

# ECOMIND

**Transforming Waste  
into Opportunity**



# Problem Statement

**To develop an AI based solution to improve the process of waste segregation, recycling and its overall management.**



# Solution Overview

**EcoMind is an AI-powered app that classifies waste, provides recycling techniques, and connects users with buyers for recyclables.**





# Our Approach

***Repurposing waste material by connecting those who want it with those who don't***

We connect buyers of waste material (farmers, NGOs, etc.) to those who want to sell or donate their unwanted waste material.

***Helpful advice through well-trained chatbots***

We use the Gemini API in our project (until we can use our own) to provide all-round support and advice to users regarding their waste management questions (and more).

# Our Approach

## *Segregate your waste using AI*

We have a well-trained AI model that can help you classify your waste material in 10 different categories, and give you some relevant information, which can help in simplifying the recycling process.

## *Learning can be fun!*

Our project contains a fun minigame, aimed at helping people (especially children) learn more about waste segregation and its benefits.

# The need for this solution

We noticed the lack of awareness/care for waste management as a whole, and wanted to provide a one-stop solution where people can :

- Get rid of their waste, and rest assured in knowing that it has been put to good use.
- Easily source material for their recycling projects, composte/fertilizer production and much more.
- Learn more about the waste that is generated around them, to increase awareness.

We hope that this app can help bring about a positive change in the seemingly worsening field of waste management in our environment.

# OVERALL FOCUS

- ✓ Encouraging waste classification and recycling
- ✓ Providing AI-based insights on recyclables
- ✓ Enabling buying and selling of recyclables
- ✓ Educating users through a chatbot and facts section
- ✓ Rewarding users for eco-friendly actions

# Methodology

Use Flutter to build the structure of the app.

## **Add a backend using FireBase**

Create Buyer and Seller pages for the users.

## **Design the user interface using Figma**

AI aspects :

Train the Tensorflow AI model with the help of the Kaggle environment .

The model is trained on the dataset which was free to use on kaggle.

Fetch Gemini's API key and develop a chatbot page for the app.


**Use the tflite\_flutter dependency to integrate the trained AI model into the app**





# SIGN IN/SIGN UP PAGE

00:10 5G+ 51% DEBUG

 EcoMind

Good to see you back!


Email

Password

Continue

Don't have an account? [Sign Up](#)

00:10 5G+ 51% DEBUG

 EcoMind

Make an account!

Username

Email


Password

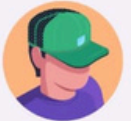
Continue

Already have an account? [Sign In](#)

