

Ele Guard: AI for Elephant Safety

Reducing human–elephant conflict with AI and community engagement

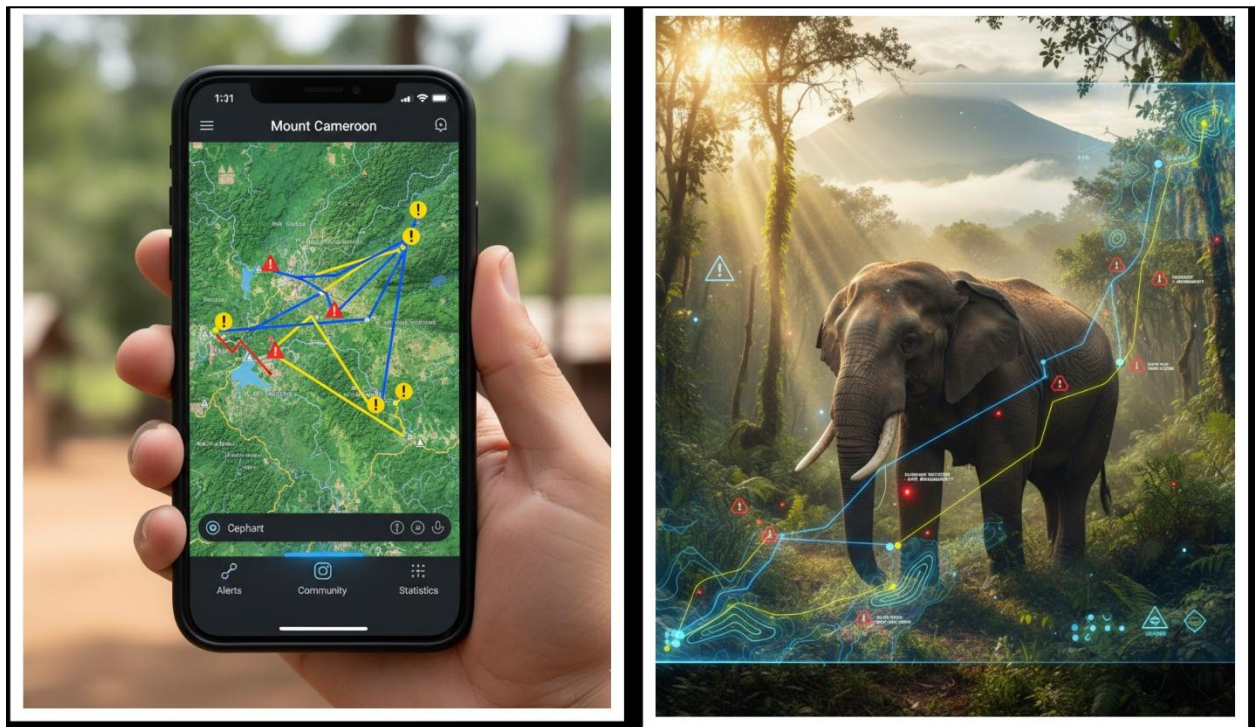
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Location: Mount Cameroon Landscape, South-West Region, Cameroon

1. Brief project description

EleGuard is an AI-powered system that identifies individual elephants, predicts their movements, and delivers real-time alerts to communities in the Mount Cameroon Landscape. The project also trains local youth in digital skills, empowering them to manage, maintain, and expand the technology-driven conservation solution.



Elephant movement in Mount Cameroon monitored by EleGuard AI

Elephant in Mount Cameroon with AI movement paths overlay.

Figure 1. Mockup of EleGuard Displays

2. Problem & Project Overview

Problem Statement:

