



**Persistent**



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# **Trassist: An AI Driven Trash Assistant**

**Team: Team Trassist**  
**IBM Code Challenge 2023**



# Introduction

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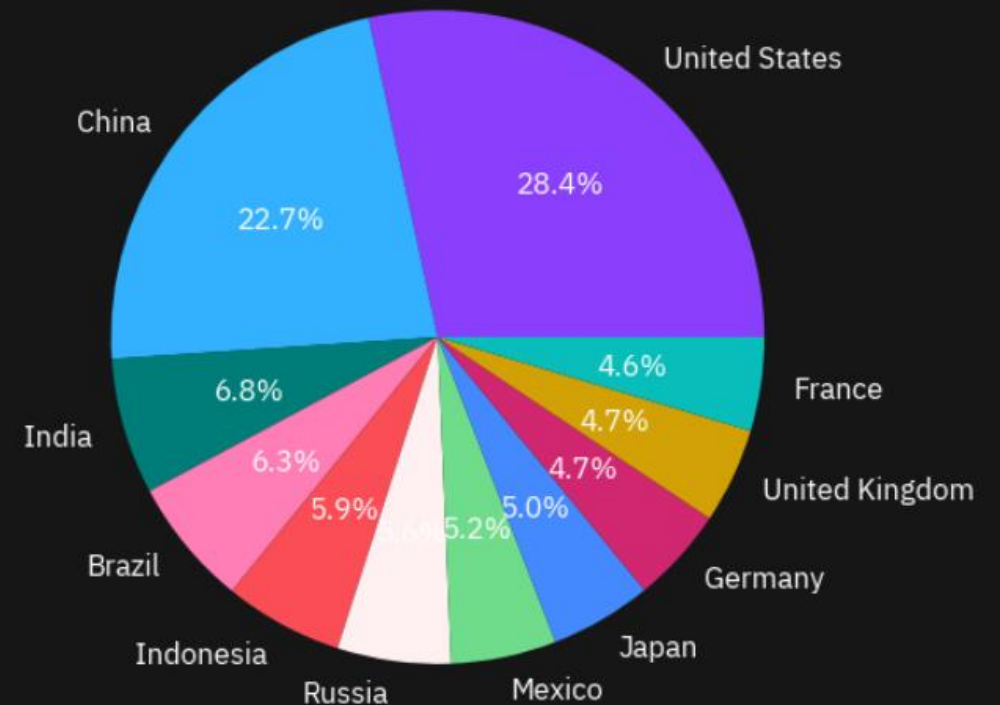
- Waste management is a major challenge facing both India and the world.
- In 2022, India generated an estimated **62 million tones** of municipal solid waste, and this is expected to **double by 2050**.
- **Globally**, the amount of waste generated is expected to reach **3.4 billion tones** per year by 2050.
- Most of the waste gets **dumped in landfills**.

# Waste dumped in landfills each year.

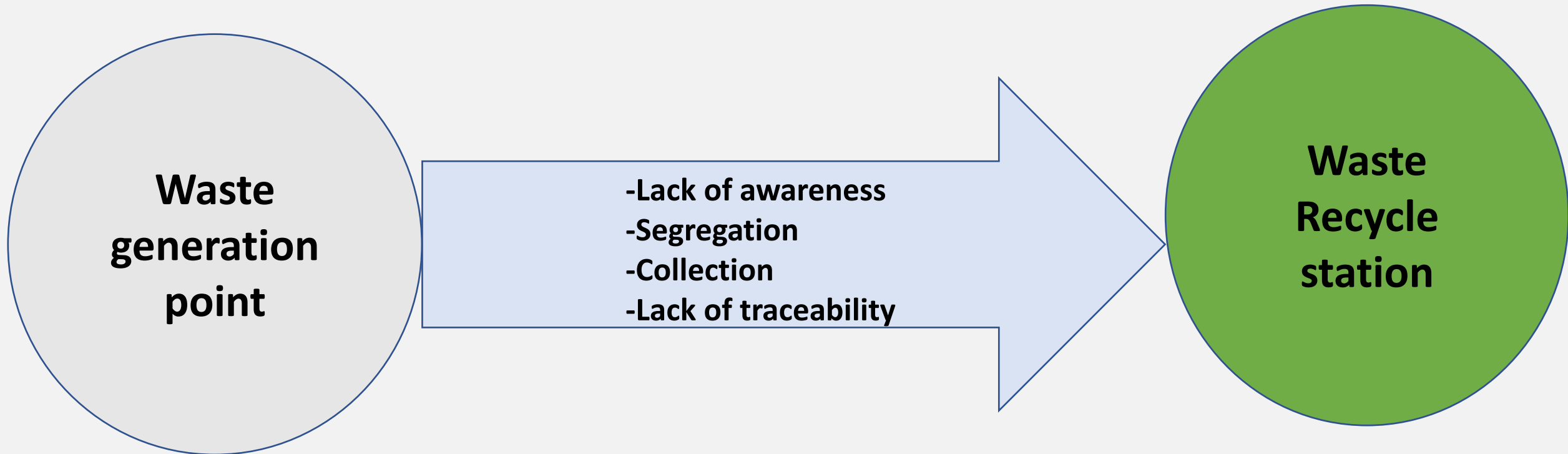
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- As you can see, the United States is the world's largest producer of landfill waste, followed by China and India.
  - These three countries together account for over half of all landfill waste generated worldwide.

