

# PULSE AI

*The Intelligent Triage & Patient Flow Ecosystem for Africa*

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*"Transforming fragmented healthcare systems into coordinated, data-driven networks where every second counts."*

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## 1. Executive Summary

Across Africa, preventable deaths occur not from a lack of medicine, but from a lack of **access coordination**. PULSE AI is an AI-powered platform designed to solve the "blind travel" problem. By merging real-time hospital resource tracking with intelligent triage, we ensure patients reach the **right facility** at the **right time**.

## 2. Core Functionalities

PULSE AI integrates four major modules as defined in the technical specifications:

### 2.1. 1. Intelligent Diagnostic Engine

The system analyzes symptoms via text, voice, or image.

- **Preliminary Analysis:** Identifies probable diseases and suggests primary treatments.
- **Hospital Recommendation:** Directs the user to a facility based on geography, real-time bed availability, and medical urgency.

### 2.2. 2. PulseMind: Mental Health Chatbot

A dedicated support module for the youth and students:

- **Mental Support:** Proposes relaxation exercises and study organization.
- **Detection:** Identifies signs of stress or discouragement using NLP.

### 2.3. 3. Hospital Management Dashboard

A real-time interface for medical facilities:

- **Resource Tracking:** Live updates of beds, doctors, and equipment availability.
- **Analytics:** Statistics on patient flow and occupancy rates to optimize management.

### 2.4. 4. MedScan (Phase 2)

A module for verifying medication authenticity through QR code or label scanning to combat counterfeit drugs.

## 3. Technical Specification

To ensure 99.9% uptime and response times under 3 seconds:

Layer	Technology Stack
<b>Frontend</b>	Flutter (Mobile), React (Dashboard)
<b>Backend</b>	Python (FastAPI)
<b>Cloud / IA</b>	Google Cloud Platform & Vertex AI
<b>Database</b>	PostgreSQL / Supabase
<b>AI Models</b>	FAISS, XGBoost, Gemini API
<b>Connectivity</b>	SMS / USSD Gateways

## 4. Strategic Impact & Future Roadmap

**Immediate Impact:** Significant reduction in hospital overcrowding and optimized resource use.

**Citizens:** Faster access to care and reliable orientation.

**Future Vision:** Integration of telemedicine and regional extension across West Africa.

## 5. Conclusion

PULSE AI is the digital bridge between a patient in distress and a life-saving intervention. We are building **resilience** into the African healthcare system.