# PROFILE PAGE

00:08 5G+ 58% DEBUG

 EcoMind

 krish

Phone No 9429048005

Email ID krish@gmail.com

Organization KBM

Reward Points 0


About Developers

Logout

Home Cart Profile

00:09 5G+ 57% DEBUG

Edit Profile

 krish

Edit your details

Username krish

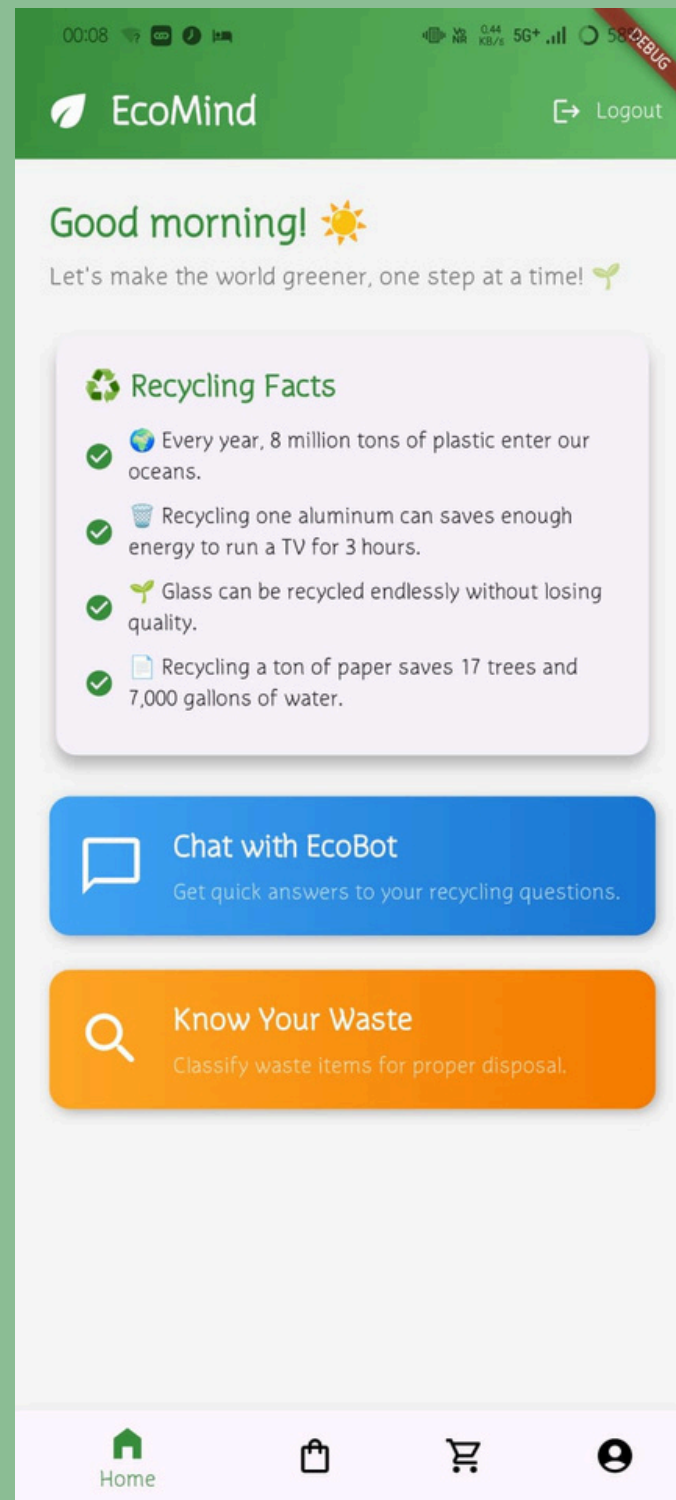
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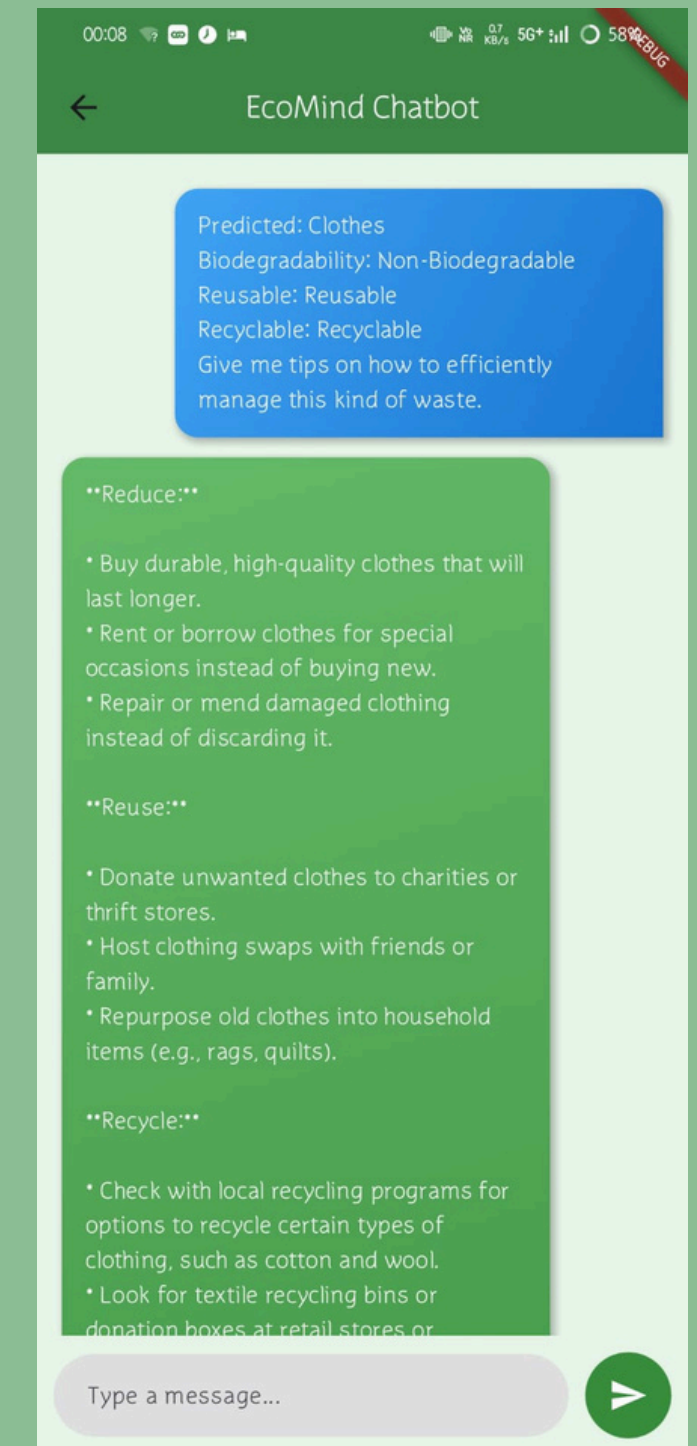
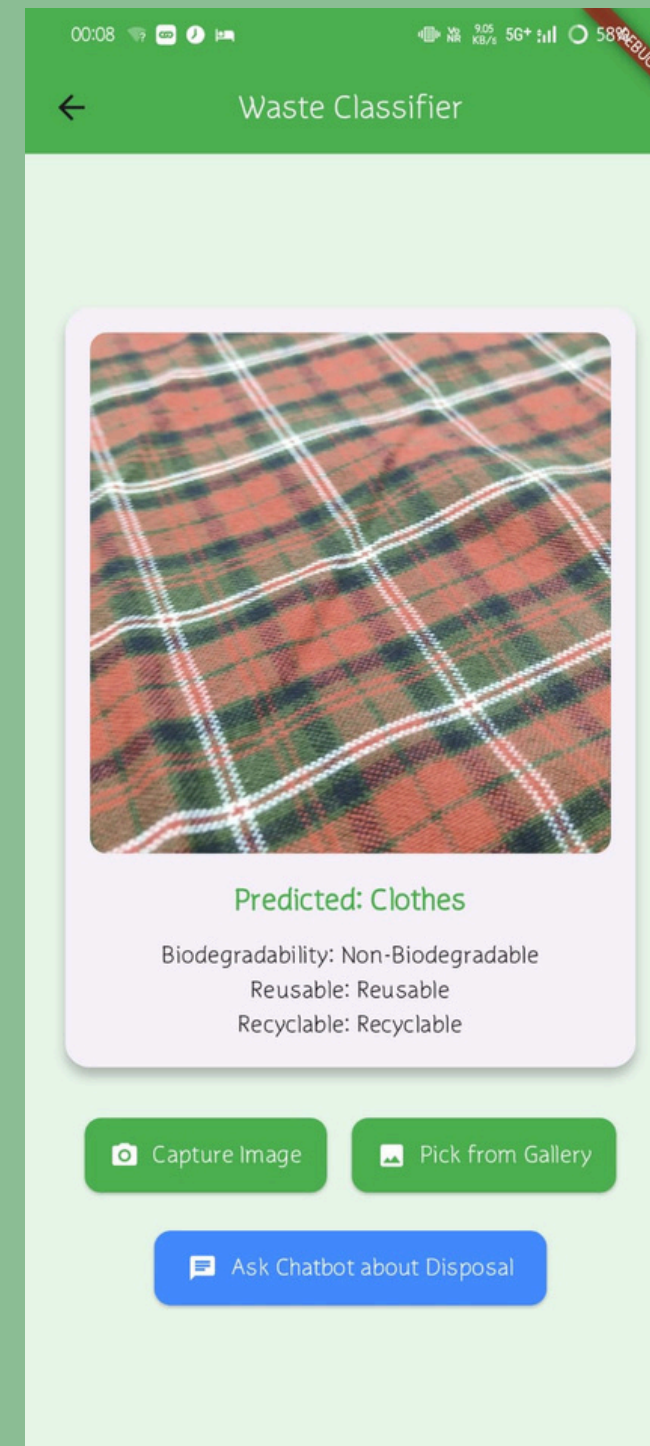
Organization KBM

