Baderia Global Institute of Engineering and Management, Jabalpur, Madhya Pradesh 482002

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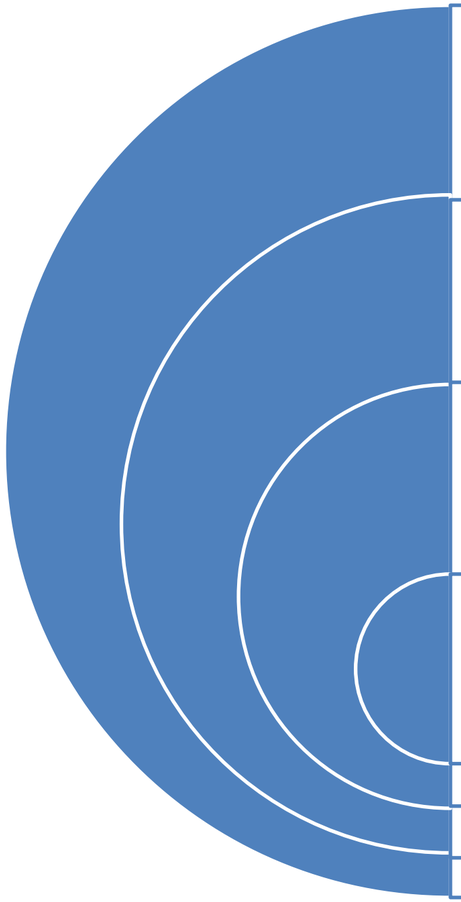
TECH VISION

Profile Overview



Theme - Green Tech: Designing sustainable solutions to protect and heal our planet

Problem Statement Title- develop a digital platform that lets users sponsor tree plantations, track reforestation progress with satellite imagery, and engage through gamified rewards and impact visualization

Team ID - (As per Unstop registration)

Team Name – Tech Vision

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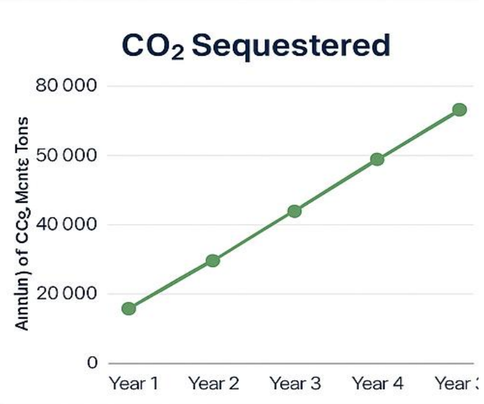
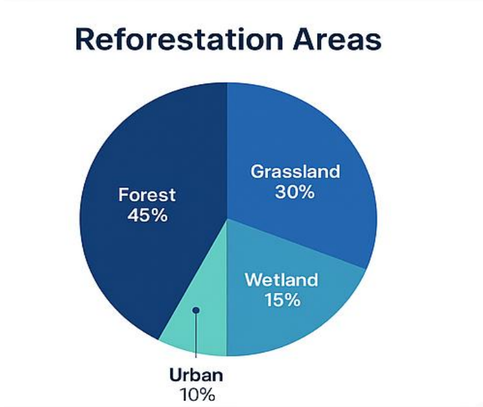
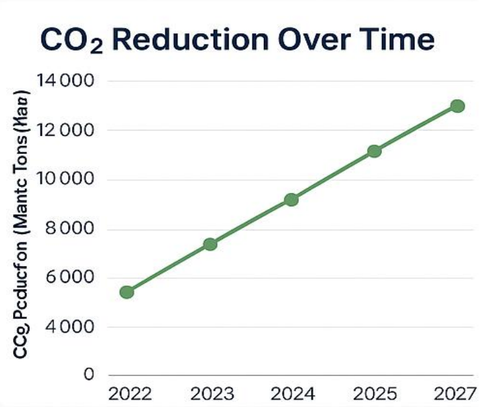
Tree Revive

Proposed Solution (Describe your Idea/Solution/Prototype)

1. **End-to-End Reforestation Platform**: Simplifies the tree planting process through location selection, partner matching, and real-time monitoring.
2. **Problem Solved**: Tackles fragmented reforestation efforts, lack of transparency, and limited access to verified carbon offsetting.
3. **Smart Verification**: Uses satellite/drone imagery + AI to validate tree growth and CO_2 capture.
4. **Interactive User Dashboard**: Offers live updates, CO_2 offset stats, and sponsor engagement tools.
5. **Unique Edge**: Combines tech, transparency, and community-driven planting in one scalable service.







