

The background of the slide is a photograph of a dense forest. Tall, slender trees with dark trunks stand vertically, their tops lost in a thick mist or fog. Sunlight filters through the canopy in several places, creating bright, hazy beams of light that illuminate the scene. The forest floor is covered in a layer of green moss and ferns, with some fallen branches visible. The overall atmosphere is serene and natural.

# Mangrove Sentinel

Empowering Coastal Guardians

AI-powered community platform for real-time mangrove  
ecosystem protection and conservation

# Mangrove Sentinel Overview

## Agenda

01 Problem Statement

---

02 Our Solution

---

03 System Architecture

---

04 Team & Impact



# Critical Problem

## Mangrove Crisis



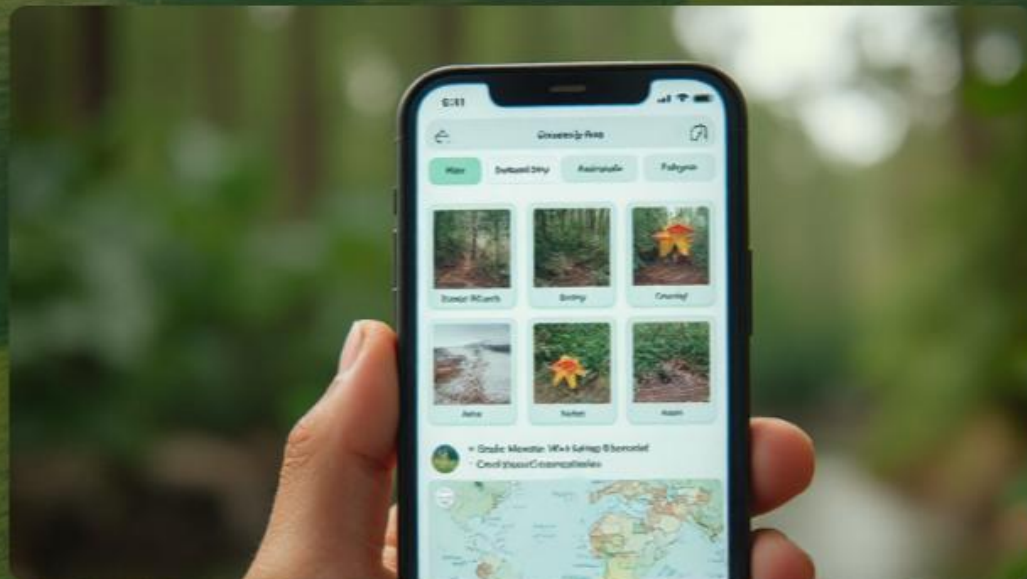
### Threats Identified

Illegal deforestation, land reclamation, and pollution are destroying vital coastal ecosystems that protect against erosion

### Monitoring Gap

Remote locations and limited resources prevent timely detection and response to environmental threats

# Our Solution



## Mangrove Sentinel

AI-powered community platform enabling real-time threat detection through citizen reporting and intelligent validation



