

## **Project Design Phase Solution Architecture**

Date: 30 October 2025

Team ID: NM2025TMID01177

Project Name: To supply leftover food and poor

Maximum Marks: 4 Marks

Solution Architecture: Goals of the Architecture:

- Establish an efficient network to collect and distribute leftover food.
- Ensure food safety, freshness, and traceability during the process.
- Create transparency and accountability between donors and recipients.

Key Components:

- Food Donor Portal (restaurants, events, households)
- NGO and Volunteer Management System
- Real-time Food Tracking and Notification Module
- Central Database for Donor, Receiver, and Food Item Details

Development Phases:

1. Develop and integrate donor registration module
2. Build food pickup scheduling and assignment logic

3. Enable volunteer tracking and delivery confirmation system

4. Deploy food safety and wastage monitoring reports

#### Solution Architecture Description:

The proposed architecture aims to build a robust and socially impactful platform that connects food donors with underprivileged communities through NGOs and volunteers. The system automates food collection and distribution workflows while maintaining data integrity, safety compliance, and transparency. By leveraging location-based services and cloud integration, the solution ensures optimal logistics, minimizes food wastage, and maximizes reach to the needy. The architecture also supports scalability, allowing future integration of AI-based food demand prediction and IoT-enabled freshness monitoring.

#### Example - Solution Architecture Diagram:



Figure 1: Architecture and data flow for the food collection and distribution system.

Reference:

Adapted from sustainable logistics architecture for food redistribution models and real-time delivery systems