RecyNaija

Executive Summary

Plastic pollution is a significant environmental challenge in Nigeria, with the country ranking ninth globally in terms of plastic waste contribution. Unfortunately, over 88% of the plastic waste generated in Nigeria is not recycled, leading to severe pollution of water bodies such as rivers, lakes, drains, lagoons, and the ocean. This situation calls for urgent action to increase plastic recycling rates and promote environmental sustainability in the country.

RecyNaija is a blockchain-based solution specifically designed to address the low PET bottle recycling rates in Nigeria. The project aims to incentivize individuals to recycle PET bottles by rewarding them with RecyCoins, a digital token built on the blockchain. By providing a tangible incentive for recycling, RecyNaija aims to increase awareness and participation in plastic recycling, leading to a cleaner environment.

Background & Context

Nigeria's plastic pollution crisis is fueled by the extensive use of plastic bags, cans, and bottles. With approximately 2.5 million tonnes of plastic waste generated annually, urgent measures are needed to tackle this environmental problem. The lack of effective recycling practices has resulted in a large portion of plastic waste ending up in water bodies, causing ecological damage and endangering marine life.

Value Proposition

RecyNaija offers an innovative and effective solution to the low PET bottle recycling rates in Nigeria. By introducing a blockchain-based rewards system, the project provides a compelling incentive for individuals to actively participate in recycling efforts. RecyCoins serve as a form of recognition and reward for responsible plastic waste management, driving behavioral change and promoting a cleaner environment. The transparency and traceability of the blockchain technology ensure the integrity of the recycling process and build trust among stakeholders.

Technical Description

RecyNaija is a groundbreaking initiative that leverages technology and infrastructure to revolutionize PET bottle recycling in Nigeria. The project's implementation involves the utilization of innovative hardware components and cutting-edge software solutions. The recycling machines, will be built using a cardboard box, an old bus validator with Android and QR code capabilities, an Arduino ESP32 board, and LED indicators, will form the core hardware setup.

On the software side, RecyNaija harnesses the power of Thirdweb, a platform that facilitates the creation and execution of smart contracts based on the ERC20 standard. These smart contracts, developed using Solidity, govern the issuance and exchange of RecyCoins, the project's native tokens. The implementation also encompasses the establishment of a frontend and backend system. The frontend interface allows users to interact with the recycling machine, to facilitate integration with the RBTC network, RecyNaija employs a backend and middleware solution that interacts with Thirdweb's SDK. This integration ensures the seamless flow of data and transactions between the recycling machine and the RBTC network's testnet. Additionally, a modified Metamask wallet is utilized to receive and store the RecyCoins earned by users during the recycling process.

The project's infrastructure will be supported by Render servers, which will provide the necessary hosting services, ensuring efficient and reliable system operation. Furthermore, the development process is streamlined using Gitpod, a collaborative development environment that enables effective teamwork and project management.

By utilizing Thirdweb, Arduino, Solidity, Metamask, Render, and Gitpod, RecyNaija establishes a robust technological foundation for the PET bottle recycling ecosystem in Nigeria. The combination of these technologies enables the scanning of PET bottles, issuance and exchange of RecyCoins through smart contracts, secure storage of tokens in the Metamask wallet, and seamless interaction with the RBTC network.

RecyNaija's holistic approach empowers users by rewarding them with RecyCoins for their recycling efforts, fostering a culture of sustainability and environmental awareness. These RecyCoins can later be redeemed for various rewards or used to participate in eco-friendly campaigns, further incentivizing individuals to actively engage in PET bottle recycling.

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Market Analysis

RecyNaija targets the significant market opportunity presented by Nigeria's plastic waste crisis. With a staggering 2.5 million tonnes of plastic waste generated annually, there is immense potential for growth and impact. By leveraging blockchain technology and a rewards-based system, RecyNaija differentiates itself from traditional recycling methods, offering a compelling solution to address the low recycling rates in the country.

Project Plan

The immediate focus for RecyNaija is to secure investment to enhance the project's Minimum Viable Product (MVP) and scale up its operations. This includes expanding the network of recycling machines across strategic locations in Nigeria and raising awareness about the RecyNaija initiative. The project aims to forge partnerships with local communities, businesses, and recycling companies to create a robust and sustainable recycling ecosystem.Additionally, RecyCoin envisions expanding the platform to recycle other materials like aluminum cans.

Team

Team Members:
Wisdom Nwakaku
The proposal author is the primary team member, bringing 4 years experience and expertise in blockchain technology, full stack development , recycling, and environmental challenges.
Emeka Chris
Mobile developer with 3 years experience in software development and fullstack dev.
Gavin Ursamali
Co-founder Conrad Robotics.

Resources:

The RecyNaija team comprises individuals with expertise in blockchain technology, full-stack development, recycling, and environmental challenges. The team has a deep understanding of the Nigerian market's needs and possesses the necessary skills to execute the project successfully. To bring the idea to life, RecyNaija will leverage resources such as blockchain platforms, smart contracts, scanning technology, and partnerships with recycling companies and local communities. Investment will be crucial to fund the project's growth and expand its impact nationwide.

In conclusion, RecyNaija aims to revolutionize plastic recycling in Nigeria by incentivizing individuals to actively participate in the process. Through the innovative use of blockchain technology and a rewards-based system, the project seeks to address the low PET bottle recycling rates and combat plastic pollution by fostering a sense of responsibility.