Mobile Reporting



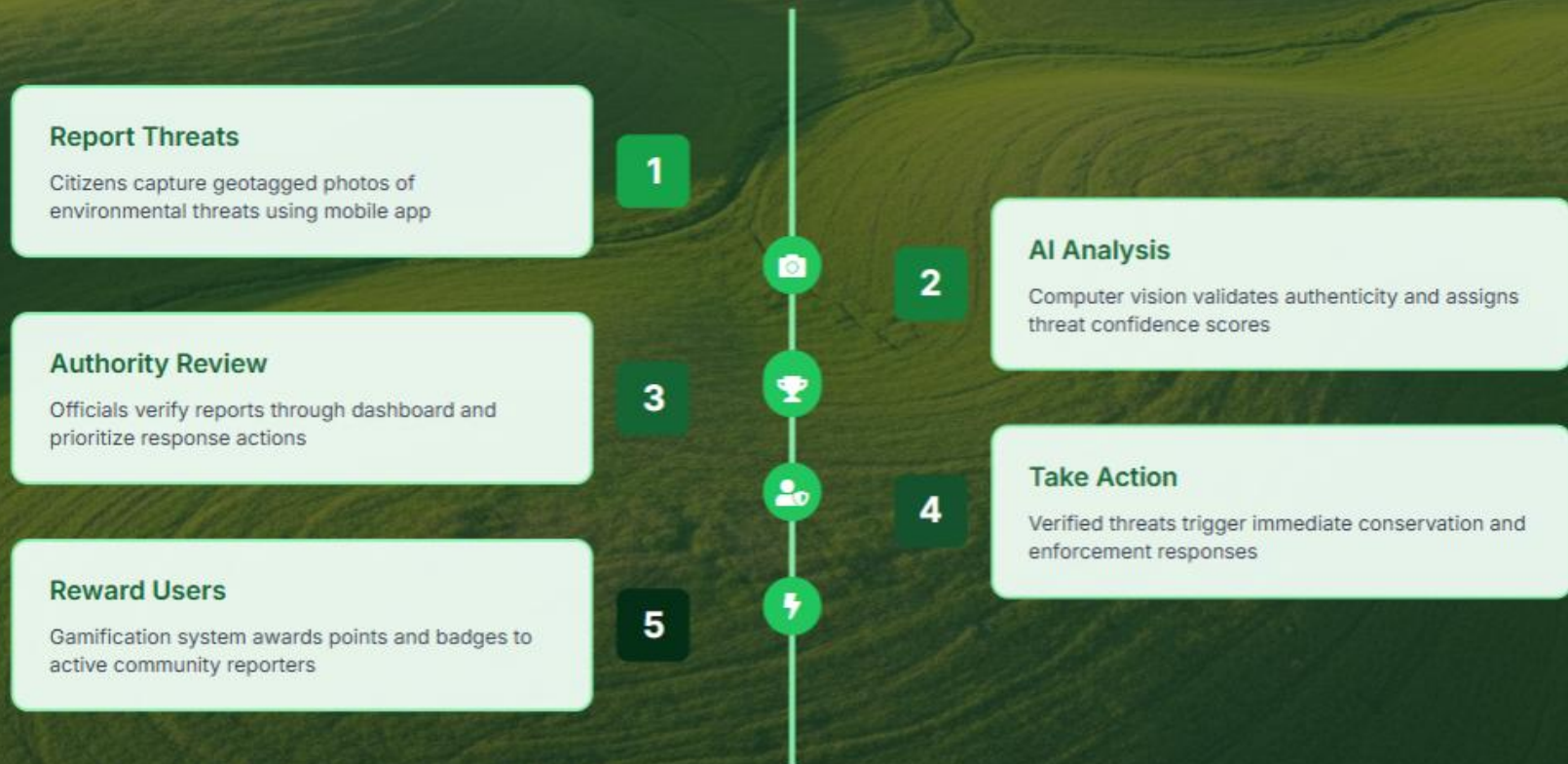
AI Validation



Community  
Rewards



# How It Works



# User Ecosystem



## Community Reporters

### Sentinels

- Easy photo submission with geotagging
- Tracks contributions and rewards
- Leaderboard fosters healthy competition



## Authorities

### Validators

- Real-time verified threat intelligence
- Interactive maps with priority indicators
- Data analytics for policy decisions



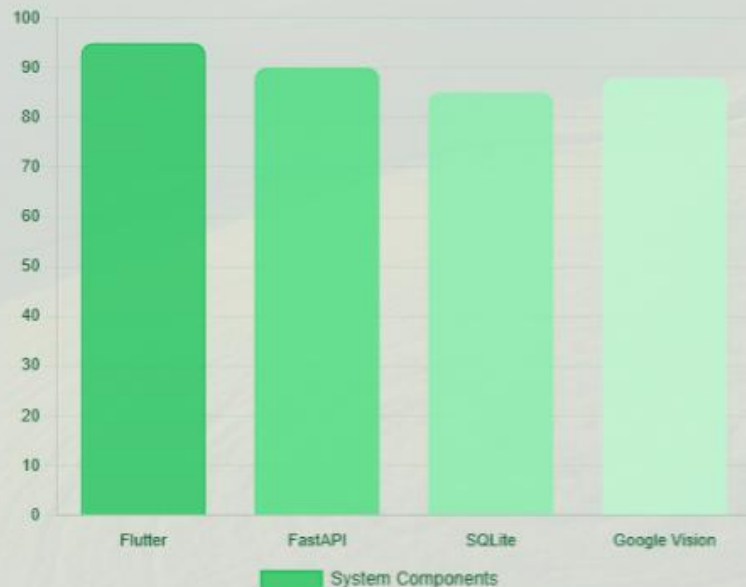
## Development Team

### Innovators

- Scalable cloud architecture
- AI/ML integration for validation
- Cross-platform mobile solution

# Tech Architecture

## System Components



## Implementation

Modern, scalable stack optimized for rapid development and real-world deployment

Flutter mobile app, Python Fast API backend, SQLite database, Google Vision API for AI validation

Mobile Framework	Flutter
Backend API	Fast API
Database	SQLite
AI Service	Google Vision



# MVP Features



## Mobile App

User registration, photo capture with geotagging, and simple threat reporting interface



## Authority Dashboard on Web Page


Interactive map visualization, report validation tools, and priority threat management



## Gamification

Points system, and community engagement rewards





Impact Potential

10x

Faster threat detection through community-  
powered monitoring compared to traditional  
methods

# Meet Team CODESTORM

## JAIVAL

Backend Developer

## MUKUND

Flutter Developer

## VANSH

Frontend Developer

## KRISHIV

Designer/Analyst

### Technical Expertise

Full-stack development and AI integration capabilities for environmental solutions

- Flutter mobile app development with camera and GPS integration
- Python backend development with FastAPI and SQLite database management
- AI/ML integration using Google Cloud Vision API

### Design Innovation

User experience and interface design for maximum community engagement

- Intuitive mobile app interface design for diverse user groups
- Interactive web dashboard development using React.js framework
- Gamification elements to encourage community participation effectively

### Environmental Impact

Passion for conservation and sustainable technology solutions for ecosystems

- Deep understanding of mangrove ecosystem threats and conservation needs
- Experience in community-driven environmental monitoring project development
- Commitment to creating scalable solutions for coastal protection initiatives