Technical Approach

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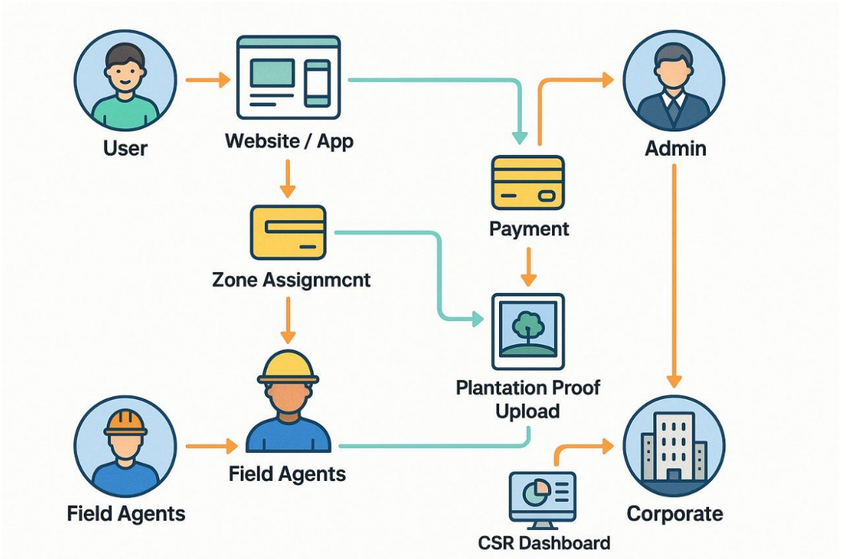
🔧 Technical Approach – Reforestation as a Service

Modular Architecture: React frontend + FastAPI backendd with PostgreSQL DB, ensuring speed, scalability & flexibility

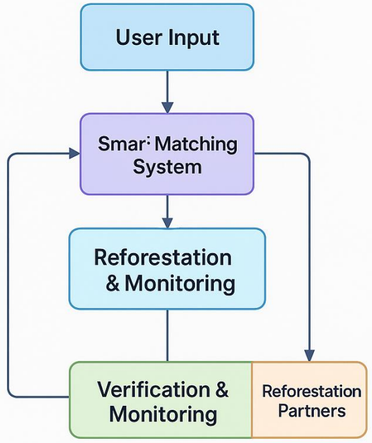
Geo-Mapping Interface: Interactive map (Mapbox/Leaflet) for users to select land and request reforestation services

Smart Matching System: Auto-matches reforestation partners based on location,budget, and tree type

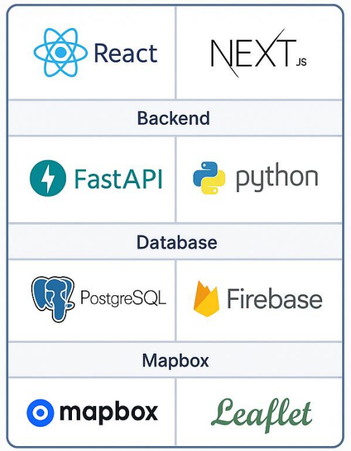
Verification & Monitoring: Drone/satellite integration + + AI for growth verification and user dashboards for impact tracking



Technical Approach



Tech Stack



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FEASIBILITY AND VIABILITY

Feasibility & Viability

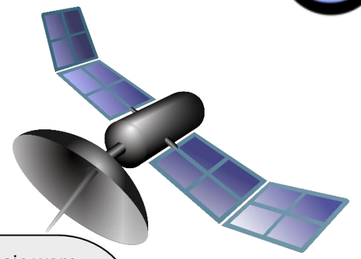
Technically Feasible
Built with scalable, open-source tools (React, FastAPI, Mapbox)

Data Reliability Risk
Mitigated using AI-based satellite & drone image verification

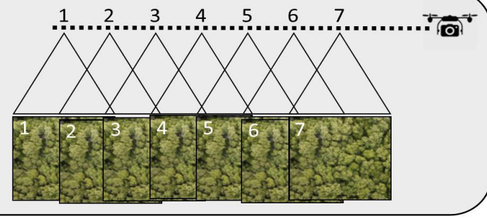
Partner Fulfillment Risk
Solved via reviews, audits, and transparent reporting

User Trust Challenge
Addressed through real-time dashboards and visual proof of impact

Regulatory Barriers



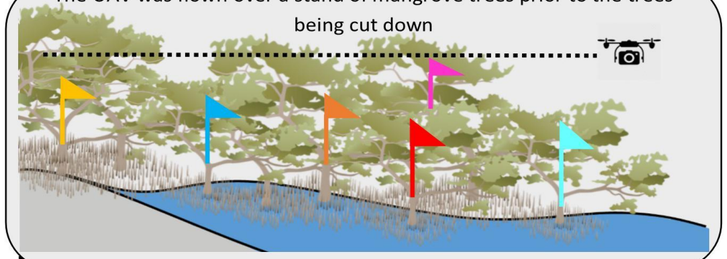
The UAV collected multiple, overlapping, high-resolution aerial images of the mangroves

