

Transparent Plant Growth Monitoring And Adoption System

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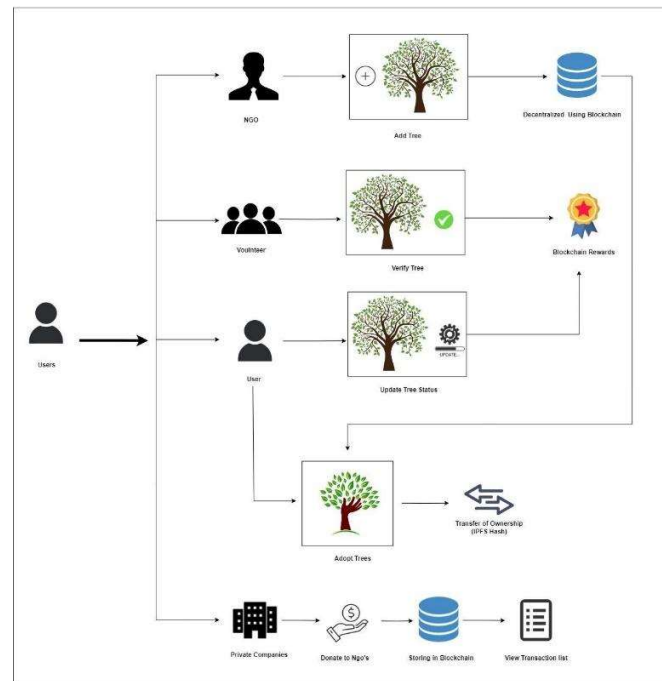
Idea Description:

- The global environmental landscape faces pressing challenges, with deforestation and climate change being major concerns.
- NGOs and government bodies play a crucial role in addressing these issues through tree plantation initiatives.
- However, a lack of transparency, mismanagement of funds, and inefficient tracking systems have hindered the effectiveness of these efforts.
- The proposed solution is a web 3 app built on blockchain technology with the goal of promoting transparent and efficient tree plantation efforts.
- It involves NGOs, government bodies, citizens and volunteers in a collaborative tree planting and maintenance process.
- The key features include transparent fund transfers through smart contracts, tree adoption, tree growth analysis, data tracking for tree health, and the option to donate for tree plantation.
- The app aims to improve tree growth through data analysis, fostering a sense of community and responsibility for the environment.
- Its long-term vision is to create a global network dedicated to reforestation and environmental conservation.

What is the Solution:

Simply planting trees is not enough - proper monitoring and evaluation are essential. To address challenges like lack of transparency and record-keeping, and growth tracking of trees. We propose a platform that enables transparent fund transfer and tracking of each planted tree's growth and lifespan. Interested citizens can volunteer to monitor trees in their area and provide valuable data. By leveraging this data, we

can improve tree survival rates and prevent premature death, contributing to a healthier environment. Our platform emphasizes transparency, citizen involvement, and data-driven decision-making, ensuring the long-term success of tree planting initiatives and a meaningful impact on the environment.



Module Description:

1. User Authentication and Profile Creation:

In this module, Users can log in using passwordless authentication, fill out the form, and establish a profile in the first module, which has been generated. A database using Firebase will be used to store the user information. Each logged-in user receives a unique ID. This module is designed to accommodate various types of users, including regular citizens, government agencies, private businesses, and nonprofit organizations that can sign up and create profiles, providing a diverse user base for the platform.

2. Donation of funds from Private Companies to NGOs:

The second module focuses on facilitating donations from private companies to NGOs via RazorPay integration. Before transferring funds to the specified NGOs, businesses can input the names of the NGOs to which

they desire to donate. This module simplifies the process of corporate participation in environmental protection.

3. Crowdfunding for Tree Planting:

The third module supports crowdfunding for tree plantation efforts via Razor Pay by referring users to a payment page where they can make payments. This approach allows residents to participate in the tree planting activities, generating a sense of community and environmental stewardship.

4. Growth Tracking using Computer Vision:

The fourth module is dedicated to a growth tracking system run by volunteers. It monitors tree growth using time-series photos using powerful computer vision algorithms. The technology can detect substantial growth and changes by comparing historical and current plant photos. The PlantCV library, which specializes in plant phenotyping, is used in this module to provide precise and data-driven insights into tree development.

5. Involuntary Growth Tracking:

This fifth module is made up of an IOT device. This equipment will be used to measure and monitor plant development in forest areas where volunteers are unable to visit on a regular basis. This device will use sensors to measure plant growth and will update the database with the calculated plant height. If the plant height falls below a particular threshold, the volunteers or the NGO will be notified. We'll be able to track growth with this module without the help of a volunteer.

6. Data Analytics for Tree Species Selection:

The sixth module is the Tree Species Selection Module, which is a vital component of our platform and is dedicated to the rigorous process of determining the best tree species for specific regions. This module is intended to ensure that each tree planting effort goes beyond mere growth and actively contributes to our common environmental goals. This module combines geospatial analysis and environmental evaluation to identify the best tree species for specific places, taking into account climate, soil type, and pollution level. It assesses species for adaptation and ecological compatibility, hence improving sustainability and lowering tree mortality. By quantifying environmental impacts and engaging the community, it promotes data-driven decision-making, provides tailored

recommendations, and adapts to changing conditions, ensuring trees planted actively support environmental objectives.

Why is it compelling:

- The proposed platform has several unique and distinctive features that set it apart from traditional tree planting initiatives.
- The platform emphasizes the importance of proper monitoring and evaluation of the trees planted, which is often overlooked in traditional tree planting initiatives.
- To monitor the growth of trees based on a reward system.
- Analysis of trees planted with the help of geo tag , sensors and image detection.
- It promotes transparency and accountability by enabling NGOs and government bodies to track the growth and lifespan of each tree planted, as well as the usage of funds using Blockchain.
- Transparent adoption of trees.

Benefits/Impact of our Idea:

The proposed platform for monitoring and evaluating the growth of planted trees provides several key benefits in addressing environmental issues. It ensures transparency in the allocation of funds, tracks each tree's growth and lifespan to optimize reforestation efforts, encourages citizen involvement to promote environmental awareness, and facilitates timely interventions to prevent premature death. This contributes to a healthier and diverse forest ecosystem.