Update Profile

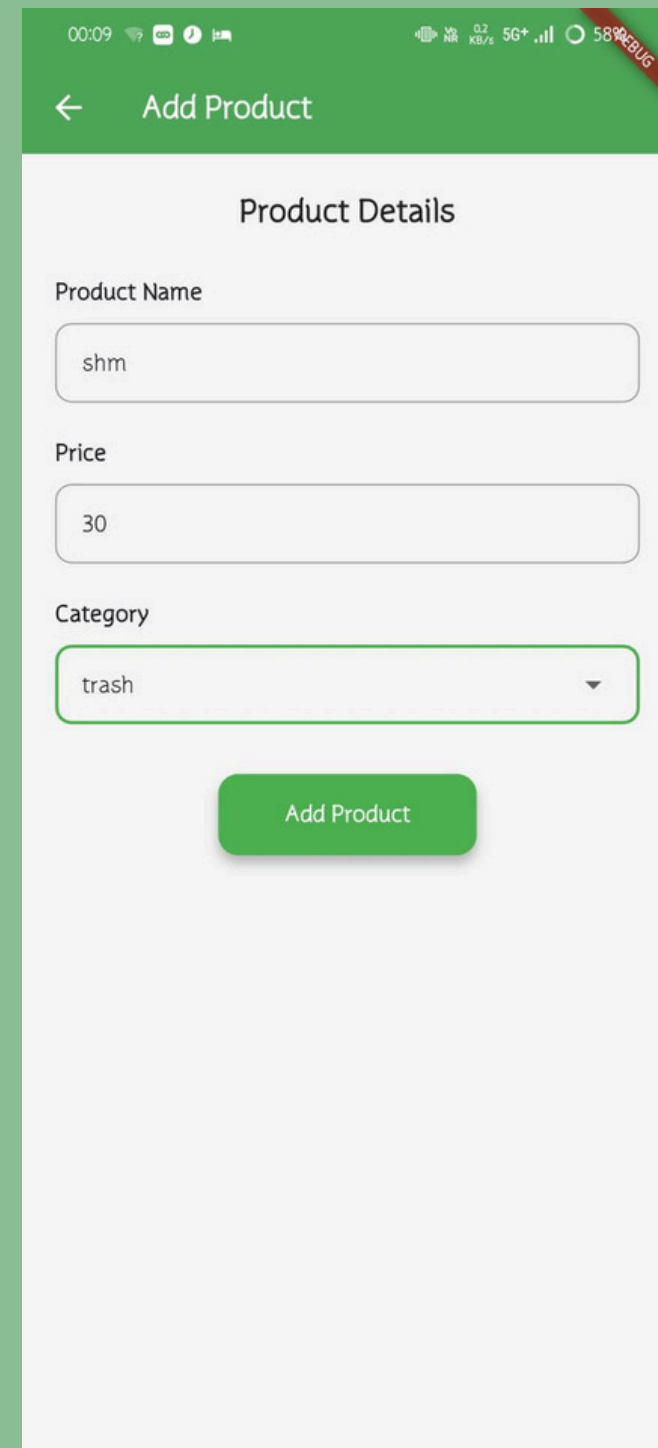
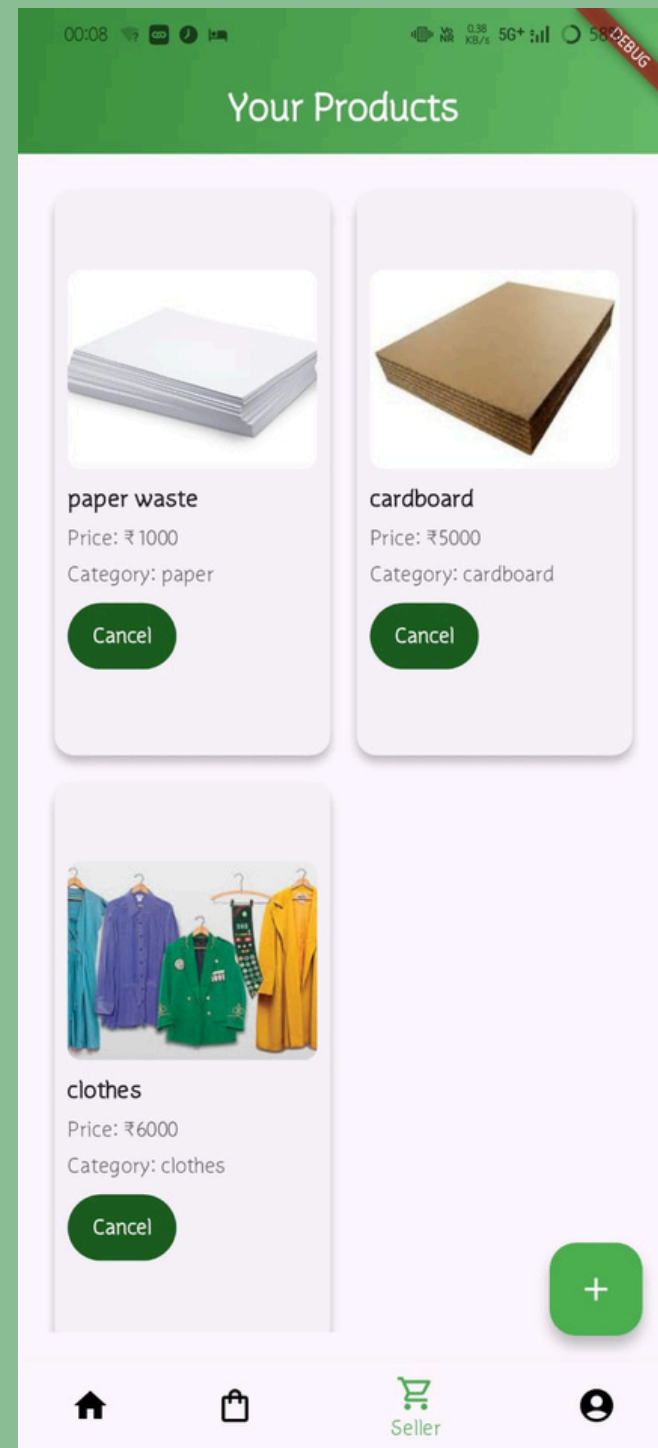
# HOME PAGE



