Functional Document

FoodBridge:Transforming Leftovers

1. **Introduction**

FoodBridge is a web-based platform designed to facilitate the redistribution of surplus food from hostels, restaurants, and event halls to NGOs and biogas plants. It aims to reduce food waste, address hunger, and promote sustainable energy production by categorizing food donations and routing them based on condition and proximity.

2. **Product Goal**

To create an intelligent, automated, and ethical food donation and energy generation system that:

- Classifies food based on usability (edible or inedible).
- Matches donations to the nearest eligible NGO or biogas facility.
- Optimizes collection and delivery routes for efficiency.
- Reduces food wastage while supporting environmental sustainability.

3. **Demography (Users, Location)**

Users:

- Hostel and event managers (donors)
- NGO representatives (recipients)
- Truck drivers (logistics)
- Biogas plant operator
- Platform administrators

Location:

- Initial pilot: Urban and semi-urban areas of SRM mess
- Scalable across India based on NGO and plant availability

4. **Business Processes**

- Donors initiate a food donation by selecting food conditions and providing location details.
- System verifies input and assigns the donation based on predefined rules.
- NGOs receive alerts and claim edible food on an FCFS basis.
- Inedible food is auto-assigned to the nearest biogas plant.
- Driver receives an optimized pickup route.
- Food is picked up and status is updated in real-time.
- Dynamic reassignment occurs if any failure is reported.

5. **Features**

Feature #1: Food Condition Classification and Recipient Assignment

Description

- Allows the donor to classify the food as Fresh, Good, or Staple and triggers recipient assignment logic (NGO or biogas plant) accordingly. Ensures traceability and fast decision-making.

User Story

As a hostel/event manager,
I want to select the condition of leftover food while submitting a donation, So that it can be automatically routed to the appropriate NGO or biogas plant without manual intervention.

6. **Authorization Matrix**

Role	Submit Donation	View Donations	Accept Donation	View Routes	Admin Controls
Donor	Allowed	Allowed	Not Allowed	Not Allowed	Not Allowed
NGO	Not Allowed	Allowed	Allowed	Not Allowed	Not Allowed
Driver	Not Allowed	Allowed	Not Allowed	Allowed	Not Allowed
Biogas Plant	Not Allowed	Allowed	Allowed	Not Allowed	Not Allowed
Admin	Not Allowed	Allowed	Not Allowed	Allowed	Allowed

7. **Assumptions**

- Donors will provide honest initial classification of food.
- All stakeholders have access to basic mobile/web interfaces.
- Biogas plants and NGOs have pre-registered and verified contact and location data.
- Real-time internet access is available for location-based routing and status updates.
- Truck drivers can handle multiple pickups and route changes dynamically.