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Team ID	NM2023TMID01995
Project Name	Food Tracking System

1. INTRODUCTION

Project Overview

With the increasing population and industrialization of nations throughout the globe, waste has become a great concern for all of us. Over years, researchers figured that only waste management is not enough for its proper treatment and disposal techniques to preserve our environment and keeping it clean in this era of globalization. With the help of technology researchers have, introduced IoT based Smart Waste Management solutions and initiatives that ensures reduced amount of time and energy required to provide waste management services and reduce the amount of waste generated. Unfortunately, developing countries are not being able to implement those existing solutions due to many factors like socio-economic environment. Therefore, in this research we have concentrated our thought on developing a smart IoT based waste management system for developing countries like INDIA that will ensure proper disposal, collection, transportation and recycling of household waste with the minimum amount of resources being available

Purpose

We amalgamate technology along with waste management in order to effectively create a safe and a hygienic environment. Smart waste management is about using technology and data to create a more efficient waste industry. Based on IoT (Internet of Things) technology, smart waste management aims to optimize resource allocation, reduce running costs, and increase the sustainability of waste services. This makes it possible to plan more efficient routes for the trash collectors who empty the bins, but also lowers the chance of any bin being full for over a week. A good level of coordination exists between the garbage collectors and the information supplied via technology. This makes them well aware of the existing garbage level and instigate them whenever the bins reach the threshold level. They are sent with alert messages so that they can collect the garbage on time without littering the surrounding area. The fill patterns of specific containers can be identified by historical data and managed accordingly in the long term. In addition to hardware solutions, mobile applications are used to overcome the challenges in the regular waste management system, such as keeping track of the drivers while they are operating on the field. Thus,smart waste management provides us with the most optimal way of managing the waste in an efficient manner using technology

2. IDEATION & PROPOSED SOLUTION

Problem Statement Definition

Proposed Solution :

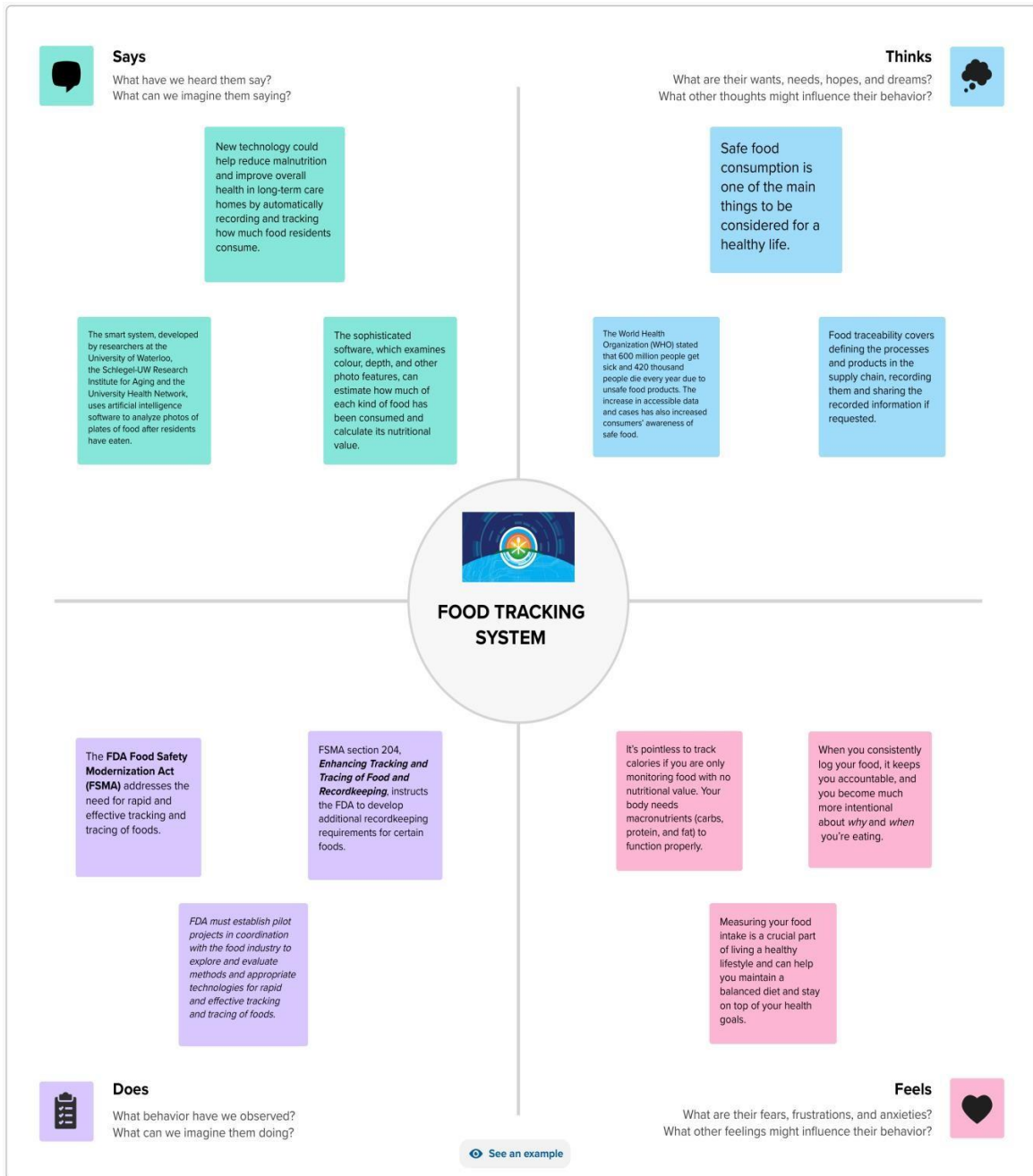| Problem Statement(PS)	I am (Customer)	I'm tryingto	But	Because	Which makes me feel
NON-OPTIMIZATIONOF TRUCK ROUTE	Truck driver	Making waste collection as efficient possible for the smart waste management system.	Non-optimization of truck routes results in time delay	The routeis not optimized and difficultes in identifying the shortest path and distance	Tired and frustrated
EVERCHANGING CLIMATE	Consumer	Reduce,Reuse and Recycle	Landfills (Decay of waste in landfills)	High level of methanegas and C02 are generated by waste decomposition	Frustrarted & Anxiety
CHANGING CONSUMER PREFERENCES	Consumer	Reducing pollution, conserving reserving resources and recycling	Impacts of environmental responsibility an changing consumer behaviour	Poor waste management,in effective disposal causes air,water,soil pollution	Anxiety

Empathy Map Canvas

Empathy map

Use this framework to develop a deep, shared understanding and empathy for other people. An empathy map helps describe the aspects of a user's experience, needs and pain points, to quickly understand your users' experience and mindset.

