SHRI GOVINDRAM SEKSARIA INSTITUTE OF TECHNOLOGY AND SCIENCE, INDORE

Executive Summary

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Team Name: Trashformers

Team Members:

    a. Abhigyan Sharma
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About Us

Abhigyan Sharma | LinkedIn : I am an undergraduate in Computer Science at SGSITS, Indore currently in my final year. I have experience in Full Stack Development and Machine Learning. I have a deep understanding of frameworks such as SpringBoot, React, Flask and Scikit-Learn and I am proficient in languages such as Java, Python and mySQL.

Saransh Bhawsar | GitHub : I am an undergraduate in Electronics and Instrumentations at SGSITS, Indore, currently in my final year. I have experience in Full Stack Development and Artificial Intelligence along with deep understanding of JRE Node, Reactjs, Expressjs, Typescript, Nextjs, MongoDB and Django. And i am proficient in languages such as Java, Python, mySQL and C.

Brief Understanding Of Problem Statement

Beach Cleanup drives are often disorganised, hard to discover and lack measurable impact. Volunteers face confusion about event locations, timings, guidelines, while organisers struggle to coordinate people, manage equipments and track waste collected. According to a report from Mumbai, A student-led initiative drew only **10–30 volunteers weekly**, struggling due to toxic conditions and public hesitation.

There's also no efficient way to quantify the social or environmental impact or keep volunteers engaged over time.

Proposed Solution

COLOR TEAMING

- The volunteers will be divided in different zone teams (red, blue, etc) . They can choose between the zones or will be allotted randomly. They can also see information of how many volunteers are needed at which zone and how many have already committed.
- The organisers will mention in the details of the events about what equipment are to be brought at which zone and what will be provided.
- This will help in optimising volunteer deployment and solve queries related to equipments.

WASTE COLLECTED QUIZ

- We will create interactive quizzes for the volunteers to inquire what wastes they found on the beach like a slide-bar to select the amount of plastic bottles found or arranging the type of waste in order of their collection. They will also have an option to share these details in the form of stories on their social media tagging the event and the website.
- This will help in making the clean-up drive fun and engaging for the volunteers and will also account to tracking waste collection and report generation.
- Also the organisers will be asked questions for how many buckets were collected of different type of wastes to measure impact and for proper analysis.