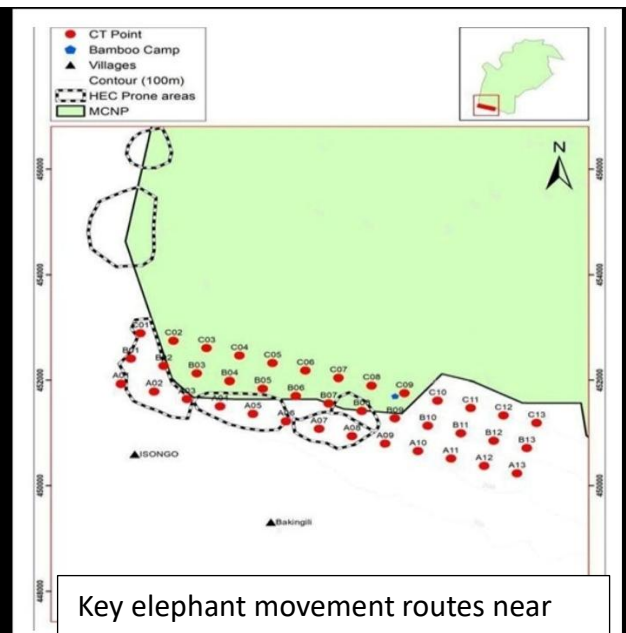
Communities surrounding the Mount Cameroon Landscape face frequent human–elephant conflicts. Forest elephants enter farmland and villages in search of food, causing extensive crop damage, property loss, and occasional injuries to people. In response, local residents sometimes engage in retaliatory actions that harm elephants, further threatening an already vulnerable population. The rugged terrain, dense forests, and wide-ranging movements of elephants make traditional mitigation methods—such as fencing, patrols, or in-person monitoring—impractical. Additionally, limited financial and technical resources restrict local authorities from implementing effective, continuous conflict management. Without innovative solutions, both human livelihoods and forest elephant survival remain at significant risk, highlighting the urgent need for a scalable, technology-driven intervention.

Project Goals: To reduce human–elephant conflict through an AI-powered alert system and community engagement that protects both humans and elephants while building local technical skills.

Target Groups: Communities along elephant corridors, Farmers and households near forest edges, Local youth trained in AI and digital monitoring, Community leaders and conservation stakeholders.



Elephants captured in forest corridors over 20 years of monitoring



3. Solution & Innovation

EleGuard System Features:

- Individual Identification: Uses AI to recognize individual elephants from camera-trap images.
- Movement Prediction: Algorithm predicts likely movement paths in real time.
- Community Alerts: Sends notifications to villages when elephants approach.

Innovation & Uniqueness:

- Integrates AI, field data, and local engagement into one system.
- Trains local youth in AI, coding, and system management, building capacity and employment opportunities.
- Data-driven, scalable, and participatory—combining technology and community empowerment in conservation.

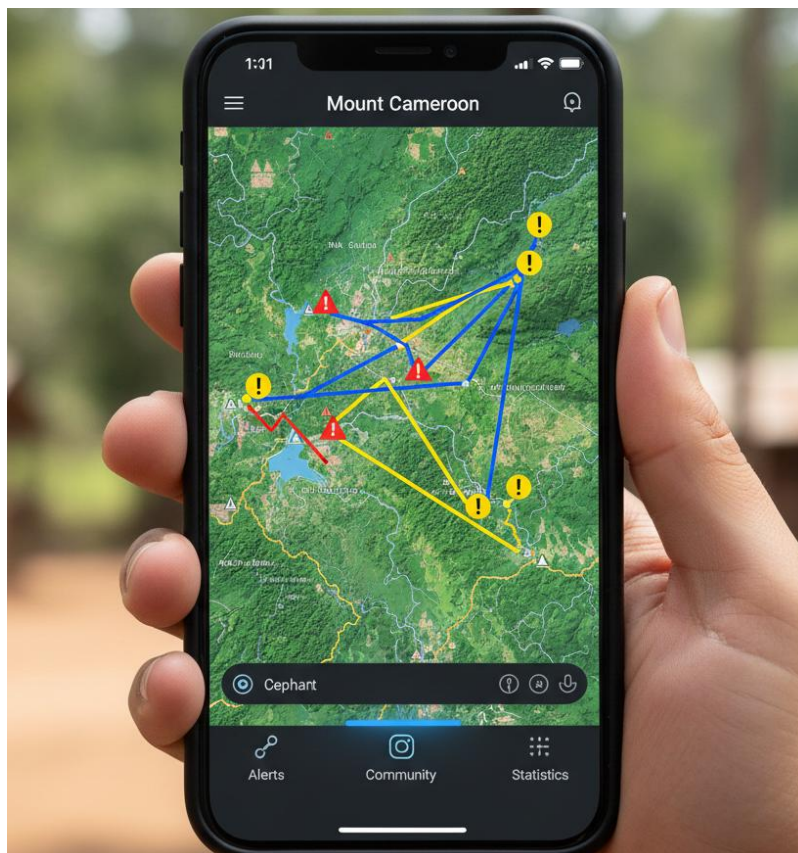


Figure 2. mockup of EleGuard app interface on a smartphone visualizing elephant routes and alert

4. Implementation & Impact

Development Phase:

- Data Scientist: 20 years of camera-trap data analyzed by our data scientist to identify patterns and predict movement.
- Software Development: AI insights are integrated into the app and alert system by the software engineer.

