Stratos

— PRE-SEED · ₦9,000,000 MVP RAISE · ENUGU, NIGERIA

Patroller: autonomous security for the physical world.

An AI patrol robot for banks, warehouses and gated estates, built software-first in Nigeria.



● DESIGN CONCEPT · NOT A PHOTOGRAPH

— THE PROBLEM

Night security is a machine's job, done by tired people.

Coverage gaps

One guard, one post. Perimeters and aisles go unwatched; attention drops between 1am and 4am.

No evidence trail

Incidents found next morning. No footage, no timestamps, no proof of patrol.

Slow escalation

Owners and police hear after the fact. Alerts depend on someone noticing.

Guarding is expensive

Guards earn ₦45k–₦100k a month,[2] but clients often pay ~₦150k per guard. A 24/7 post needs 2 to 3.

Enugu State police reported arresting 130 robbery suspects and 450 for burglary, stealing and related crimes in 2024 alone.[4]

We don't replace guards. We multiply their effectiveness.

24/7 without fatigue
Same patrol quality at 3am as at 9pm.

Faster detection
Intruders flagged in seconds, with live video.

Lower cost per area
One robot covers several guard posts' ground.

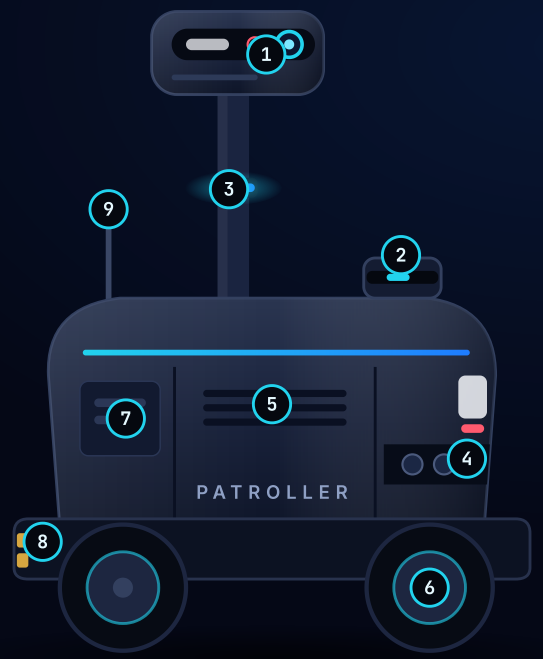
Beats static CCTV
Moves to the problem, lights it up, talks to it.

— THE SOLUTION · FUNDED MVP

Meet Patroller.

It patrols a site on its own all night, sees in the dark, detects intruders with on-board AI and hands control to a human in seconds.

- ✓ **Autonomous patrol.** Follows predefined routes around a controlled site using a SLAM map and Nav2, night after night.
- ✓ **Obstacle avoidance.** LiDAR + ultrasonic fusion keeps the robot clear of people, vehicles and new obstacles.
- ✓ **Person detection alerts.** On-board YOLO detects people after hours and pushes an alert with a snapshot to the operator.
- ✓ **Live video to operator.** Low-latency stream from the mast camera, including IR night vision, over Wi-Fi with 4G fallback.
- ✓ **Telemetry dashboard.** Live robot position on the site map, battery, health and an alert log for every patrol.
- ✓ **Manual teleop override.** An authorised operator can take control, drive the robot and speak through it at any time.
- ✓ **Autonomous docking.** Returns to its charging station on low battery and resumes the patrol schedule.
- ✓ **Offline alert.** If the robot suddenly goes silent (power cut, jammed signal, damage), the backend alerts the operator with its last location and final video.



1. PTZ RGB + IR camera
2. 360° LiDAR
3. Light ring
4. Ultrasonics
5. Jetson Orin Nano
6. 4WD + encoders
7. Li-ion + BMS
8. Dock contacts
9. 4G + Wi-Fi

Proposed configuration, subject to quotes & testing

— HOW IT WORKS

Patrol → perceive → decide → respond.

Patrol

Scheduled routes on a SLAM map with Nav2; LiDAR + ultrasonic obstacle avoidance.

Perceive

YOLO person detection on board, in RGB and infrared.

Decide

Site rules, e.g. a person in a restricted zone after hours.

Respond

Deter, alert with snapshot, open live video & control.

LAYER 1 · AUTONOMOUS

Track the person, spotlight, siren, spoken warning: “You are being recorded. Security has been notified.”

LAYER 2 · HUMAN IN THE LOOP

Alert to guard & owner, live video, manual drive and talk-through.

