**PROJECT REPORT**

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**Introduction**

Food wastage is a global challenge, with tons of edible food discarded daily while millions go hungry. Our project, Surplus Food Donation and Mapping Platform, aims to bridge this gap by connecting restaurants with surplus food to orphanages, food banks, and NGOs in real-time. The system leverages mapping technology, AI assistance, and database integration to ensure seamless donations and better coordination.

**Problem Statement**

Every year, tons of edible food goes to waste while millions of people go hungry. Restaurants often have surplus food that could be donated but lack a structured way to connect with local NGOs, orphanages, or food banks.

This project solves that problem by providing a real-time interactive platform where:

* Restaurants can list surplus food quickly.
* NGOs can view donations nearby.
* Routes and logistics are simplified through map integration.

**Features**

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| Feature | Description |
| Live Map Integration | Restaurants can mark surplus food on a live map, visible to NGOs nearby. |
| Category-Based Markers | Different icons for Restaurants, Orphanages, and Food Donations. |
| Reverse Geocoding | Automatically fills the address when the restaurant pins a location. |
| Dynamic Dropdowns | NGO/Orphanage/Food Bank lists change based on selected donation mode. |
| Route Visualization | Displays real-time route and ETA between donor and recipient. |
| Confirmation Workflow | Popup confirmation before submission and “Thank you” acknowledgment. |
| Database Integration | Stores all donations with categories for analytics and reporting. |

**System Architecture**

* Frontend: Interactive web-based UI for restaurants and NGOs (map, forms, chatbot).
* Backend: Flask-based server handling requests, geocoding, and database communication.
* Database: SQLite to store donations, donor info, categories, and recipient details.
* APIs & Services: Leaflet for mapping, OpenStreetMap for location data, and Reverse Geocoding for address autofill.

**Workflow**

1. Restaurant logs surplus food by dropping a pin on the live map.
2. Address is auto-filled using reverse geocoding.
3. Donor selects the mode of donation (Orphanage, Food Bank, NGO) → recipient list dynamically updates.
4. Route visualization shows ETA to recipient.
5. Donor confirms the donation.
6. The system stores the donation in the database and displays a thank-you message.

**Implementation Details**

* Programming Language: Python
* Framework: Flask
* Database: SQLite
* Mapping: Leaflet.js + OpenStreetMap APIs
* Libraries Used: Flask-CORS, Requests, Geopy, Folium

**Results and Discussion**

* The platform successfully allows restaurants to share surplus food in real-time.
* NGOs/Orphanages can visualize nearby donations on a map and plan collections efficiently.
* Route visualization improved coordination and reduced delays in food collection.

**Conclusion**

The Surplus Food Donation and Mapping Platform successfully addresses the dual challenge of food wastage and hunger by leveraging mapping, AI, and database integration. With further scaling, this project can contribute significantly to sustainable food redistribution and social good.