

# Nourix: A Web-Based Food Redistribution Platform for Efficient Surplus Food Management Using Full-Stack Technologies

Ridhi Narayan Singh, Mrs. Bhumi Shah  
Department of Computer Science and Engineering  
Parul Institute of Technology (PIT), Vadodara, Gujarat, India  
Email: raghavridhi807@gmail.com

**Abstract**—Food wastage is a critical issue in modern society, particularly in urban areas where large quantities of edible food are discarded daily by restaurants, hotels, and social events. At the same time, a significant portion of the population faces food insecurity due to lack of proper access and coordination.

This paper presents Nourix, a web-based food redistribution platform designed to bridge the gap between food donors and NGOs or volunteers. The system enables donors to register and upload surplus food details along with images, while collectors can view and accept donations in real time. The platform is implemented using Flask for backend processing, HTML and CSS for frontend design, and MySQL for database management. The proposed system enhances coordination, improves transparency through image-based verification, and provides a structured workflow for food redistribution. The solution is scalable and can be extended with advanced features such as location tracking and real-time notifications.

**Index Terms**—Food Wastage, Web Application, Flask, MySQL, NGOs, Resource Optimization

## I. INTRODUCTION

Food wastage has become a major global concern, especially in rapidly growing urban environments. Large quantities of edible food are wasted daily due to inefficient management and lack of redistribution systems. At the same time, many individuals and communities suffer from hunger and malnutrition.

The core issue lies in the absence of a centralized and real-time platform that connects food donors with organizations capable of redistributing surplus food efficiently. Traditional approaches rely on manual communication, which leads to delays and inefficiencies.

With the advancement of web technologies, it is now possible to build scalable platforms that enable real-time interaction between stakeholders. This paper proposes a web-based food redistribution system that aims to reduce food wastage and improve resource utilization.

## II. LITERATURE REVIEW

Several studies have addressed the issue of food wastage and redistribution. Existing systems such as food-sharing applications and NGO-based initiatives attempt to connect donors and recipients. However, these systems often lack real-time communication and structured workflows.

Research indicates that integrating web-based platforms with database systems can significantly improve efficiency. However, limitations such as lack of verification, scalability issues, and poor user interfaces still exist. The proposed system aims to overcome these limitations by providing a structured and user-friendly solution.

## III. PROBLEM STATEMENT

Food wastage continues to be a significant problem due to lack of coordination between food providers and distribution organizations.

Key challenges include:

- Lack of centralized system for food redistribution
- Inefficient communication between donors and NGOs
- Absence of real-time updates
- Lack of transparency and verification
- Limited scalability of existing solutions

## IV. METHODOLOGY

The proposed system is developed using a structured and modular approach integrating frontend design, backend processing, and database management.

The frontend captures user inputs through forms, while the backend processes requests and performs validation. The database ensures structured storage and efficient retrieval of data.

The workflow includes user registration, donation posting, donation acceptance, and status tracking. This structured approach ensures efficient coordination and minimizes delays.

## V. SYSTEM ARCHITECTURE

The system follows a client-server architecture. The frontend interacts with the Flask backend, which processes requests and communicates with the MySQL database.

## VI. IMPLEMENTATION

### A. User Registration

Users register as donors or collectors by providing basic details such as name, contact number, and location. Input validation ensures accuracy of data.

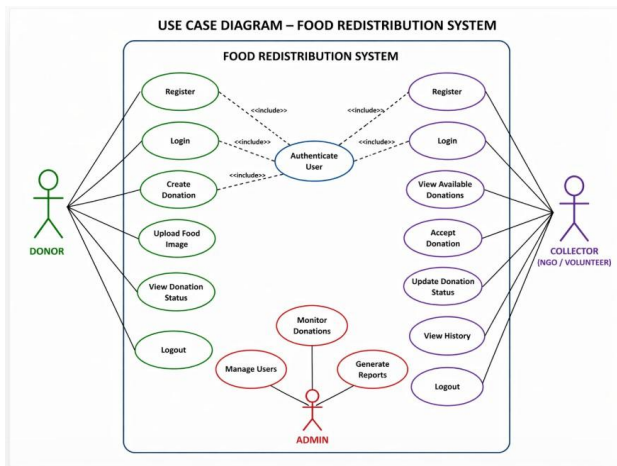


Fig. 1. Use Case Diagram

### B. Donation Posting

Donors can post food details including type, quantity, location, and images. The data is stored in the database with status marked as “Available”.

### C. Donation Management

Collectors can view available donations and accept them. Once accepted, the status is updated to “Accepted” and assigned to the collector.

### D. Backend Processing

The backend is implemented using Flask, which handles routing, validation, database interaction, and response generation.

### E. Database Design

The system uses MySQL to manage user and donation data efficiently. Separate tables are used to ensure structured storage.

### F. Frontend Development

The frontend is developed using HTML and CSS with a focus on simplicity and usability. The interface is designed to be intuitive and user-friendly.

## VII. TESTING AND EVALUATION

The system was tested for functionality, usability, and performance. Functional testing ensured that all modules operate correctly, while usability testing confirmed ease of use.

## VIII. MODELING AND ANALYSIS

### IX. RESULTS AND DISCUSSION

The system successfully enables donors to post surplus food and collectors to accept donations efficiently. The structured workflow improves coordination and reduces delays.

The use of image upload enhances transparency, while the database ensures proper data management. The system demonstrates effective performance under normal usage conditions.

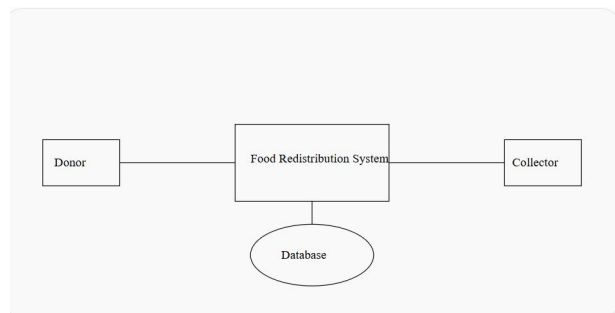


Fig. 2. DFD Level 0

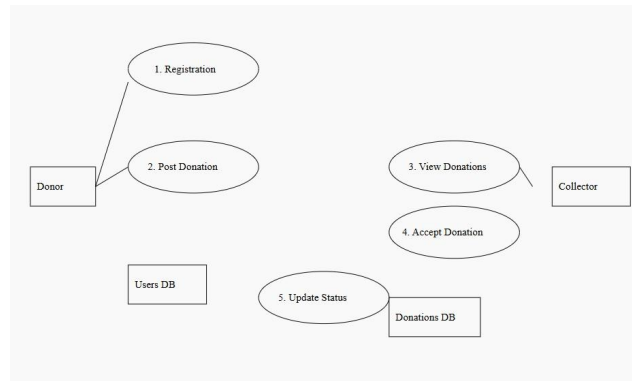


Fig. 3. DFD Level 1

## X. CONCLUSION

The proposed system provides an effective solution for food redistribution using web technologies. It improves coordination and reduces food wastage.

Future enhancements such as location tracking and real-time notifications can further improve system efficiency.

## ACKNOWLEDGMENT

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