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Need some inspiration?

See a finished version of this template to kickstart your work.

Open example →

Says

What have we heard them say?
What can we imagine them saying?

New technology could help reduce malnutrition and improve overall health in long-term care homes by automatically recording and tracking how much food residents consume.

The smart system, developed by researchers at the University of Waterloo, the Schlegel-UW Research Institute for Aging and the University Health Network, uses artificial intelligence software to analyze photos of plates of food after residents have eaten.

The sophisticated software, which examines colour, depth, and other photo features, can estimate how much of each kind of food has been consumed and calculate its nutritional value.

Thinks

What are their wants, needs, hopes, and dreams?
What other thoughts might influence their behavior?

Safe food consumption is one of the main things to be considered for a healthy life.

The World Health Organization (WHO) stated that 600 million people get sick and 420 thousand people die every year due to unsafe food products. The increase in accessible data and cases has also increased consumers' awareness of safe food.

Food traceability covers defining the processes and products in the supply chain, recording them and sharing the recorded information if requested.

FOOD TRACKING SYSTEM

Does

What behavior have we observed?
What can we imagine them doing?

The **FDA Food Safety Modernization Act (FSMA)** addresses the need for rapid and effective tracking and tracing of foods.

FSMA section 204, *Enhancing Tracking and Tracing of Food and Recordkeeping*, instructs the FDA to develop additional recordkeeping requirements for certain foods.

FDA must establish pilot projects in coordination with the food industry to explore and evaluate methods and appropriate technologies for rapid and effective tracking and tracing of foods.

Feels

What are their fears, frustrations, and anxieties?
What other feelings might influence their behavior?

It's pointless to track calories if you are only monitoring food with no nutritional value. Your body needs macronutrients (carbs, protein, and fat) to function properly.

When you consistently log your food, it keeps you accountable, and you become much more intentional about *why* and *when* you're eating.

Measuring your food intake is a crucial part of living a healthy lifestyle and can help you maintain a balanced diet and stay on top of your health goals.

See an example

Ideation & Brainstorming

Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

- 🕐 **10 minutes** to prepare
- ⏳ **1 hour** to collaborate
- 👤 **2-8 people** recommended

⟲ Share template feedback

→

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

🕐 **10 minutes**

A **Team gathering**
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

B **Set the goal**
Think about the problem you'll be focusing on solving in the brainstorming session.

C **Learn how to use the facilitation tools**
Use the Facilitation Superpowers to run a happy and productive session.

Open article →

1

Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

🕐 **5 minutes**

PROBLEM
Smartcity waste Management System with connected trashcans

Key rules of brainstorming
To run an smooth and productive session

- 😊 Stay in topic.
- 💡 Encourage wild ideas.
- 😊 Defer judgment.
- 👂 Listen to others.
- 🔋 Go for volume.
- 👁 If possible, be visual.

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

Clustering meat and dairy products is food safety. One difficulty with this maintenance of its responsibilities in the supply chain or accountable with this issue.

PBM has released a wide range of food traceability to be taken and published a list of foods that will be traceable.

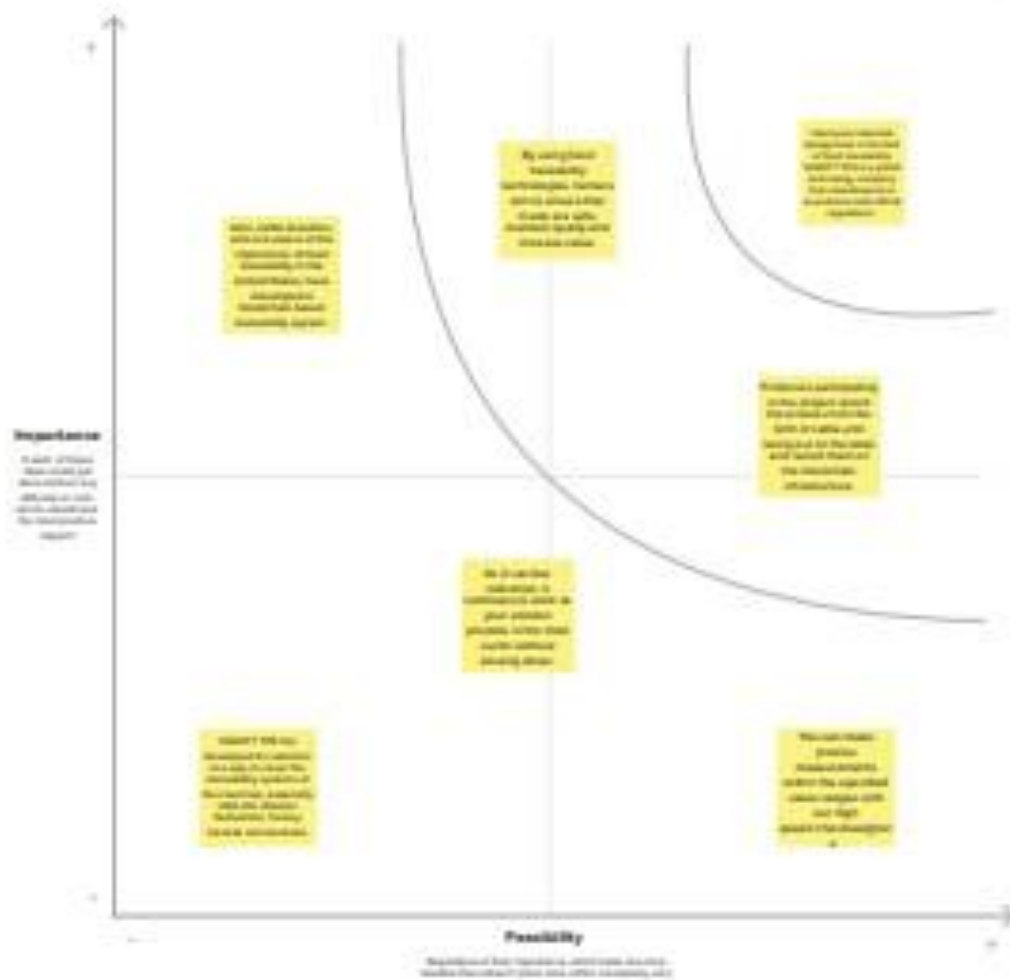The work carried out has provided convenience for stakeholders and consumers in the supply chain.

Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The solution to this problem is to use smart trash cans that can monitor their fill level in real-time and transmit this data to a central system. ☐ This will allow waste management companies to optimize their collection routes and reduce the number of unnecessary trips to empty partially filled trash cans. ☐ By doing so, the amount of time and resources spent on waste collection can be reduced, leading to a more efficient and sustainable waste management system. ☐ Additionally, this system can also improve public health by reducing the amount of waste in public spaces and decreasing the spread of diseases.
2.	Idea / Solution description	➤ Smart waste management mainly focuses on solving solid waste management problems using sensors, intelligent monitoring systems and mobile applications. ➤ Analytics for planning collection routes and bin placement. ➤ More eco-friendly solution for reducing overflowing of bins and ensuring community safety. ➤ It will stop overflowing of dustbins along roadsides and localities as smart trash cans are managed in real time.
3.	Novelty / Uniqueness	➤ Real-time data collection from connected trash cans. ➤ Predictive analytics for proactive waste collection. ➤ Optimized truck routes for garbage collection ➤ Cost savings through optimized routes and schedules. ➤ Improved public health by reducing waste in public spaces. ➤ Scalable solution for waste

			management in cities of all sizes.
4.	Social Impact / Customer Satisfaction		➤ Reduced waste and improved cleanliness in public spaces leads to a better quality of life for residents and visitors. ➤ Cost savings for municipalities can be reinvested into other community programs and services. ➤ Increased efficiency and reduced environmental impact of waste collection operations positively impact sustainability and support a greener city. ➤ Improved public health and safety by reducing exposure to waste and preventing litter.
5.	Business Model (Revenue Model)		➤ By collecting the fair amount of money from the customer for providing the service to clean their waste in the customer area. ➤ Charging the customer for maintaining the components used in the smart bins. ➤ By making use of the mobile applications for tracking up the smart bins in specific area to generate a reven
6.	Scalability of the Solution		➤ The solution can be implemented in cities of any size. ➤ The system can be easily expanded by adding more connected trash cans. ➤ The software architecture is designed to handle large volumes of data, ensuring scalability for increasing numbers of users and trash cans..

3. REQUIREMENT ANALYSIS

Functional requirement

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Detailed bin inventory.	All monitored bins and stands can be seen on the map, and you can visit them at any time via the Street View feature from Google. Bins or stands are visible on the map as green, orange or red circles. You can see bin details in the Dashboard – capacity, waste type, last measurement, GPS location and collection schedule or pick recognition.
FR-2	Real time bin monitoring.	The Dashboard displays real-time data on fill-levels of bins monitored by smart sensors. In addition to the % of fill-level, based on the historical data, the tool predicts when the bin will become full, one of the functionalities that are not included even in the best waste management software.. Sensors recognize picks as well; so you can check when the bin was last collected. With real-time data and predictions, you can eliminate the overflowing bins and stop collecting half-empty ones
FR-3	Expensive bins	we help you identify bins that drive up your collection costs. The tool calculates a rating for each bin in terms of collection costs. The tool considers the average distance depo-bindischarge in the area. The tool assigns bin a rating (1-10) and calculates distance from depo-bin discharge
FR-4	Adjust bin distribution.	Ensure the most optimal distribution of bins. Identify areas with either dense or sparse bin distribution. Make sure all trash types are represented within a stand. Based on the historical data, you can adjust bin capacity or location where necessary
FR-5	Eliminate unefficient picks	Eliminate the collection of half-empty bins. The sensors recognize picks. By using real-time data on fill-levels and pick recognition, we can show you how full the bins you collect are. The report shows how full the bin was when picked. You immediately see any inefficient picks below 80% full.
FR-5	Plan waste collection routes.	The tool semi-automates waste collection route planning. Based on current bin fill-levels and predictions of reaching full capacity, you are ready to respond and schedule waste collection. You can compare planned vs. executed routes to identify any inconsistencies.

