

# **MITHRIL-OS.**

## **Overview.**

### **SOLO HACKER.**

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Track: **1**

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## **PROBLEM STATEMENT.**

Existing forest monitoring systems are fractured making it impossible to make sense of any streams of data. This is highly inefficient since it forces anyone in need, to move back and forth between systems killing the flow state.

This makes it impossible to make sense of any data even when it's handed on a silver plate.

We need better systems and that will be delivered by-  
Software through intelligence and insights through  
analytics.

It is a tough problem but we are set for this!

### **PROPOSED SOLUTION.**

Mithril-OS is designed to solve this (see problem statement in pg.2). It's design from the get-go is a single, cohesive and capable Operating system for data analytics incorporating data streams from various sources – Satellite data, Reports from the citizens and IoT devices (soon to be integrated) and a strong frontend enabling the user(s) to easily monitor and make sense of the board.

Mithril-OS is design to be modular and can easily be integrated with third party applications.

## **PROTOTYPE**

### **1.Backend**

**(Node.js/Express,Django,Rest API)**

- **Twilio Webhook**: Receives WhatsApp messages with location, text, and images
- **Antugrow Integration**: Fetches NDVI, MI, and NDMI indices
- **State Calculation**: Determines criticality (CRITICAL/BAD/OKAY)
- **Supabase Storage**: Saves reports with anonymized sender data

### **2.Frontend**

**(Next.js, Tailwind CSS)**

- **Live Feed**: Real-time display of incoming reports
- **Interactive Map**: Shows reports (pins) and watchlist locations (flags)
- **Watchlist**: Manually monitored locations with environmental data
- **Detail Cards** Popup views with full report information

## **FEASIBILITY**

The malleability of software as a property formed our basis in design and implementation. This coupled with the modularity of Mithril-OS ensures that this can be easily scaled up to handle more data and form the support structure of third party applications to form an ecosystem.

The Green Belt Movement and The Wangari Mathai Foundation via their vast network of partners can help place this into the hands of users and launch campaigns to educate and encourage citizens to participate in this ecosystem.

I invite you to join me (Moses Kariuki) in writing history.