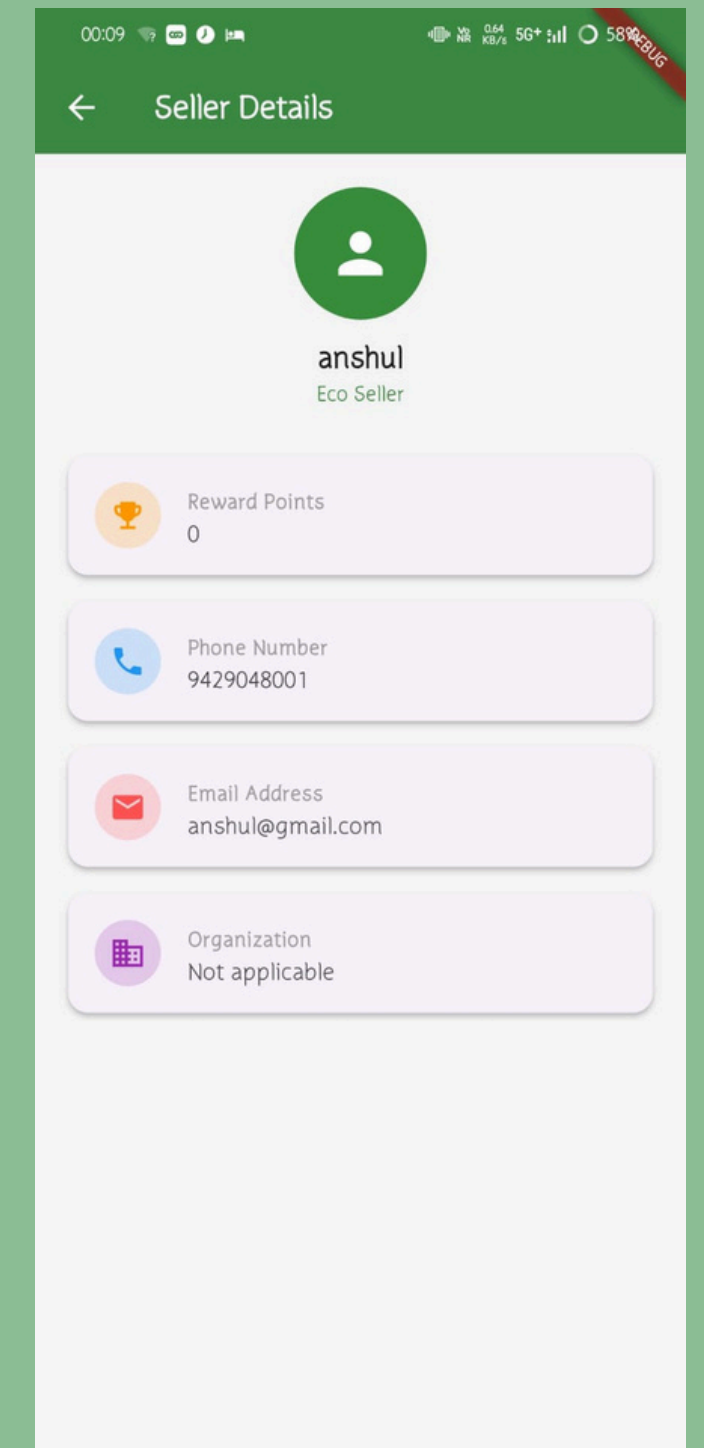