LAYER 3 · ESCALATION

Phone call & SMS, optional notice to local security services, full incident log.

— PROGRESS

The software already works in simulation.

Built solo in Webots + ROS 2 Jazzy: every simulation phase is complete. The ₦9M raise moves this stack onto real hardware.

Concept
Complete

Simulation
Complete

Physical MVP
Next · this raise

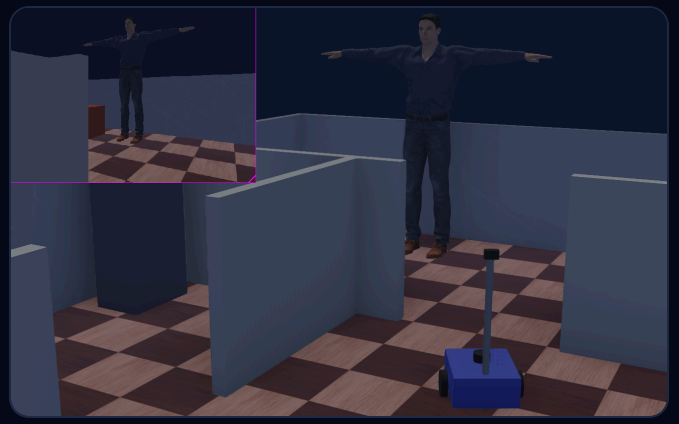
Production
Vision

Code: github.com/FranklinNwankwo/security-robot

- ✓ Webots world at realistic scale (office, mast camera)
- ✓ Differential drive, wheel odometry & IMU
- ✓ 2D LiDAR integration
- ✓ SLAM mapping of the site
- ✓ Nav2 autonomous navigation
- ✓ Looping multi-waypoint patrol
- ✓ Mast camera stream
- ✓ YOLO person detection
- ✓ Security decision engine (time rules, escalation)
- ✓ Prototype alert service & dashboard (FastAPI, local)
- ○ Physical hardware

— SIMULATION EVIDENCE

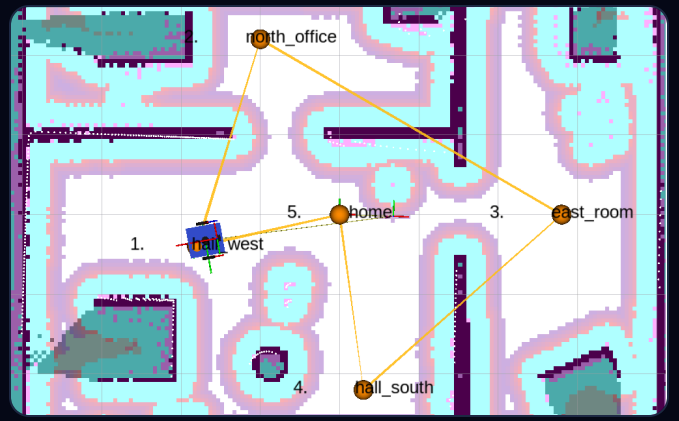
Captured from our Webots + ROS 2 simulation.



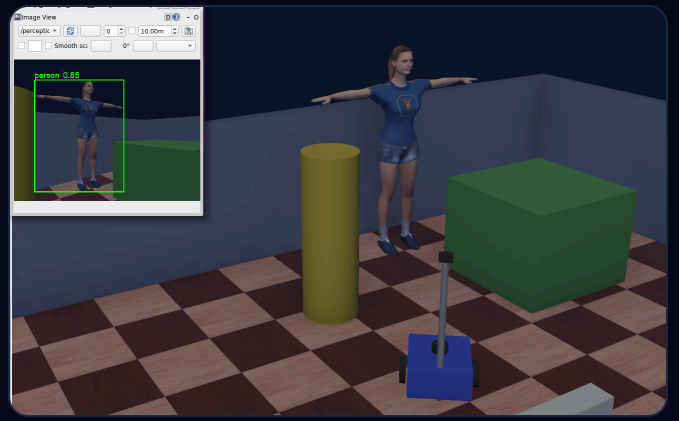
Webots world at realistic scale



SLAM occupancy map



Nav2 multi-waypoint patrol loop



YOLO person detection on the mast camera

— PRODUCTION VISION · NOT PART OF THE MVP

Africa's intelligent security infrastructure.