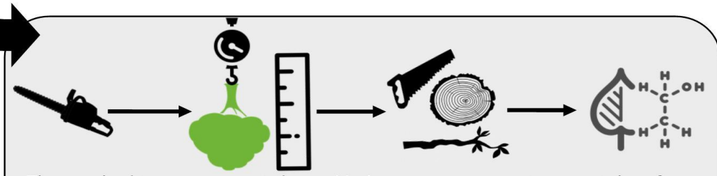


A 3D point cloud & orthomosaic were generated from the imagery using structure-from-motion photogrammetry

Tree height, canopy area & diameter were estimated and used to model mangrove above ground mangrove biomass (AGB)

The UAV was flown over a stand of mangrove trees prior to the trees being cut down





The marked trees were cut down. Various measurements were taken from each tree, as well as subsamples of tissues for lab analyses. These were used to calculate each tree's above ground biomass (AGB) and carbon content

The AGB measurements and chemical analyses of the trees were used to evaluate model estimates of tree AGB and carbon

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IMPACT AND BENEFITS

ACCESSIBLE REFORESTATION SERVICES

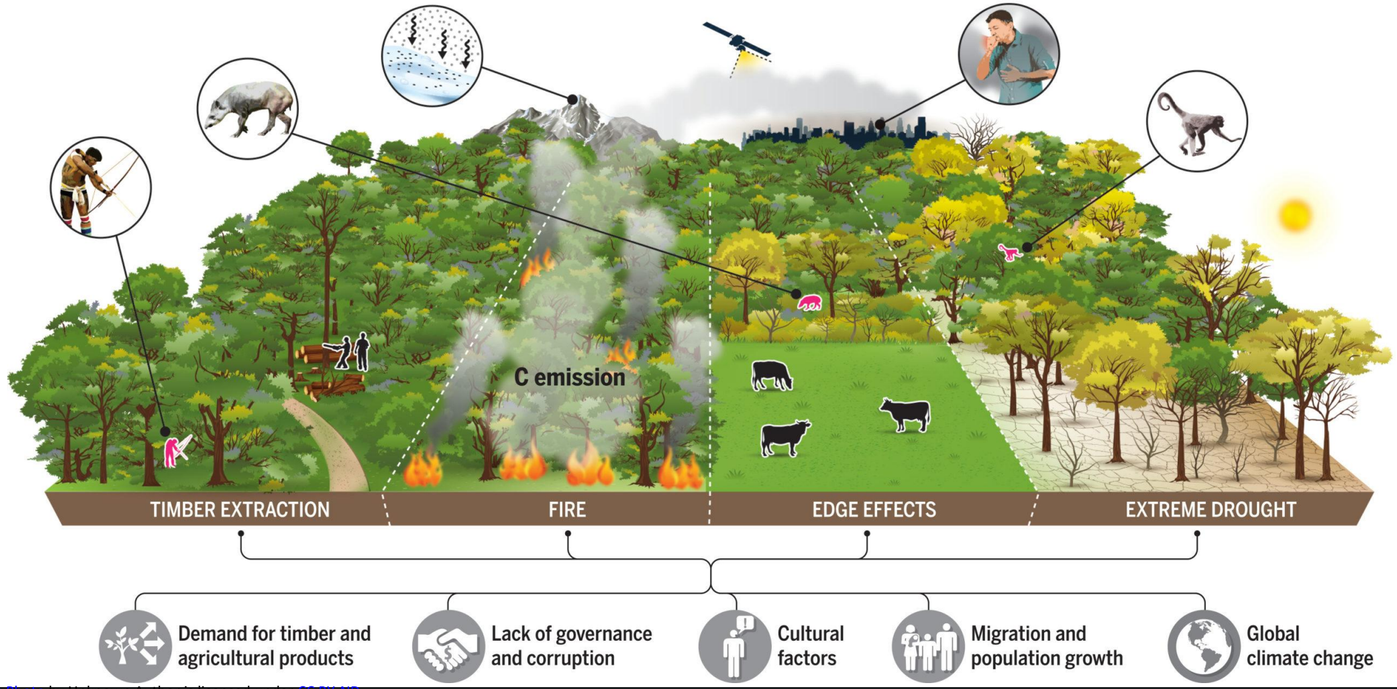
TARGET AUDIENCE
NGOs, corporates (CSR), governments, and Eco-conscious individuals

SOCIAL IMPACT
Empowers local communities with jobs and education through planting initiatives

ECONOMIC ADVANTAGE
Enables green investments, carbon credit generation, and cost-effective CSR exution

ENVIRONMENTAL GAINS
Enhances biodiversity, improves air quality, and supports CO_2 offsetting

SCALABLE FUTURE
Modular tech stack supports global expansion, IoT/AI integration, and carbon trading



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REFERENCES

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- **Team Trees – 20 Million Trees for the Planet**
  https://teamtrees.org/
- **Google Earth Engine – Satellite Data for the Environment**
  https://earthengine.google.com/
- **Ecosia – The Search Engine That Plants Trees**
  https://ecosia.org
- **Climate TRACE – Real-Time Emissions Monitoring**
  https://climatetrace.org/data