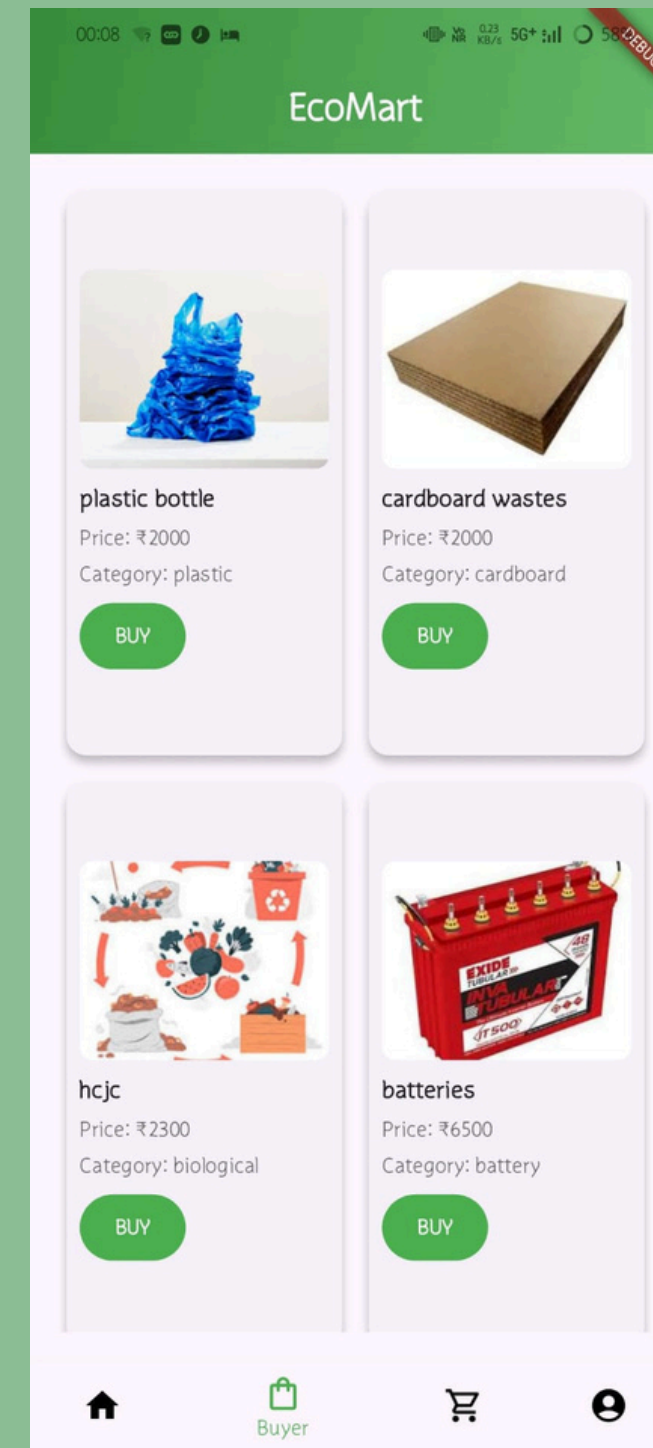
# SCANNER & CHATBOT