DURABILITY

- Waterproof enclosure, targeting an IP65 rating (protected against dust and rain), built for Nigeria's rainy season
- Fire-resistant, flame-retardant enclosure materials
- Active cooling for Nigerian heat and 12-hour runs

ENDURANCE

- 12h+ battery (LiFePO4) for full dusk-to-dawn patrols
- Solar-assisted charging: on the dock (Standard), on the robot (Premium & Enterprise)

INTELLIGENCE

- Thermal imaging PREMIUM
- Facial recognition for authorised staff (FaceNet / InsightFace) PREMIUM
- Behaviour detection: loitering, running, fence-climbing (autoencoder anomaly models)
- Vehicle detection

ANTI-THEFT

- GPS tracking
- Tamper detection: alerts if the robot is lifted, tilted, pushed off its route or has its casing opened
- Loud siren + flashing lights on tamper
- Remote shutdown via backend
- Fail-safe alerting: events and footage stream to the cloud as they happen, so evidence survives even if the robot is destroyed

PLATFORM

- Microphone and two-way voice
- Multi-robot fleet management
- AI analytics dashboard

LONG-TERM

- Smart-city integrations: robots, cameras and responders working as one network

Design targets, not tested specifications

— TECHNOLOGY

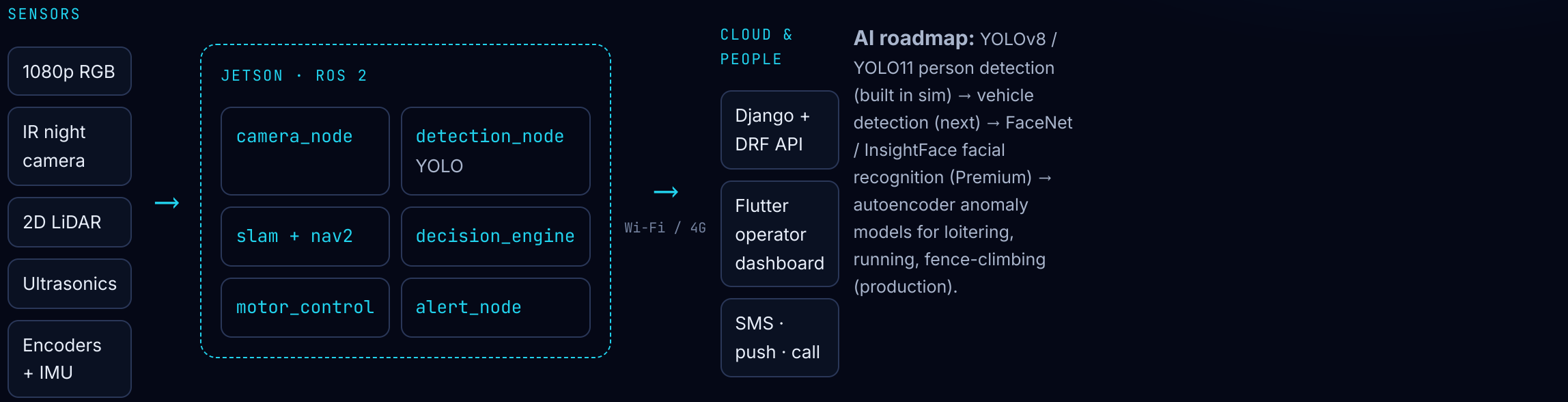
Four tightly coupled subsystems. Inference runs on the robot.

Perception
RGB + IR cameras, YOLO detection

Localization & navigation
LiDAR + SLAM, odometry, Nav2

Control
Motor control, safety stop, docking, teleop

Backend & monitoring
Django API, Flutter dashboard, alerts



AI roadmap: YOLOv8 / YOLO11 person detection (built in sim) → vehicle detection (next) → FaceNet / InsightFace facial recognition (Premium) → autoencoder anomaly models for loitering, running, fence-climbing (production).

Moat: Nigerian security data, locally trained models, reliable deployment

— BUSINESS MODEL · ROBOTICS-AS-A-SERVICE

Three tiers. Stratos owns and maintains every robot.

STANDARD

₦180,000/mo

+ ₦300,000 setup · Gated estates and warehouses (schools and offices next)

- Autonomous patrol, person detection, live RGB + IR video
- Dashboard for 1–2 users
- Push + SMS alerts, self-monitored
- Solar-assisted charging on the dock

About what a client pays for one night-shift guard, plus 24/7 recording, verified coverage and instant alerts.

PREMIUM

₦300,000/mo

+ ₦500,000 setup · Banks and high-end facilities

- Everything in Standard
- Thermal imaging + facial recognition for authorised staff
- Multi-user access with roles (e.g. security head, branch manager, supervisor)
- Priority alerts: escalation chain with automatic phone calls

About what a bank pays for two night-shift guards, plus thermal imaging, facial recognition and priority alerts.

