Users	NIN/Passport, name, phone, address, lat-long, verified_status, sanctions_count.
Reports	report_id, user_id, type, location, media, verified_status, time_created.
PoliceUnits	officer_id, name, division, GPS, assigned_case_id, rank.
Sanctions	user_id, offense_count, status (warning/suspended/banned), fine_amount, timestamp.
Analytics	region, frequency, response_time, false_alarm_rate, verified_cases.

Verification Process

1. NIN → validated via **NIMC API**.
2. Address → validated using **GPS proximity algorithm**.
3. Foreign Passport → validated via **Immigration API**.
4. Duplicate prevention via hashed biometric key (fingerprint or Face ID).

9. TECHNOLOGY STACK

Layer	Tools
Frontend	Flutter (citizen app) Next.js webapp
Backend	Node.js + Django REST Framework
Database	PostgreSQL + Firebase
Hosting	AWS EC2 + Cloudflare
Verification APIs	NIMC, Immigration, Google Maps
Security	AES-256, JWT, 2FA, SSL
Notifications	Firebase, Twilio, SMS fallback

CONTROL STACK

Layer	Tools
Frontend	React Native (mobile), React.js (admin web)
Backend	Node.js (Express) + Django REST API
Database	MogoDB, PostgreSQL + Firebase Firestore
Verification API	NIMC NIN API, Nigeria Immigration API
Location Services	Google Maps API + OpenStreetMap
Hosting	AWS EC2 + Firebase Cloud Functions
Security	AES-256 encryption, JWT Auth, SSL, biometric login
Notifications	Firebase Cloud Messaging, Twilio SMS, USSD triggers

PRIVACY & SECURITY

- End-to-end encryption of data streams (TLS 1.3).

- NIN/passport data stored under compliance with **NDPA 2023 & GDPR**.
- Users can delete data via "Right to Erasure" (per NDPA).
- All access logged in **RBAC-based audit trail** for accountability.

MVP → FULL-SCALE EVOLUTION

Phase	Features
MVP (Q1–Q2 2026)	NIN/Passport verification, SOS alerts, GPS tracking, incident reports, dashboard, notifications.
Phase 2 (Q3–Q4 2026)	Voice-activated SOS, AI triage, geofencing, trusted contacts, leaderboard, offline SMS mode.
Phase 3 (2027)	Multi-agency integration (FRSC, NEMA), predictive analytics, bodycam streaming, enterprise dashboard, zero-data access.

10. AI & ANALYTICS LAYER

- **AI Triage:** Classifies urgency (accident, crime, distress, etc.).
- **Behavioral AI:** Detects false alarms via location/pattern mismatches.
- **Predictive Mapping:** Identifies crime hotspots via geospatial data.
- **Leaderboards:** Measures police unit performance by response time.

11. IMPLEMENTATION PLAN

Phase	Timeline	Deliverables
Phase 1 (MVP)	Q1–Q2 2026	Citizen app (Android), dashboard, GPS verification, NIN/Passport registration, false alarm tracker.
Phase 2 (Smart Layer)	Q3–Q4 2026	Voice SOS, AI triage, smartwear integration, sanction automation, PGIS dashboard.
Phase 3 (Full Launch)	2027	Nationwide rollout, zero-data access, predictive analytics, drone/bodycam integration.

12. GOVERNANCE & COMPLIANCE

- Operated by **NPF PGIS Department**.
- Managed technically by **TRICODE PRO LTD** under renewable MOU.
- Data compliance: **NDPA 2023**, **Cybercrime Act**, and **NITDA standards**.
- All actions logged under **immutable audit records** (blockchain-ready format).

13. SUCCESS METRICS

KPI	Target
Verified users	1.5M (Year 1)
Response time	<5 mins in urban, <10 mins rural
False alarm rate	<2%
Positive feedback	90%+
Operational PGIS units	37 commands (36 states + FCT)

14. FUNDING & SUSTAINABILITY

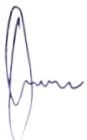
- **Government:** Ministry of Police Affairs digital modernization budget.
- **Private Partnerships:** CSR sponsorship (banks, telcos).
- **Grants:** TEF, World Bank, Google Startups Africa.
- **Maintenance:** Annual operational funding under PGIS department.

15. CONCLUSION

The **NPF Surveillance & Vigilance System (SafeAlert)** establishes a new era of **digital policing in Nigeria**. Through its integration of **identity verification, geospatial intelligence, AI triage, and behavioral sanctions**, it ensures that **citizens are protected, false alarms are penalized, and real emergencies receive instant response**.

The proposed **PGIS Department** will institutionalize this innovation — positioning Nigeria as a leader in **tech-driven public safety across Africa.**

Date: 08-09-2025



Patrick Okechukwu **(CEO)**

CRYTOFY DIGITAL SERVICE LTD

Date: 07-09-2025

Luke Okagha

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CEO / P.M