



TechSprint



Leveraging the power of AI



Team Details

- a. Team name:
- b. Team leader name:
- c. Problem Statement:

Code Craft
Soumik Samanta
Open Innovation

Brief about your solution and problem statement addressing :-

- a. Upload a **snapshot** of your plastic waste through the platform.
- b. **AI & ML** technology evaluates the **quality & quantity** of the plastic.
- c. **Cashback points** are generated based on the assessment.
- d. An **automated** system tracks the **user's location** and assigns the nearest trader for pickup. Users earn cashback points after selling plastic waste, redeemable for offers and prizes on third-party apps.
- e. The platform also allows users to **purchase recycled plastic products**.
- f. *The problem addresses **inefficient plastic waste management** and the lack of proper **tracking and recycling systems**.*
- g. *It aims to **reduce plastic pollution** by promoting **reuse and responsible disposal** through technology.*

Opportunities

a. How different is it from any of the other existing ideas?

- **Tracking** – Identifying where plastic waste comes from, how much is generated, and where it ends up.
- **Reducing** – Using the tracked data to reduce plastic usage at the source (shops, homes, schools).
- **Reusing** – Converting collected plastic into reusable or eco-friendly products instead of throwing it away.

b. How will it be able to solve the problem?

- **AI-based identification** is used to identify biodegradable plastic waste through image screening, evaluate its quality and quantity, and make it reusable.
- Users earn **cashback points** by selling plastic waste, which can be redeemed as discounts, coupons, deals, or rewards across partner platforms.
- The nearest trader is assigned for **waste collection** using path optimization, and users can also buy low-cost recycled and DIY products made from **reusable plastics** via the app or website.

List of features offered by the solution

- a. A multilingual android and web-based platform, based on **32 different languages**, which serves the term “Waste Management” a proper and efficient structure
- b. Providing a **secure employment** to those vendors who had unstable sources of income and were collecting recyclables door-to-door.
- c. Automatic generation of cashback points according to the quality and quantity of plastic wastes through Machine Learning and Artificial Intelligence.
- d. Once a trader is allocated to a user, an **AI-powered** 24/7 hotline chatbot is available, as well as **real-time tracking** of the trader's location.
- e. By enabling an additional option to incorporate our platform at the end of their **online bill**, every e-commerce website will find it easier to recycle the plastics used in their product packaging.
- f. Users can donate a set amount towards the **planting of a tree** at the end of each purchase of recycled plastic items, the geographical location of which will be shared with the user later.

Google Technologies used in the solution

□ Powered by Google

- **Google Cloud Vision** – Image recognition and screening of plastic waste
- **Artificial Intelligence & Machine Learning** – Classification, quality analysis and reward calculation