ENTERPRISE

from ₦500,000/mo

+ ₦750,000 setup · Multi-site banks, corporates and industrial sites

- Premium hardware and software
- 24/7 remote monitoring by Stratos operators, who verify every alert
- Analytics reports
- SLA guarantees on uptime and response time

From ₦500k (₦400k–₦800k+ by site size). Stratos operators do the watching.

A cost optimisation, not a new expense: a site with 2 to 7 guards already spends an estimated ₦300k–₦1M a month on guarding.

— GO-TO-MARKET

How we'll sell.

Pilots first

Paid pilots at 1–3 sites, measured on incidents and visibility.

Direct outreach

Facility managers, bank security heads, estate executives.

Guard-company partners

They hold the client relationships and can bundle or resell Patroller.

Enugu → South-East (adding schools & offices) → Lagos & Abuja enterprise contracts

— WHY WE WIN

Execution, localisation, cost.

Built for African environments

Models to be trained on Nigerian sites; hardware sized for heat, rain, dust and power cuts.

Cost-optimised hardware

Affordable sensors and compute with AI models tuned to run on them.

Strong backend & alerting

Push, SMS, calls, escalation chains and offline detection, developed in-house.

Practical deployment

Robots that patrol real sites every night, not research demos.

— MARKET

Security spending is recurring and non-negotiable. Today it goes mostly on people.

1,100+
licensed private guard companies in Nigeria[1]

1M+
corporate guards employed by licensed firms, plus ~2M unlicensed[1]

₦45k–₦100k
typical monthly pay for contract guards at banks, warehouses and estates[2]

2×
growth in Nigeria's safety & security equipment imports, 2022 → 2024 (est.)[3]

To prove next: how many Enugu banks, warehouses and estates will pay monthly, and at what price. Letters of interest are part of the MVP plan.

— FINANCIAL MODEL · ILLUSTRATIVE

Each tier beats treasury bills (~16%). The original ₦150k plan did not.

20 ROBOTS, ONE BATCH	PRICE/MO	ROBOT COST	UPFRONT	INVESTORS REPAID	ANNUAL RETURN	₦ AFTER 5 YRS VS T-BILLS
Standard · bulk	₦180k	₦3.5M	₦80.0M	Year 3, month 2	**51%**	₦253.3M vs ₦168.0M
Standard · today	₦180k	₦4.5M	₦100.0M	Year 3, month 11	**29%**	₦253.9M vs ₦210.0M
Premium · bulk	₦300k	₦4.0M	₦90.0M	Year 2, month 4	**126%**	₦456.4M vs ₦189.0M
Premium · today	₦300k	₦5.0M	₦110.0M	Year 2, month 8	**84%**	₦456.9M vs ₦231.0M
Enterprise · bulk	₦500k	₦6.0M	₦130.0M	Year 2, month 6	**102%**	₦600.4M vs ₦273.0M
Enterprise · today	₦500k	₦7.0M	₦150.0M	Year 2, month 9	**77%**	₦601.0M vs ₦315.1M
Original ₦150k plan	₦150k	₦5.0M	₦110.0M	Year 5, month 3	**7%**	₦197.5M vs ₦231.0M

₦10M overhead/yr · 5-yr robot life · cash returned reinvested at the T-bill rate [6] · try it live in the site calculator

— THE ASK

₦9,000,000 for a working robot in 6 months.

Committed in full upfront so components are ordered together and the build runs without stop-start delays.

₦9,000,000

Terms: Open to discussing terms: equity, convertible or strategic partnership, documented with legal advice.

Software is developed by the founder and not billed to this budget. Fleet capital is a later raise.



Compute & sensors	₦2,100,000
Drive train & chassis	₦1,400,000
Docking & charging station	₦500,000
Power & connectivity	₦500,000
Contract engineering	₦800,000
Cloud, dashboard & alerts	₦450,000
Field testing & pilot setup	₦500,000
Import, shipping & customs	₦325,000
Legal, IP & compliance	₦350,000
Subtotal (pre-quote estimates)	₦6,925,000
Contingency (~30%)	₦2,075,000
Total	**₦9,000,000**

Estimates pre-quotation; real quotes may run up to ~30% higher, covered by contingency

— USE OF FUNDS · 6-MONTH PLAN

From component order to a live night-patrol demo.