**This can be avoided by effective waste management and recycling.**

Comparison of landfill waste generation per year



# Pain Points of Waste Management



# Impact of Improper Waste Management



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Improper waste management has several negative impacts, including:

- **Environmental pollution:** Improperly disposed waste can pollute the air, water, and soil.
- **Public health risks:** Improper waste management can lead to the spread of diseases.
- **Economic losses:** Improper waste management can lead to economic losses through damage to property and infrastructure.

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**Problem Statement:** To **design a system** to reduce trash going to landfills by collecting it at the source and transferring it to recycling stations.

- **Our Solution:**

We have developed **an AI-driven mobile app** can help you exchange waste for rewards. We are using Machine learning model to identify trash.

- A waste management point of contact will collect your waste from your address in exchange for reward points. The app also generates data about the amount of waste generated in different locations, which can be used to improve waste management.
- By using the app, you can help promote sustainability and a healthy ecosystem.
- **App will address all pain points of waste management.**

# Trassist



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We developed an AI-driven mobile application for waste exchange which capable do below details:

- **Exchange waste for rewards:** Users can exchange their household waste for rewards.
- **AI-based image processing:** The app will use AI-based image processing to identify and categorize the waste.
- **Waste management point of contact:** A Trash collector will be assigned to the user to collect the waste from their address in exchange for reward points.
- **Data generation:** The app will generate data for geographic locations regarding the amount of waste generated for different categories, which can be used to inform future waste management decisions.
- **Sustainability and healthy ecosystem:** The app will help to promote sustainability and a healthy ecosystem by encouraging and educating users to segregate their waste and reduce the amount of waste sent to landfills.

# App demo



Welcome To



**Schedule a Pick-up!**

Open-up a request to pick-up trash from your doorstep.

NEXT

Welcome To





**Segregate and Handover**

Segregate your trash and hand it over to the executive. He will weigh it and collect it.

NEXT

Welcome To





**Collect Rewards!**

Once weighed and verified, the relevant amount will be transferred to your account or donated to an NGO as per your preferences.

NEXT

Welcome To





**Trash Analysis!**

Check out the visualization showing waste analysis from around the world! Also learn how Trassist helps reduce waste going to landfill!

NEXT

Welcome To



**Save the environment!**

Thank you for your dedication to making the world a better place by responsibly disposing of waste!

