Project Design Phase
Solution Architecture

Date	03-11-2025
Team ID	NM2025TMID05217
Project Name	To Supply Leftover Food to Poor
Maximum Marks	4 Marks

Solution Architecture:

Goals of the Architecture:

- To minimize food wastage by efficiently collecting and distributing leftover food.
- To provide a digital platform connecting food donors (restaurants, events, households) with nearby NGOs or needy people.
- To ensure real-time food availability tracking and safe delivery using location-based services.
- To maintain hygiene, transparency, and accountability throughout the food supply process.

Key Components:

- **Donor Module:** Allows restaurants, hotels, and households to register and donate leftover food.
- **Receiver Module:** Enables NGOs and poor individuals to request or receive available food.
- **Admin Panel:** Monitors all donations, verifies quality, and manages reports.
- **Database:** Stores donor, receiver, food item, and location details.
- **Notification System:** Sends alerts to nearest receivers about available food.
- **Map & GPS Integration:** Displays pickup and delivery routes for volunteers.

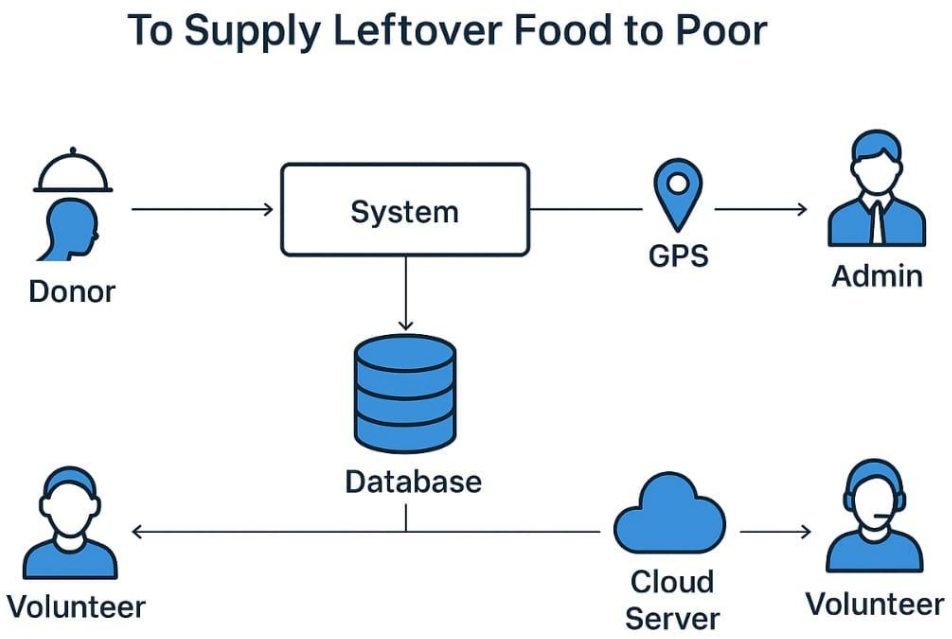
Development Phases:

1. **Donor Registration:** Create profiles for restaurants and individuals willing to donate leftover food.
2. **Food Listing:** Donors upload details of available food (type, quantity, expiry time, location).
3. **Matching & Allocation:** The system matches food availability with nearby receivers using GPS.
4. **Pickup & Delivery:** Volunteers collect and deliver food safely within a given time frame.
5. **Feedback & Reporting:** Receivers provide feedback; admin reviews quality and generates reports.

Solution Architecture Description:

The proposed architecture enables an efficient **food redistribution system** that connects donors and receivers in real time. The system leverages **location-based technology**, **cloud storage**, and **automated notifications** to ensure that surplus food reaches the poor before it spoils. The workflow begins when donors log surplus food into the system. The database stores these entries, and the **matching algorithm** identifies the nearest receivers based on GPS coordinates. Notifications are sent to both parties, and volunteers coordinate pickup and delivery. The admin module oversees the process, ensuring safety and compliance with food safety standards. This architecture promotes **social welfare**, **reduces hunger**, and supports **sustainable community development** by turning potential waste into nourishment.

Example - Solution Architecture Diagram:



Reference:

https://qtanalytics.in/journals/index.php/JREAS/article/download/1917/1088/3555

https://eprints.whiterose.ac.uk/170771/1/Surplus%20food%20distribution%20supply%20chain%20%281%29.pdf