MONTH 1

Procure & design

Finalise BOM against real quotes, order components, mechanical design of chassis and mast.

MONTH 2

Assemble & bring-up

Chassis fabrication, wiring, power system, motor control with encoders, sensor bring-up on Jetson.

MONTH 3

Port the stack

Move the simulated ROS 2 stack to hardware: odometry, LiDAR SLAM, Nav2 patrol on a real site map.

MONTH 4

Perceive & alert

YOLO on Jetson with the IR camera, decision engine on the real robot, production Django + DRF backend with SMS, push and offline alerts.

MONTH 5

Dock & control

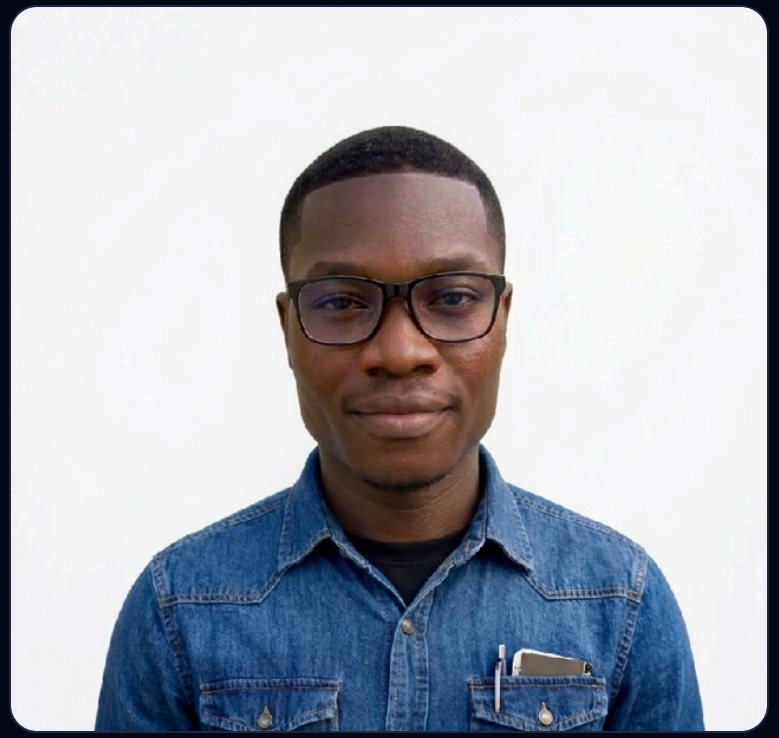
Autonomous docking and charging, Flutter operator dashboard with teleop override, reliability fixes.

MONTH 6

Prove it

Repeated night patrols at a controlled Enugu site, measured results, live investor and pilot demo.

MVP success = autonomous night patrols at a controlled Enugu site, after-hours person alerts to a phone in seconds, live RGB/IR video with manual takeover, safe obstacle avoidance, autonomous docking and offline alerts, all with published metrics.



— FOUNDER

Chinonso Nwankwo

Computer Science, Enugu State University of Science and Technology (ESUT). Machine-learning background, building ML systems from first principles. Took Patroller from concept through every simulation phase: mapping, patrol, detection, decision engine and a prototype alert dashboard.

Why: to bridge the gap in Nigeria's security sector between the constant, verifiable coverage facilities need and what manual guarding can deliver at night.

HIRING / COLLABORATING

Mechanical engineer · electrical/embedded engineer · potential hardware co-founder

Stratos

INTELLIGENT SECURITY. AUTONOMOUS PROTECTION.

Building Africa's intelligent security infrastructure.

Reactive → Proactive · Manual → Intelligent · Static → Autonomous

₦9,000,000 · 6-month MVP · open to discussing terms

nwankwofrank191@gmail.com

github.com/FranklinNwankwo/security-robot

Stratos AI & Robotics Ltd · RC 9624282 · Enugu, Nigeria



1. BusinessDay: "One big security industry: Nigeria's untapped economic powerhouse" (Oct 2025)
2. Profolio.ng: Security Officer Salary Guide, Nigeria (Sep 2026)
3. U.S. International Trade Administration: Nigeria Country Commercial Guide, Safety & Security (2025)
4. Gazette NGR: Enugu police arrest 230 robbery and kidnap suspects in 2024 (Jan 2025)
5. Knightscope: Machine-as-a-Service subscription pricing
6. Nairametrics: 364-day T-bill stop rate falls to 15.85% (7 Oct 2026)

Not an offer of securities. Figures are illustrative assumptions.