Non-Functional requirements

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	IoT device verifies that usability is a special and important perspective to analyze user requirements, which can further improve the design quality. In the design process with user experience as the core, the analysis of users' product usability can indeed help designers better understand users' potential needs in waste management, behavior and experience
NFR-2	**Security**	Use a reusable bottles Use reusable grocery bags Purchase wisely and recycle Avoid single use food and drink containers
NFR-3	**Reliability**	Smart waste management is also about creating better working conditions for waste collectors and drivers. Instead of driving the same collection routes and servicing empty bins, waste collectors will spend their time more efficiently, taking care of bins that need servicing.
NFR-4	**Performance**	The Smart Sensors use ultrasound technology to measure the fill levels (along with other data) in bins several times a day. Using a variety of IoT networks ((NB-IoT,GPRS), the sensors send the data to Sensoneo's Smart Waste Management Software System, a powerful cloud-based platform, for datadriven daily operations, available also as a waste management app. Customers are hence provided data-driven decision making, and optimization of waste collection routes, frequencies, and vehicle loads resulting in route reduction by at least 30%.
NFR-5	**Availability**	By developing & deploying resilient hardware and beautiful software we empower cities, businesses, and countries to manage waste smarter
NFR-6	**Scalability**	Using smart waste bins reduce the number of bins inside town , cities coz we able to monitor the garbage 24/7 more cost effect and scalability when we moves to smarter

4. PROJECT DESIGN

Data Flow Diagrams

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically.
It shows how data enters and leaves the system, what changes the information, and where data is stored.
A smart waste management platform uses analytics to translate the data is stored. Bins into actionable insights to help you improve your waste services
You can receiver data on metric such as:
The fist test conducted is the situation where the garbage bin is empty or its garbage level is very low
The first test conducted is the situation where the garbage bin the empty or its garbage level is very low
Then the bin is filled with more garbage until its level has surpassed the first threshold value which is set to 80% then the first warning SMS is being sent as depicted

The first notification SMS sent by the system once the waste reaches the level of 85% full
The second notification SMS notification SMS sent by the system indicating that bin is at least 95% full and the garbage needs to be collected immediately
Location prone to overflow
  ➢ The number of bins needed to avoid overflowing waste
  ➢ The number of collection services that could be saved
  ➢ The amount of fuel that could be saved
 ➢ The driving distance that could be saved
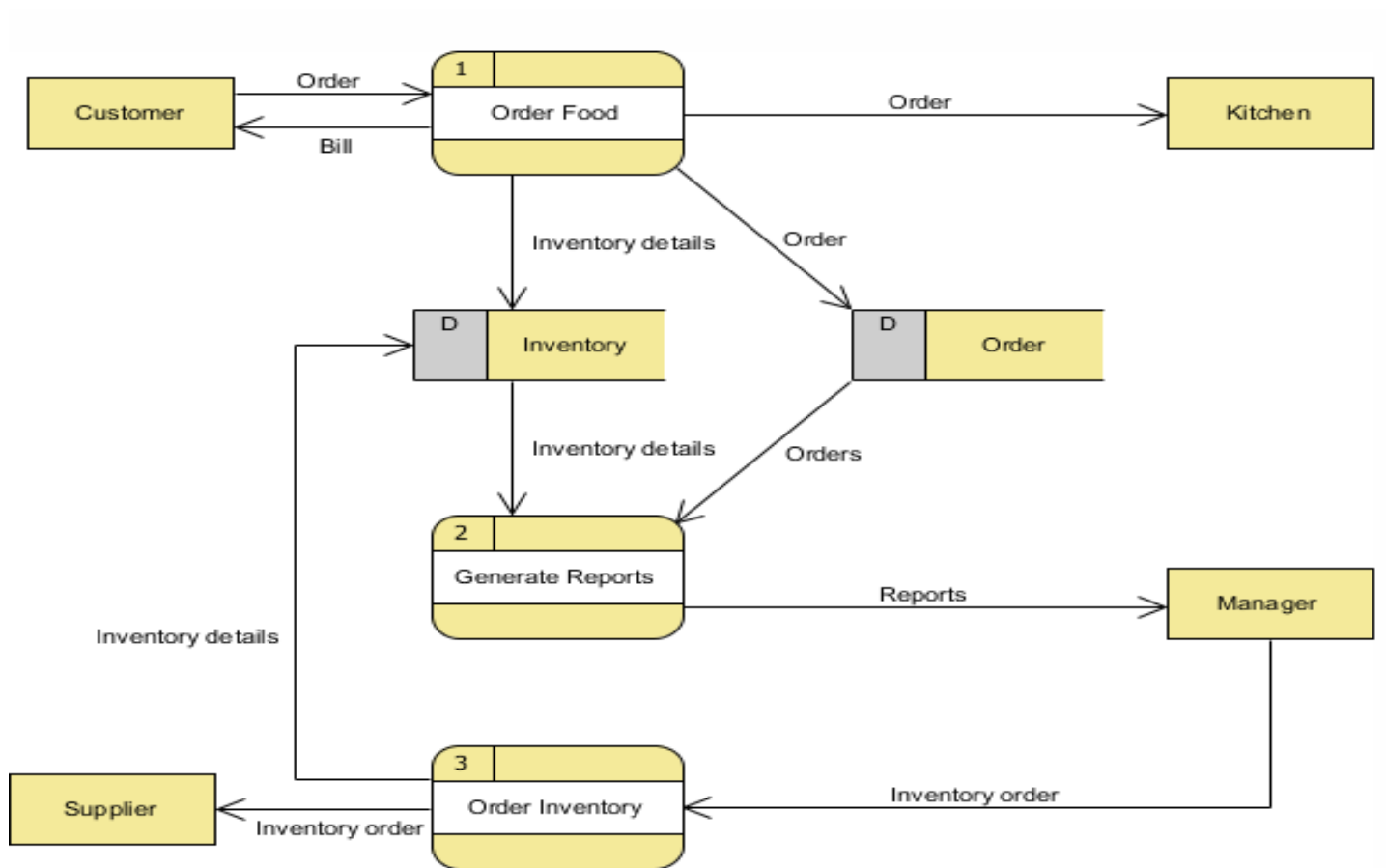
Solution & Technical Architecture

The solution architecture involves trash cans equipped with sensors that can detect the level of waste inside them and transmit this data to an IoT Gateway/Hub. This data is then processed and analyzed by a Data Processing/Analytics Engine and sent to the Cloud Platform for storage and further processing. The Web/Mobile UI can be used by city officials and waste management personnel to access this data and monitor the status of the trash cans.