Community Engagement:

- Youth training sessions on AI monitoring and app usage.
- Community workshops to interpret alerts and respond safely.

Expected Outcomes:

- Reduced human–elephant conflict incidents.
- Safer communities and protected elephants.
- Youth trained in digital skills, capable of maintaining and scaling the system.
- Data-driven decisions for future conservation interventions.

5. Sustainability, Scalability & Ethics

Sustainability:

- Local youth and community leaders maintain the system.
- Alerts and dashboards require minimal recurring costs.
- Posters and educational materials reinforce long-term awareness.
- Scalable to other villages and conflict-prone regions.

Ethical & Social Responsibility:

- Protects human life and livelihoods.
- Reduces harm to elephants.
- Respects local culture and decision-making structures.

- Empowers communities with knowledge, skills, and shared responsibility.

Long-term Impact:

- Continuous monitoring of elephant movements.
- Data-driven conflict mitigation and conservation.
- Measurable reduction in conflicts and increased community engagement.

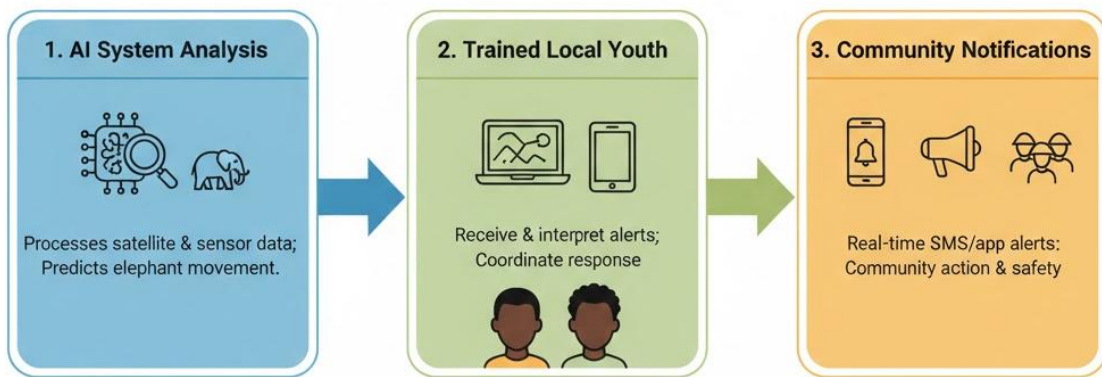


Figure 3. Workflow of EleGuard system from AI analysis to community alerts

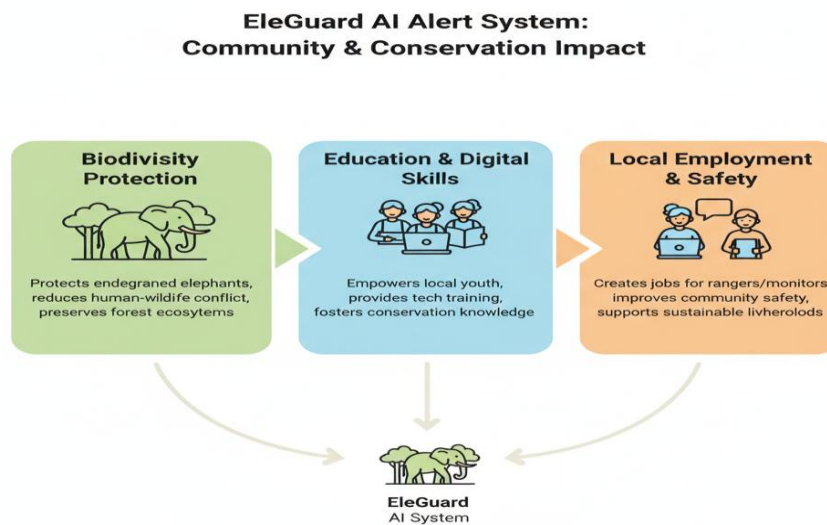


Figure 4. EleGuard contribution to biodiversity protection, education, and local employment