❖ AI & Machine Learning

- ✓ TensorFlow
- ✓ Keras
- ✓ OpenCV
- ✓ Python
- ✓ NumPy

❖ Mobile & Web Development

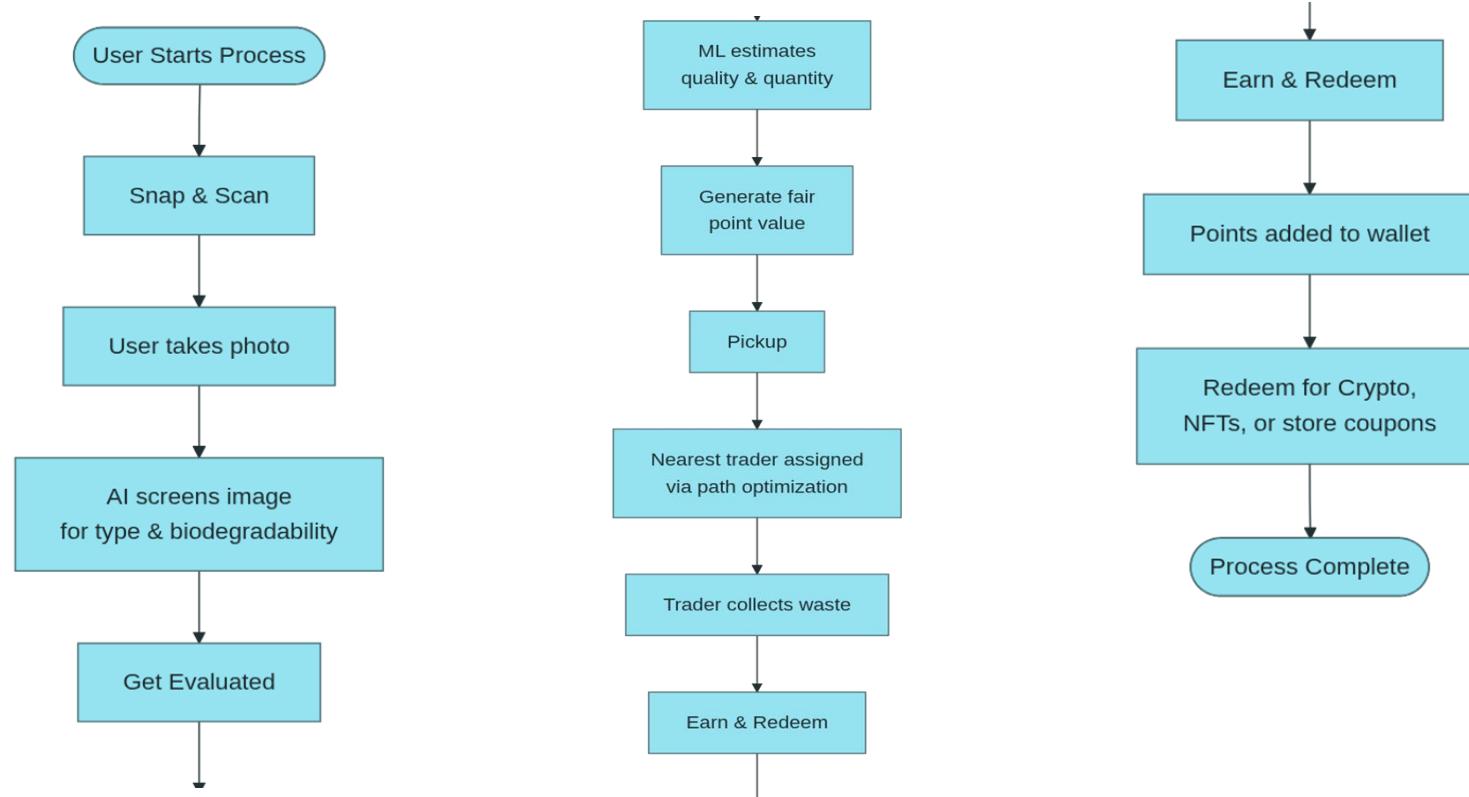
- Flutter
- Kotlin
- Android
- React

❖ Backend & Data Management

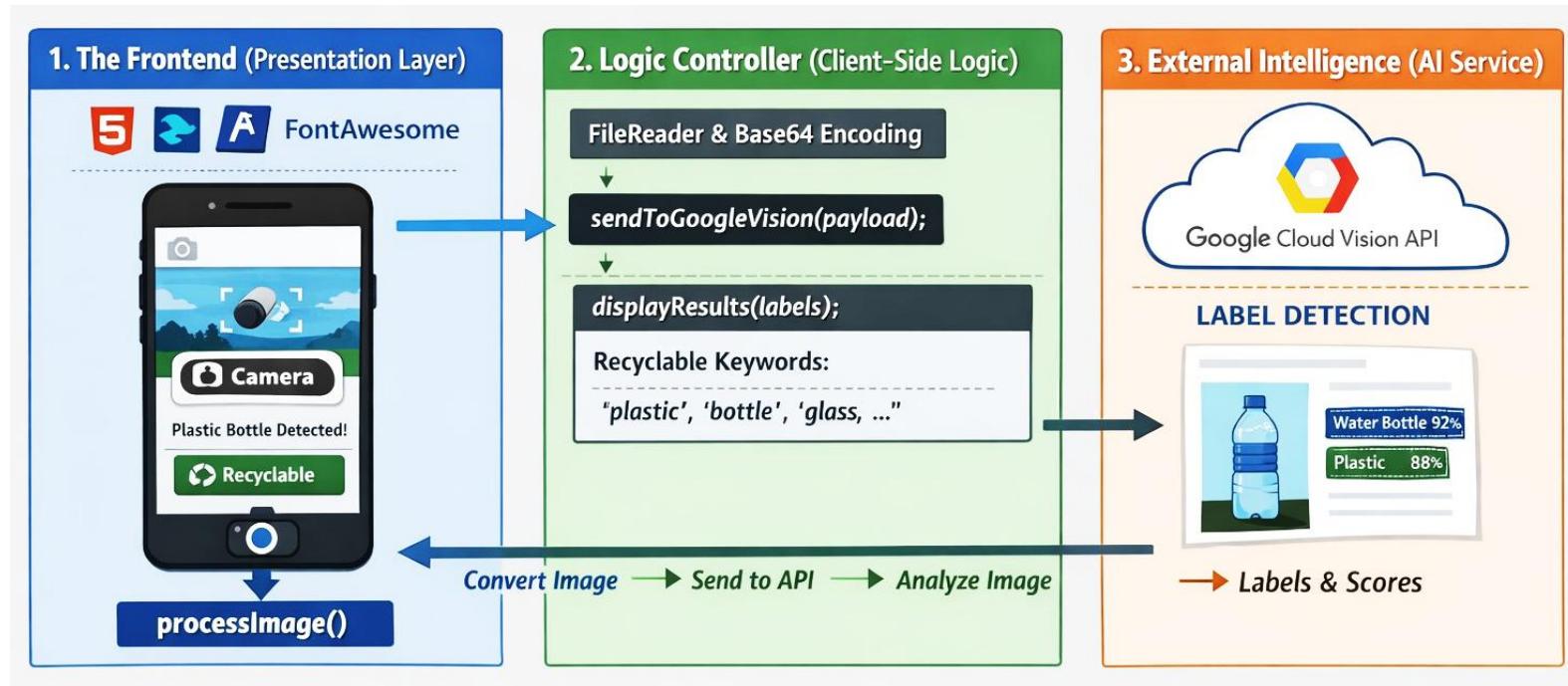
- Node.js
- MongoDB
- Firebase
