Project Design Phase
Problem – Solution Fit Template

Date	06 NOV 2025
Team ID	NM2025TMID03963
Project Name	To Supply Leftover food to poor
Maximum Marks	4 Marks

Problem - Solution Fit Template:

The **Problem–Solution Fit** identifies the social issue of food wastage and hunger and provides a practical, technology-driven way to bridge the gap between food donors and those in need.
The project aims to ensure that leftover food from restaurants, hotels, hostels, and events is safely collected and delivered to poor and hungry people through a structured system.

This fit demonstrates how the proposed solution directly addresses the community's needs while promoting sustainability and social responsibility.

Purpose:

✓To minimize food wastage and redistribute surplus food efficiently to the needy.
✓To create a digital bridge between **food donors** (restaurants, event halls, hostels) and **receivers** (NGOs, shelters, volunteers).
✓To enhance community welfare through safe, quick, and hygienic food redistribution.
✓To raise awareness about food sustainability and social compassion.
✓To encourage collaboration between citizens, NGOs, and local administrations for hunger relief.

Template Description:

The project *"To Supply Leftover Food to Poor"* addresses a significant issue of **hunger amidst abundance**. Every day, large quantities of food are wasted while countless people remain undernourished. By leveraging a **digital platform or mobile application**, the solution connects donors with NGOs and volunteers who can collect and distribute leftover food in real time.

The system ensures food safety through quality checks and temperature guidelines before distribution. Notifications are automatically sent to registered NGOs when food donations are available nearby.

This innovative solution not only helps feed the poor but also contributes to reducing landfill waste, lowering carbon footprints, and creating a more compassionate and responsible society.

References:

1. https://www.ideahackers.network/problem-solution-fit-canvas/
2. https://medium.com/@epicantus/problem-solution-fit-canvas-aa3dd59cb4fe

Proposed Solution Template

S.No.	Parameter	Description
1.	**Problem Statement (Problem to be solved)**	Every day, large quantities of food are wasted in restaurants, hotels, and events, while many poor and homeless people struggle with hunger. There is no proper system to connect food donors with NGOs or volunteers who can collect and distribute leftover food efficiently.
2.	**Idea / Solution Description**	A **digital platform or mobile application** is developed to connect **food donors** (restaurants, caterers, hostels, event organizers) with **NGOs and volunteers** who can collect and distribute food to needy people. The system provides real-time notifications, ensures food safety checks, and enables tracking from donation to delivery.
3.	**Novelty / Uniqueness**	The project introduces a **real-time, tech-enabled solution** to reduce food wastage and hunger simultaneously. It uses **location-based matching** between donors and volunteers, ensuring immediate pickup and delivery. The model is sustainable, socially impactful, and easy to scale.
4.	**Social Impact / Customer Satisfaction**	The system helps reduce food waste and ensures that leftover food reaches poor people who need it the most. It promotes social welfare, sustainability, and environmental conservation, while also improving public awareness and empathy.
5.	**Business Model (Revenue Model)**	The project follows a **non-profit operational model**. However, small operational costs can be supported through CSR funds, NGO partnerships, or government schemes focused on hunger eradication and waste reduction.
6.	**Scalability of the Solution**	The system can be scaled to cover multiple cities and can later integrate **AI-based demand forecasting** for food distribution. It can also collaborate with local authorities for automated pickup scheduling and expanded beneficiary reach.

Solution Description:

To address the problem of food wastage and hunger, the *To Supply Leftover Food to Poor* system introduces a smart and structured method for food redistribution.
The proposed solution connects food donors, NGOs, and volunteers through a **centralized digital platform**. When food becomes available, donors can instantly notify registered NGOs and volunteers nearby.

The system ensures **food safety** through quality checks and maintains proper tracking of collection and delivery. Each transaction is logged for transparency and impact measurement.
This approach not only reduces food wastage but also strengthens community collaboration, contributing to the fight against hunger and environmental pollution.

Reference: Infographic created using Canva / MidJourney

Goals of the Architecture:

- Create a reliable system to connect **food donors**, **volunteers**, and **receivers** (NGOs or shelters).
- Ensure **safe and timely redistribution** of leftover food to minimize waste.
- Maintain **data integrity** between donors, available food, and delivery operations.
- Enable **real-time notifications** for nearby food donations and pickup updates.
- Reduce manual coordination and increase efficiency using automation.

Key Components:

- **Food Donor Module:** Allows restaurants, hotels, and event halls to register and post leftover food details.
- **Volunteer Management Module:** Tracks and assigns volunteers for food collection and delivery.
- **NGO/Receiver Module:** Displays available food for pickup and records receipt confirmations.
- **Food Inventory Database:** Stores donation details, quantity, donor info, and pickup records.
- **Notification & Tracking System:** Sends real-time alerts for food availability and delivery status.
- **Quality Check Module:** Verifies food safety before distribution to ensure hygiene
- **Analytics & Reporting Dashboard:** Provides statistics on food saved, meals distributed, and donor impact.

Development Phases:

- **Donor Registration:** Restaurants, hotels, and canteens register on the platform.
- **Food Listing:** Donors post leftover food details (type, quantity, and pickup window).
- **Volunteer Assignment:** The system automatically notifies available volunteers for pickup.
- **Food Verification:** Collected food is checked for quality by the NGO or coordinator.
- **Distribution:** Volunteers deliver the food to poor people or shelters.
- **Feedback & Reporting:** Receivers confirm delivery; the system logs data for reports.

Solution Architecture Description:

The *To Supply Leftover Food to Poor* solution architecture is designed to create a **sustainable food redistribution network** using technology-driven coordination between food donors, NGOs, and volunteers.

The system collects leftover food details from registered donors and sends automated notifications to nearby NGOs and volunteers through a cloud-based platform. Once a volunteer accepts a pickup request, real-time tracking and updates are enabled to ensure quick delivery.

All data — including food details, delivery status, and recipient feedback — is stored in a **centralized database** for transparency and reporting. The architecture ensures safe, traceable, and efficient food distribution, reducing waste and hunger simultaneously.

This architecture improves community welfare by connecting those who have surplus food with those who need it, leveraging automation and cloud technology for scalability and reliability.

Example – Solution Architecture Diagram:

(Illustrative architecture may include the following components)

- **Frontend:** Web & Mobile Interface (React, Flutter, HTML5, CSS3)
- **Backend:** Node.js / Python Flask API
- **Database:** MySQL / Firebase
- **Cloud Services:** AWS / Azure (for hosting and notifications)
- **External APIs:** Twilio (SMS alerts), Google Maps (pickup tracking)

Reference:
https://aws.amazon.com/blogs/industries/voice-applications-in-clinical-research-powered-by-ai-on-aws-part-1-architecture-and-design-considerations/
