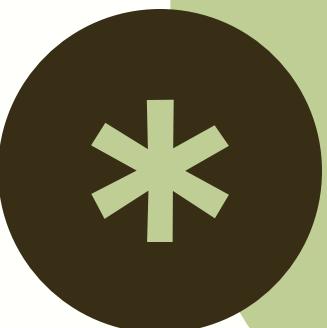


# MSITUSHIELD



By: GreenMovers254





# Introduction

"Every hour, Kenya loses trees that will take decades to replace.

The culprits? Illegal loggers who slip into remote forests where no ranger can patrol in time.

We're here because forests can't protect themselves

but with the right technology, they can alert us instantly."



**Aerial view contrasting lush forest (left) with a clear-cut, logged area (right).**



# CRISIS???

The current environmental damage has serious impacts, from water pollution to loss of biodiversity. Nature is our main provider of resources and is essential for human survival. Therefore, nature conservation is a very urgent thing to do.

Kenya's forests are vanishing: **84,716 hectares** lost per year (illegal logging + encroachment). Another 14,934 ha degrade annually due to illegal activities

Illegal logging magnitude: Up to **70,000 ha/year** are attributed specifically to illegal logging.

Economic toll: Forest degradation costs **KSh 534 billion/year (~3% of GDP)**

The impact of environmental damage:

Deforestation

Loss of biodiversity

Pollution



### IoT Sensor Network

Deploy distributed, solar-powered nodes in forests. Each node has acoustic and vibration sensors to “listen” for chainsaws/tree falls.



### Edge AI Detection

On-device machine learning instantly classifies sounds (chainsaw vs. normal forest noise) and flags suspicious events.



### Real-time Alerts

When logging happens, the system sends signals via LoRawan to a cloud dashboard and text to a forest ranger device

## SOLUTION WE OFFER

What if the forest could call for help the moment danger appears?

Msitushield makes that possible, a network of smart IoT sensors that listen for chainsaws and tree-fall vibrations, analyze them with on-device ML, and send instant alerts to a dashboard & text.

No delays.

No guesses.

Just real-time detection the moment illegal logging begins.

# HOW IT WORKS

## Forest Sensors

**Solar-powered IoT nodes continuously record audio/vibrations in the forest.**

## Edge ML Analysis:

**Each sensor node runs a lightweight ML model to detect illegal logging signatures (chainsaw sound or tree-fall vibration)**

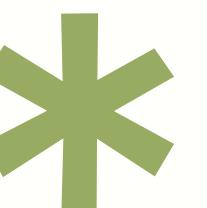
## Communication layer: LoRaWAN

**ALERTS**

**SMS Alert**

**Dashboard Alert**

# **IMPACT & EDGE**



**Real-time forest protection:**

**Climate & biodiversity gains**

**Reduced forest loss**

**Economic savings**



# ESTIMATION FOR KARURA FOREST DEPLOYMENT



**Area: 1,041 ha (~10.4 km<sup>2</sup>)**



Gateway estimate: 10-11 LoRaWAN gateways



Sensor nodes estimate: 500-1,050 nodes, depending on density

- Low density (~500 nodes): **14,820,000 KES**
- High density (~1,050 nodes): **27,645,000 KES**



# Conclusion



Kenya's forests can no longer afford delayed responses.

With **Msitushield**, we finally give them a voice, and rangers the power to act in real time.

We're ready to run a pilot deployment with **KFS** and **conservation partners**(e.g **Green Belt Movement**).



**Join us in proving that technology can protect what nature cannot defend alone**

**GreenMovers254**

# **THANK YOU!**