- SQL



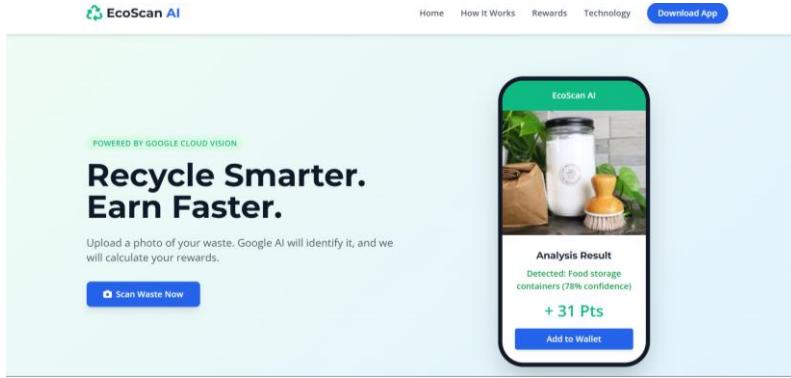
Process flow diagram or Use-case diagram



Architecture diagram of the proposed solution



Snapshots of the MVP



EcoScan AI

Home How It Works Rewards Technology Download App

POWERED BY GOOGLE CLOUD VISION

Recycle Smarter. Earn Faster.