Some additional details about each component of the architecture are:

- Trash Can Sensors: These sensors can be ultrasonic or infrared sensors that detect the level of waste inside the trash can and send this data to the IoT Gateway/Hub. The sensors can be powered by batteries or solar panels.
- IoT Gateway/Hub: This device acts as a bridge between the trash can sensors and the Cloud Platform. It collects data from multiple sensors and sends it to the Data Processing/Analytics Engine for processing. It can also perform some basic preprocessing and filtering of data to reduce bandwidth usage and improve data quality.
- Data Processing/Analytics Engine: This component processes the data received from the IoT Gateway/Hub and performs analytics on it to extract insights. It can use machine learning algorithms to detect patterns and predict future trends. It can also perform some data cleaning and transformation tasks to ensure the data is consistent and accurate.
- Cloud Platform: This component stores the data received from the IoT Gateway/Hub and makes it available for access by the Web/Mobile UI. It can also perform some additional processing on the data, such as aggregating it over time or performing real-time analytics.
- Web/Mobile UI: This is the user interface that allows city officials and waste management personnel to access the data collected by the system. It can display various metrics such as the fill level of the trash cans, the location of the trash cans, and the historical trends of waste generation. It can also provide some alerting and notification features to inform users when certain conditions are met, such as when a trash can is full and needs to be emptied.
-

Architecture Diagram:
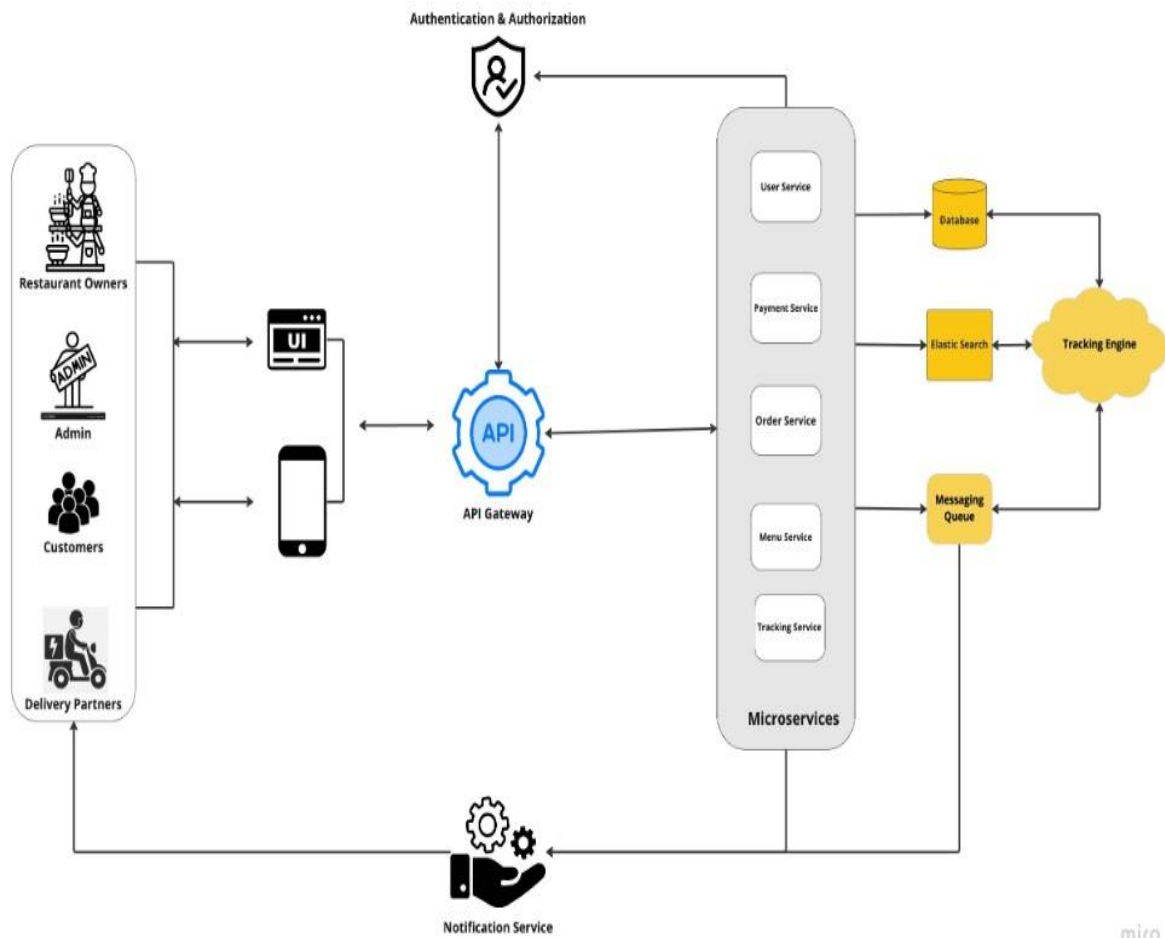
User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Team Member
Adminn (Who manage web server)	Login	USN-1	As anAdmin , I gave user id and password for ever workersand manage them.	I can manage web my account / dashboard	Medium	Shivam
Co Admin	Login	USN-2	As a co admin , l'll managegarbage level monitor . if garbage get filling alert I will poat location and garbage id to trash truck	I can manage garbage monitoring	High	Shivani
Truck Driver	Login	USN-3	As truck driver , l'll follow the route send by co admin to reach the filled garbage	I can drive to reach the garbage filled route in shortest route given	medium	Shivam
Local Garbage Collector	Login	USN-4	As a waste collector , l'll collect all the trash from garbage and load into garbage truck and send themto landfill	I con collect trach and puled to truck and send off	Medium	Shivam
Municipality	Login	USN-5	As a municipality, l'll check the process are happening in discipline manner without any issues	I can manage all these process going good	High	Sandeep