# SELLER PAGE



# BUYER PAGE



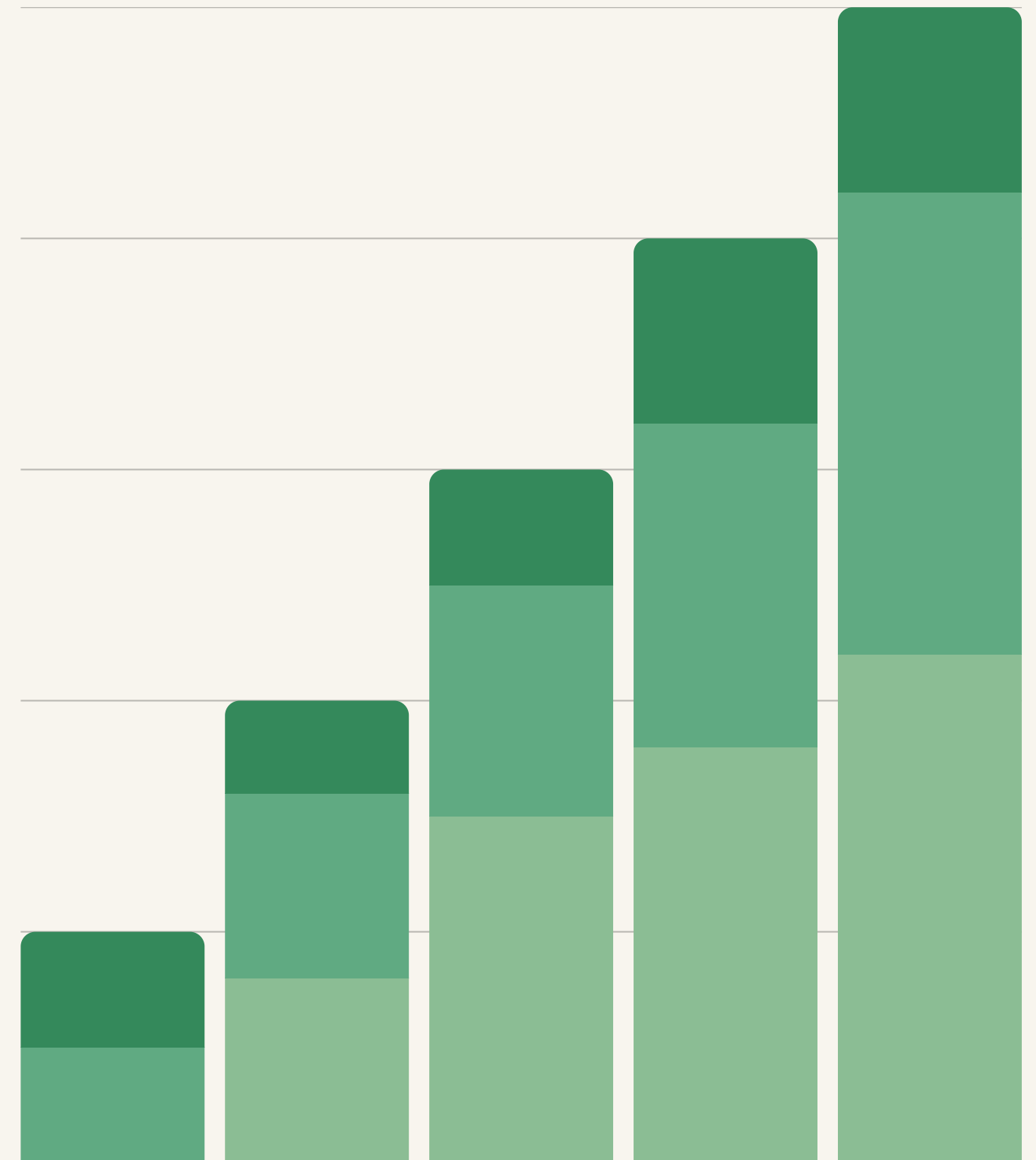
# Scope For Further Improvement

We can improve the accuracy of the AI model by using more advanced training methods and customised data sets.

## Add Cross Platform support

Adding Community & Social Features

## Sustainability Partnerships





# SDG & AI

# SDG 11: Sustainable Cities & Communities

- Integration with Recycling Centers: AI suggests nearest waste disposal or recycling options.
- Public Awareness Through AI Chatbot: Educates communities on sustainable practices via Dialogflow-powered chatbot.

# SDG 12: Responsible Consumption & Production

- **AI-Powered Waste Classification:** Helps users properly sort waste into recyclables, reducing landfill waste.
- **Marketplace for Recycled Items:** Encourages a circular economy, preventing unnecessary waste.



# Sources

Datasets [from Kaggle]:  
mostafaabla/garbage-classification  
sumn2u/garbage-classification-v2

ChatBot API: <https://ai.google.dev/>

Flutter  
TensorFlow

Kaggle  
Firebase



**THANK  
YOU VERY  
MUCH!**