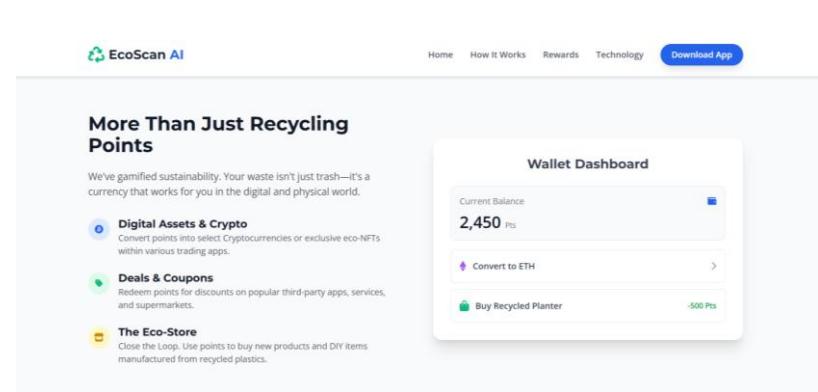
Upload a photo of your waste. Google AI will identify it, and we will calculate your rewards.

Scan Waste Now

Analysis Result
Detected: Food storage containers (78% confidence)

+ 31 Pts

Add to Wallet



EcoScan AI

Home How It Works Rewards Technology Download App

More Than Just Recycling Points

We've gamified sustainability. Your waste isn't just trash—it's a currency that works for you in the digital and physical world.

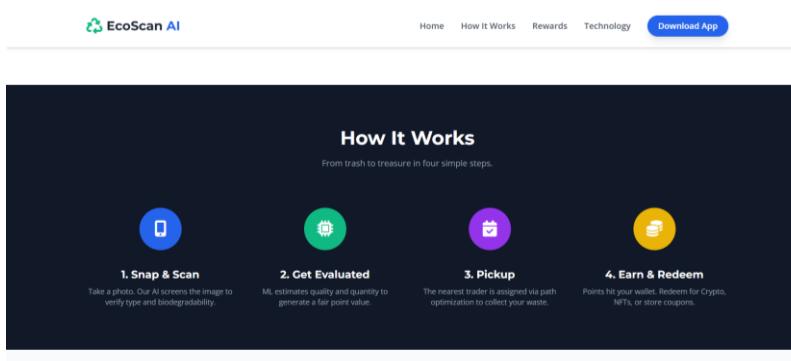
- Digital Assets & Crypto**
Convert points into select cryptocurrencies or exclusive eco-NFTs within various trading apps.
- Deals & Coupons**
Redeem points for discounts on popular third-party apps, services, and supermarkets.
- The Eco-Store**
Close the Loop. Use points to buy new products and DIY items manufactured from recycled plastics.

Wallet Dashboard

Current Balance: 2,450 Pts

Convert to ETH

Buy Recycled Planter -500 Pts



EcoScan AI

Home How It Works Rewards Technology Download App

How It Works

From trash to treasure in four simple steps.

- 1. Snap & Scan**
Take a photo. Our AI screens the image to verify type and biodegradability.
- 2. Get Evaluated**
ML estimates quality and quantity to generate a fair point value.
- 3. Pickup**
The nearest trader is assigned via path optimization to collect your waste.
- 4. Earn & Redeem**
Points hit your wallet. Redeem for Crypto, NFTs, or store coupons.



EcoScan AI

Home How It Works Rewards Technology Download App

The Easiest Way to Manage Home Waste

Plastic waste is accumulating. We use advanced AI to identify your waste, ensure it gets to the right traders, and reward you instantly.



AI-Powered Scanning
Instantly identify bio-degradable versus non-recyclable plastics just by taking a photo using computer vision.



Fair Value Rewards
Our Machine Learning algorithms calculate fair cashback points based on the exact quantity and quality of your waste.



Hassle-Free Pickup
We locate the nearest trader and optimize their path to your doorstep for efficient and fast collection.

Additional Details/Future Development (if any)

- Enhanced backend implementation for real-time tracking, secure data handling, and smooth system operations.
- Improved AI & ML models for accurate plastic identification, quality analysis, and reward calculation.
- Scalable system to support more users, locations, and higher volumes of plastic waste.
- Future integration with smart bins, analytics dashboards, and expanded partner rewards.

Provide links to your:

1. GitHub Public Repository

<https://github.com/SoumikSamanta123/Garbage-AI-System>

2. Demo Video Link (3 Minutes)

https://drive.google.com/file/d/1K2B8-xdVFsmdBvu1vtjph80XckIDqy6/view?usp=drive_link

3. MVP Link

<https://ecoai-red.vercel.app/>