BADGES AND SHOUTOUTS

- Badges will be provided to regular participants and different teams will nominate best performers among them which will be added to the flyers and banners on the social media and Dashboard. The organisers can further state prizes if any while giving details of events.
- This will act as an incentive for the clean-up drives and will help in volunteers retention.
- Different scorecards will be awarded to volunteers who provide useful images of the clean-up drive.
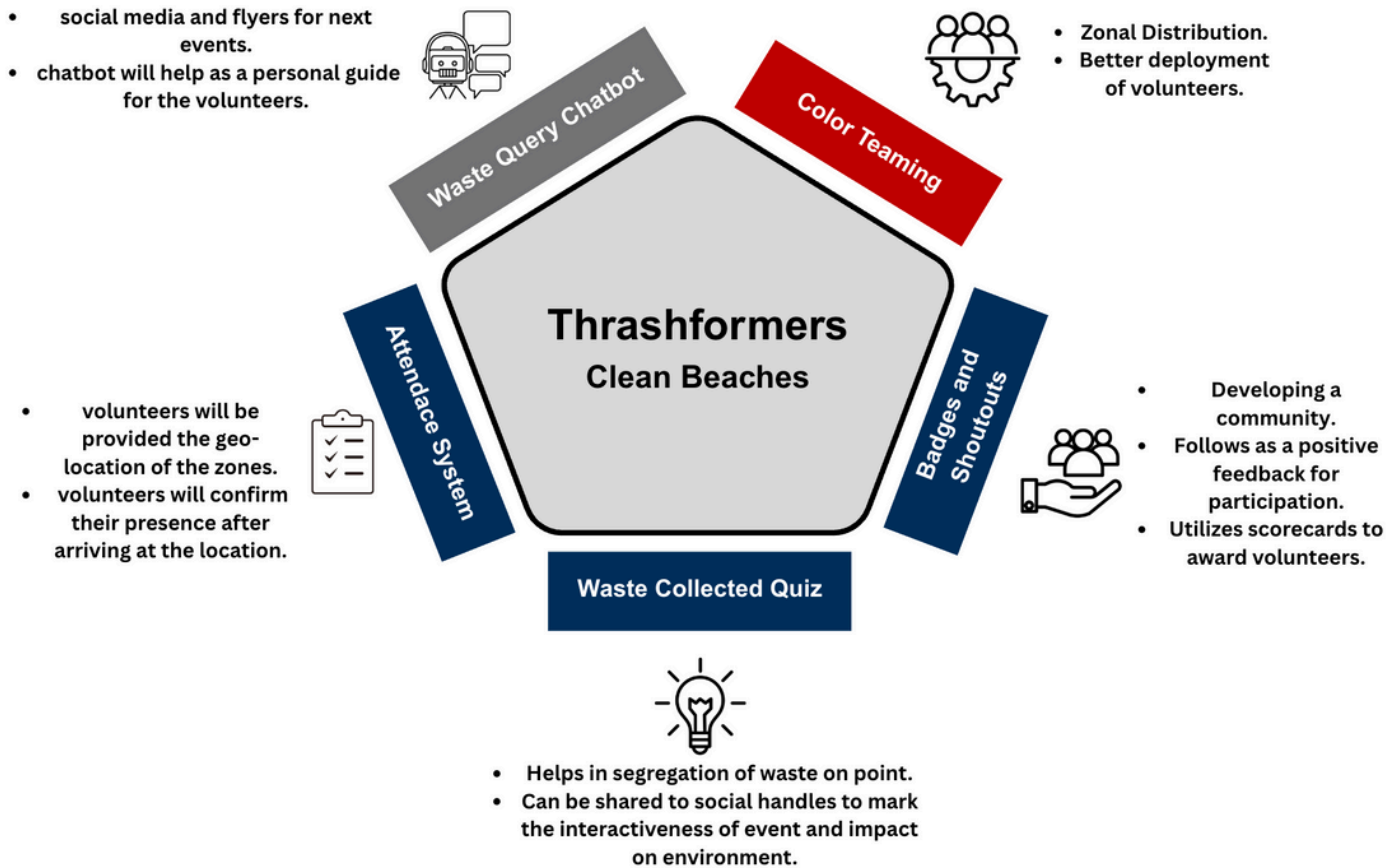
WASTE QUERY CHATBOT

- We will be creating a chatbot using AWS bedrock and a RAG model fed up with the waste segregation guidelines for beach garbage.
- Also AWS bedrock will be used with the data collected from the quizzes to make posts for social media and flyers for next events.
- This chatbot will help as a personal guide for the volunteers for waste related queries and will help them in segregation. This will also solve the problem of making posts and flyers.

ATTENDANCE SYSTEM

- The volunteers will be provided the geo-location of the zones they are allotted and are supposed to reach. They will receive notifications of the event before starting through auto scheduled whatsapp groups.
- The volunteers will confirm their presence after arriving at the location. They can also choose options like "running late" or "can't come" which will be active 2 hours before commencing. There will also be a "maybe" option which will store a backup list, they will be alerted by the organisers through auto-alert if needed.
- This will solve the problem of volunteers not showing up, missing out on events or reaching at wrong location.

Working Diagram

- social media and flyers for next events.
- chatbot will help as a personal guide for the volunteers.

Waste Query Chatbot

Color Teaming

- Zonal Distribution.
- Better deployment of volunteers.

Attendace System

Thrashformers
Clean Beaches

Badges and Shoutouts

- volunteers will be provided the geo-location of the zones.
- volunteers will confirm their presence after arriving at the location.

- Developing a community.
- Follows as a positive feedback for participation.
- Utilizes scorecards to award volunteers.

Waste Collected Quiz

- Helps in segregation of waste on point.
- Can be shared to social handles to mark the interactiveness of event and impact on environment.

Development Tools Required

Tools	Version	Tools	Version	Tools	Version
Operating System	MacOS 15.2	React.js	18.3	LangChain	0.2.1
VS Code	1.90.2	Ubuntu	24.04	AWS Bedrock	Latest
Node.js	22.2.0	Flask	3.0.2	FAISS	1.8.0
Python	3.12.3	Firebase Auth	v11+	MongoDB	v7.0
pymongo	v4.6.3	mongoengine	0.27.0	Leaflet.js	1.9.4
Tailwind CSS	3.4.3	Recharts	2.7.2	Heroicons	2.1.1
Homebrew	4.3.1	Docker Desktop	25.0.4	Postman	11.0.0