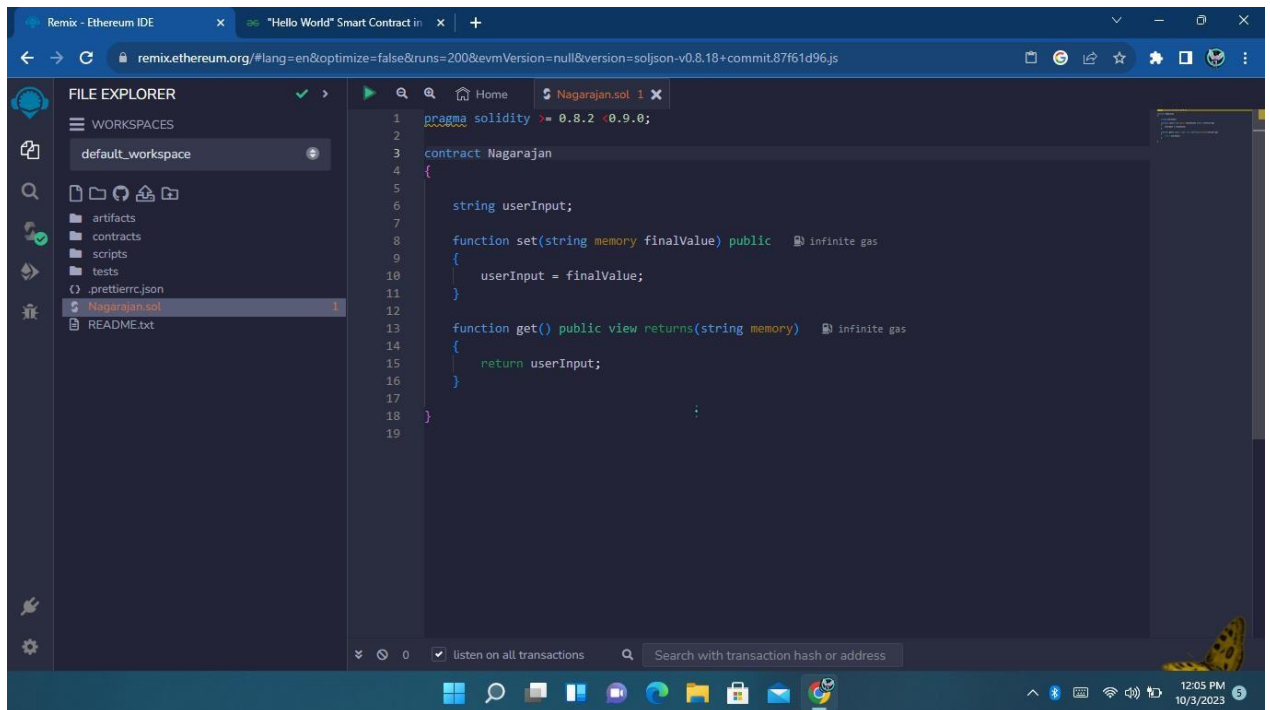## 5. CODING & SOLUTIONING (Explain the features added in the project along with code)
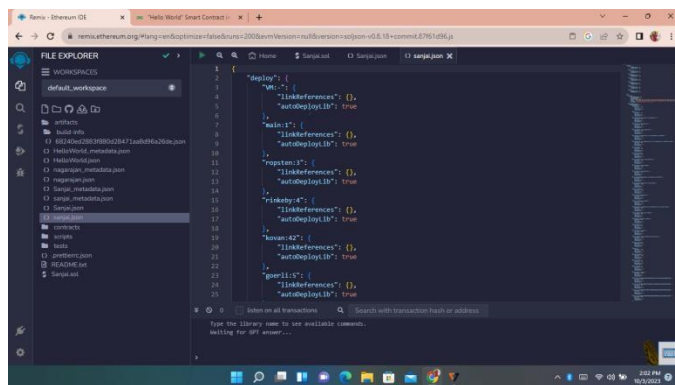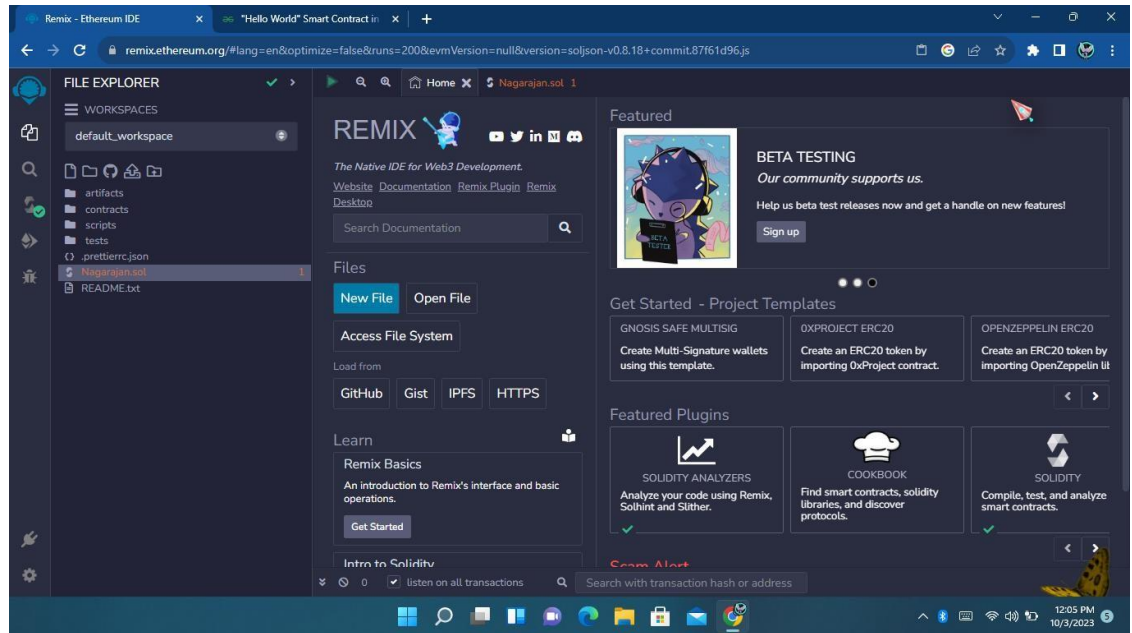
Feature 1

*To monitor the fill-level in real-time.

