



EcoSnap: Citizen-Led Plastic Waste Reporting App



Project Overview

EcoSnap offers a unique citizen-led approach to plastic waste reporting, combining geo-tagged photo submissions with real-time dashboards. While similar civic reporting apps exist, EcoSnap focuses specifically on plastic pollution, empowering everyday users to act as environmental watchdogs. The integration of gamification (optional), open data sharing, standard issue-reporting platforms. It can help cities track plastic hotspots, inform cleanup drives, and raise public awareness. In educational contexts, it can even serve as a community engagement tool. Long term, it can contribute to policy-making with valuable location-based pollution data. With just a few taps, users can:

Snap a photo of plastic waste.

Auto-tag its GPS location.

Add a quick note.

Submit the report to a centralized cloud database.

While civic-tech monetization can be challenging, EcoSnap could evolve into a platform for sustainable data services, much like Swachh Bharat's integration with local apps.

All submissions are displayed live on a map-based dashboard powered by Firebase and Google Maps, enabling NGOs, city cleaners, and environmental researchers to take real-time action.

Goal: Turn every smartphone into a powerful reporting tool for plastic pollution, transforming civic participation into environmental impact.



Problem Statement


Plastic waste often goes unreported and ignored. Authorities, NGOs, and research bodies lack reliable data on its location and scale. EcoSnap aims to solve this through a decentralized, citizen-driven approach.

Objectives:

Create environmental awareness through participation.

Build an open platform for plastic waste reporting.

Assist municipalities and NGOs with crowdsourced data.

 Tech Stack	
Component	Tool/Platform
Frontend (Mobile)	Flutter
Location Services	Google Maps API
Storage	Firebase Cloud Firestore
Image Storage	Firebase Cloud Storage
Authentication (optional)	Firebase Auth (email/anon)
Admin Dashboard	Could be a simple Flutter Web, React, or Streamlit app

App Features (MVP)

User Side:

Photo Capture - Upload or snap a picture of visible plastic waste.

GPS Location Tagging - Auto-detect and embed current GPS location.

Add Note - Optional comment describing the waste.

Submit Report - Sends metadata to Firestore and image to Storage.

Success Screen - Confirmation message and share option.

Admin Side (Optional):

Live map view of reports.

Filter by date, area.

Export to CSV for research or municipal action.



Firestore Data Structure

```
/reports (collection)
├─ reportID (doc)
│   ├── imageUrl: string
│   ├── lat: double
│   ├── lng: double
│   ├── note: string
│   ├── timestamp: DateTime
│   └── userId: string (optional)
```



Architecture & Workflow

User Workflow:

Snap Photo → Auto-fetch GPS → Add Note → Submit Report

Backend Flow:

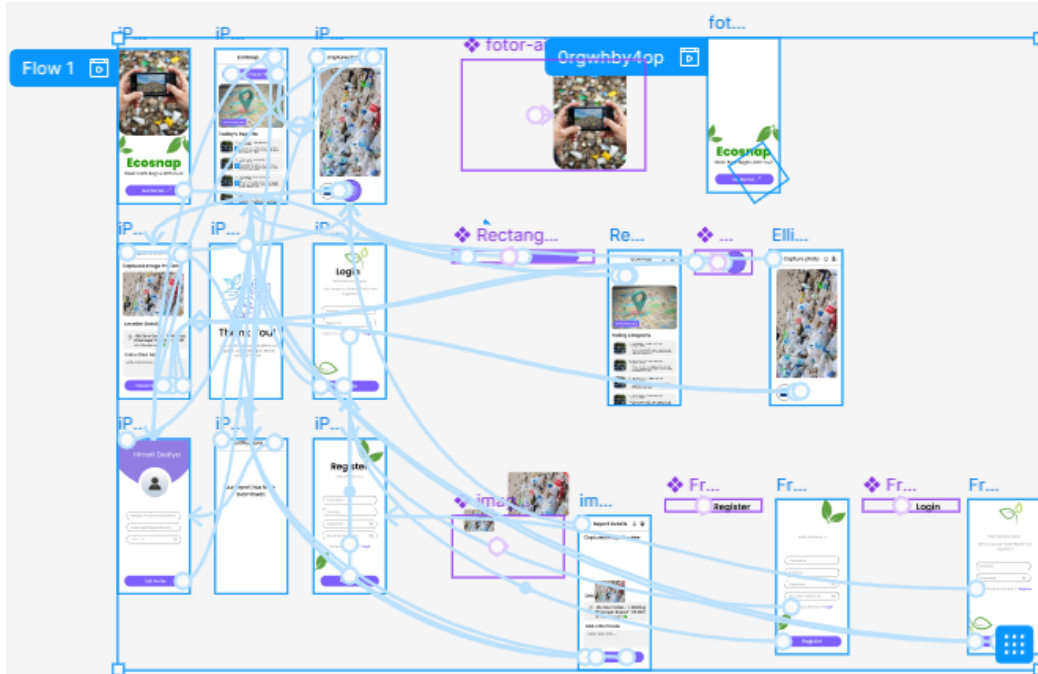
Firebase Storage (photo) + Firestore (metadata) → Admin dashboard visualizes in real time.



UI Flow

Figma link

<https://www.figma.com/design/JVN1G13eDAvzYag77T6oHq/Winning-Hackathon-Project?node-id=0-1&t=eqHclwleuOjJ0zBy-1>



UI Layout (User App)

1. Home Page

- Title: "Report Plastic Waste"
- Button: "Capture Waste"

2. Capture Page

- Camera/image picker
- Google Map (auto-location preview)

3. Details Page

- Text input for optional note
- Submit button

4. Success Page

- Thank you + “Share on social media” option

Final Words

EcoSnap turns passive observation into environmental action. It’s a scalable, community-powered solution that bridges everyday tech and sustainability. Perfect for civic hackathons and a real-world impact story in the making.

Slogan: "Snap the Waste. Save the Planet."

Help the planet? Let's build EcoSnap! 