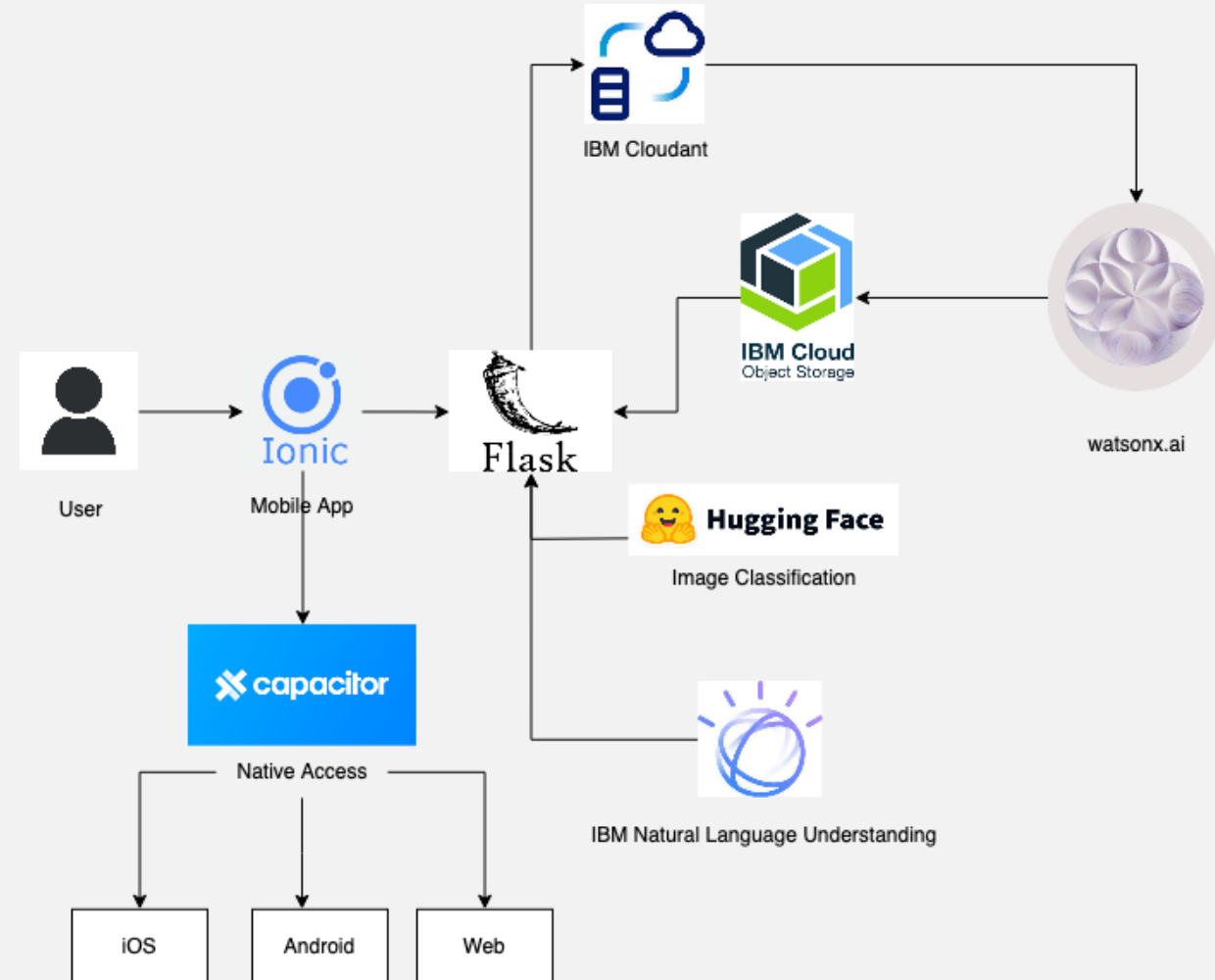
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# Solution Architecture



- Our Solution comprises of both front end and backend framework connected over API services
- User interacts with mobile app deployed on flask server.
- Solution uses IBM NLU, cloud and watsonx.ai services to perform the various tasks



# Conclusion



Environmental benefits: The app will help to reduce the amount of waste sent to landfills, conserve resources, and reduce greenhouse gas emissions.



Economic benefits: simple and effective solution to the problem of waste management.



Social benefits: The app can educate users about the importance of waste management and encourage them to adopt sustainable practices. It has the potential to revolutionize the way waste is managed in India and around the world.

# Business Value



Huge data will be generated which can be useful for waste recycling companies. As well as government to decide strategies.

Will reduce cost of waste collection and transportation by optimizing trash flows from generation points to waste recycle stations.

Users will be benefited by providing waste.

One stop solution for converting trash to treasure.

# Roadmap Timeline



**Oct 2023** -  
Implement  
pickup  
mechanism

**Dec 2023** -  
Create admin  
login

**Feb 2024** -  
Enhance  
Reward system  
and Optimize AI  
model

**Apr 2024** - Get  
feedback from  
real time users  
and enhance  
user experience

**Nov 2023** -  
Connect  
with waste  
recycling  
companies

**Jan 2024** -  
Create  
interface  
for waste  
recycling  
companies

**Mar 2024** -  
Establish  
connection  
with  
Government  
entity and  
NGOs

**May 2024** -  
Expand  
userbase from  
regional to  
district level.



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