Feature 2

Automated Alerts and Maintenance: When a trash can reaches its capacity, the smart system automatically sends notifications to waste management personnel, ensuring timely collection and avoiding overflow.

Database Schema (if Applicable)

Food Tracking systems can integrate with other city infrastructure, such as food tracking systems, to optimize waste collection routes basedon real-time traffic conditions. This integration helps minimize collection time and reduce traffic congestion.

```
 // SPDX-License-Identifier: MIT
pragma solidity ^0.8.0;

contract FoodTracking
{
address public owner;

enum FoodStatus
{
Unverified,
Verified,
```

```solidity
        Consumed
    }

struct FoodItem {
    string itemId;
    string productName;
    string origin;
    uint256 sentTimestamp;
    FoodStatus status;
}

mapping(string => FoodItem) public foodItems;

event FoodItemSent(
    string indexed itemId,
    string productName,
    string  origin,
    uint256 sentTimestamp
);
event FoodItemVerified(string indexed itemId);
event FoodItemConsumed(string indexed itemId);

constructor() {
    owner = msg.sender;
}

modifier onlyOwner() {
    require(msg.sender == owner, "Only contract owner can call this");
    _;
}

modifier onlyUnconsumed(string memory itemId) {
    require(
        foodItems[itemId].status == FoodStatus.Verified,
        "Item is not verified or already consumed"
    );
    _;
}

function sendFoodItem(
    string memory itemId,
    string memory productName,
    string memory origin
) external onlyOwner {
    require(
        bytes(foodItems[itemId].itemId).length == 0,
        "Item already exists"
    );

    foodItems[itemId] = FoodItem({
        itemId: itemId,
        productName: productName,
        origin: origin,
        sentTimestamp: block.timestamp,
        status: FoodStatus.Unverified
    });

    emit FoodItemSent(itemId, productName, origin, block.timestamp);
}
```

```solidity
    function verifyFoodItem(string memory itemId) external onlyOwner {
        require(
            bytes(foodItems[itemId].itemId).length > 0,
            "Item does not exist"
        );
        require(
            foodItems[itemId].status == FoodStatus.Unverified,
            "Item is already verified or consumed"
        );

        foodItems[itemId].status = FoodStatus.Verified;

        emit FoodItemVerified(itemId);
    }

    function consumeFoodItem(
        string memory itemId
    ) external onlyUnconsumed(itemId) {
        foodItems[itemId].status = FoodStatus.Consumed;

        emit FoodItemConsumed(itemId);
    }

    function getFoodItemDetails(
        string memory itemId
    )
        external
        view
        returns (string memory, string memory, uint256, FoodStatus)
    {
        FoodItem memory item = foodItems[itemId];
        return (item.productName, item.origin, item.sentTimestamp, item.status);
    }
}



/*{
  "name": "food-tracking",
  "version": "0.1.0",
  "private": true,
  "dependencies": {
    "@testing-library/jest-dom": "^5.17.0",
    "@testing-library/react": "^13.4.0",
    "@testing-library/user-event": "^13.5.0",
    "bootstrap": "^5.3.1",
    "ethers": "^5.6.6",
    "react": "^18.2.0",
    "react-bootstrap": "^2.8.0",
    "react-dom": "^18.2.0",
    "react-scripts": "5.0.1",
    "web-vitals": "^2.1.4"
  },
  "scripts": {
    "start": "react-scripts start",
    "build": "react-scripts build",
    "test": "react-scripts test",
```

```
      "eject": "react-scripts eject"
    },
    "eslintConfig": {
      "extends": [
        "react-app",
        "react-app/jest"
      ]
    },
    "browserslist": {
      "production": [
        ">0.2%",
        "not dead",
        "not op_mini all"
      ],
      "development": [
        "last 1 chrome version",
        "last 1 firefox version",
        "last 1 safari version"
      ]
    }
}
```
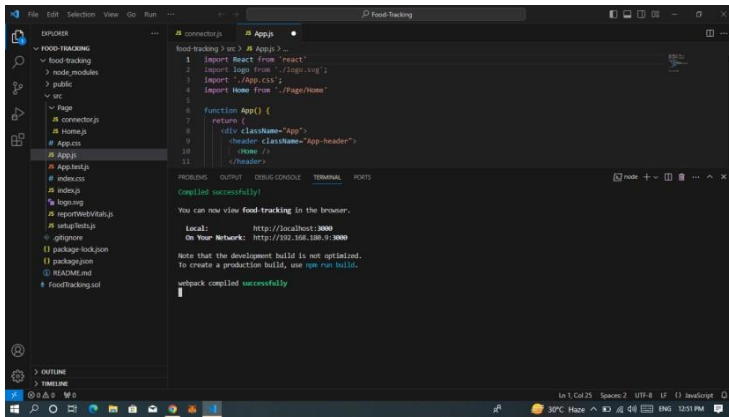
Design to food Tracking

```
{
  "name": "food-tracking",
  "version": "0.1.0",
  "lockfileVersion": 2,
  "requires": true,
  "packages": {
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      "version": "0.1.0",
      "dependencies": {
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        "@testing-library/react": "^13.4.0",
        "@testing-library/user-event": "^13.5.0",
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        "ethers": "^5.6.6",
        "react": "^18.2.0",
        "react-bootstrap": "^2.8.0",
        "react-dom": "^18.2.0",
        "react-scripts": "5.0.1",
        "web-vitals": "^2.1.4"
      }
    },
    "node_modules/@aashutoshrathi/word-wrap": {
      "version": "1.2.6",
      "resolved": "https://registry.npmjs.org/@aashutoshrathi/word-wrap/-/word-wrap-
1.2.6.tgz",
      "integrity": "sha512-
1Yjs2SvM8TflER/OD3cOjhWWOZb58A2t7wpE2S9XfBYTiIl+XFhQG2bjy4Pu1I+EAlCNUzRDYDdFwFYUKvXcIA==",
      "engines": {
        "node": ">=0.10.0"
      }
    },
    "node_modules/@adobe/css-tools": {
      "version": "4.3.1",
      "resolved": "https://registry.npmjs.org/@adobe/css-tools/-/css-tools-4.3.1.tgz",
```

```
      "integrity": "sha512-
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    },
    "node_modules/@alloc/quick-lru": {
      "version": "5.2.0",
      "resolved": "https://registry.npmjs.org/@alloc/quick-lru/-/quick-lru-5.2.0.tgz",
      "integrity": "sha512-
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      "engines": {
        "node": ">=10"
      },
      "funding": {
        "url": "https://github.com/sponsors/sindresorhus"
      }
```

6. RESULTS

Performance Metrics

Event	Value	Format	Last Received
Data	{"distance":2}	json	a few seconds ago
Data	{"distance":7}	json	a few seconds ago
Data	{"distance":51}	json	a few seconds ago
Data	{"distance":2}	json	a few seconds ago
Data	{"distance":2}	json	a few seconds ago

Browse   Action   Device Types   Interfaces

Event	Value	Format	Last Received
Data	{"distance":243}	json	a few seconds ago
Data	{"distance":206}	json	a few seconds ago
Data	{"distance":170}	json	a few seconds ago
Data	{"distance":170}	json	a few seconds ago
Data	{"distance":357}	json	23 minutes ago

Event	Value	Format	Last Received
Data	{"distance":357}	json	a few seconds ago
Data	{"distance":357}	json	a few seconds ago
Data	{"distance":357}	json	a few seconds ago
Data	{"distance":357}	json	a few seconds ago
Data	{"distance":357}	json	a few seconds ago

The recent events listed show the live stream of data that is coming and going from this device.

1 Simulation running

7. ADVANTAGES & DISADVANTAGES

ADVANTAGES

- Boost Awareness Of What You Are Eating.
- Match Your Eating Habits To Your Daily Needs.
- Gain Insight Into Your Eating Patterns.
- Learn More About What You're Putting Into Your Body.
- Set And Achieve Specific Goals.
- Find Flexibility, While Working Toward Your Goals.

➢ Better Resource Allocation: Predictive analytics and data-driven insights enable authorities to allocate resources more effectively by anticipating waste generation patterns and optimizing waste collection schedules accordingly.

➢ Enhanced Public Health and Aesthetics: Timely waste collection reduces the chances of overflowing trash cans, littering, and unhygienic conditions, thereby improving public health and maintaining cleaner urban spaces

DISADVANTAGES

- You may become utterly obsessed with tracking food and exercise. ...
- You may run the risk of becoming obsessed with certain ingredients in foods... ...
- You might reach the stage of thinking that exercise is pointless during the times your tracker isn't with you.

➢ behavior. Safeguarding this data and ensuring privacy protection is crucial to gaining public trust and avoiding potential misuse.

➢ Limited Adoption and Compatibility: The widespread implementation of smart waste management systems requires buy-in from municipal authorities, waste management companies, and other stakeholders. Achieving compatibility and interoperability among different systems and vendors can be a complex process.

➢ Limited Accessibility: Smart systems rely on technology, which may exclude individuals who do not have access to smartphones or the internet. Ensuring accessibility for all citizens is a challenge that needs to be addressed

8. CONCLUSION

Smart Waste Management system that is more effective than the one in use now is achievable by using sensors to monitor the filling of bins. Our conception of a "smart waste management system" focuses on monitoring waste management, offering intelligent technology for waste systems, eliminating human intervention, minimizing human time and effort, and producing a healthy and trash   free environment. The suggested approach can be implemented in smart cities where residents have busy schedules that provide little time for garbage management. If desired, the bins might be put into place in a metropolis where a sizable container would be able to hold enough solid trash for a single unit. The price might be high.

9. FUTURE SCOPE

There are several future works and improvements for the proposed system, including the following:

- ➤ Change the system of user authentication and atomic lock of bins, which would aid in protecting the bin from damage or theft.
- ➤ The concept of green points would encourage the involvement of residents or end users, making the idea successful and aiding in the achievement of collaborative waste management efforts, thus fulfilling the idea of Swachh Bharath.
- ➤ Having case study or data analytics on the type and times waste is collected on different days or seasons, making bin filling predictable and removing the reliance on electronic components, and fixing the coordinates.
- ➤ Improving the Server's and Android's graphical interfaces

10. APPENDIX

```json
{
  "name": "food-tracking",
  "version": "0.1.0",
  "private": true,
  "dependencies": {
    "@testing-library/jest-dom": "^5.17.0",
    "@testing-library/react": "^13.4.0",
    "@testing-library/user-event": "^13.5.0",
    "bootstrap": "^5.3.1",
    "ethers": "^5.6.6",
    "react": "^18.2.0",
    "react-bootstrap": "^2.8.0",
    "react-dom": "^18.2.0",
    "react-scripts": "5.0.1",
    "web-vitals": "^2.1.4"
  },
  "scripts": {
    "start": "react-scripts start",
    "build": "react-scripts build",
    "test": "react-scripts test",
    "eject": "react-scripts eject"
  },
  "eslintConfig": {
    "extends": [
      "react-app",
      "react-app/jest"
    ]
  },
  "browserslist": {
    "production": [
      ">0.2%",
      "not dead",
      "not op_mini all"
    ],
    "development": [
      "last 1 chrome version",
      "last 1 firefox version",
      "last 1 safari version"
    ]
  }
}
```

GitHub link :

https://github.com/Dhatchana4332/NM2023TMID01995_Food-Tracking-System