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Community Food Waste Sharing Platform: A Web Based Solution for Food Waste

Tejal D. Abhivant[1], Ankita A. Kamble[2], Aditi A. Patil[3], Shrutika M. Dubal[4], Anuja B. Jadhav[5]

[1] *SVERI's College of Engineering (Polytechnic), Pandharpur, Maharashtra, India*
[2] *SVERI's College of Engineering (Polytechnic), Pandharpur, Maharashtra, India*
[3] *SVERI's College of Engineering (Polytechnic), Pandharpur, Maharashtra, India*
[4] *SVERI's College of Engineering (Polytechnic), Pandharpur, Maharashtra, India*
[5] *SVERI's College of Engineering (Polytechnic), Pandharpur, Maharashtra, India*

Abstract

Food waste and hunger are serious social problems affecting millions of people worldwide. Large amounts of edible food are discarded daily by households, restaurants, and events, while many individuals lack access to proper nutrition. This paper proposes a Community Food Waste Sharing Platform, a web-based solution that connects food donors with NGOs and volunteers to enable efficient food redistribution. Donors can register surplus food details such as quantity, location, and time, while NGOs can request and collect food for distribution. The system includes user authentication, notifications, and basic tracking to ensure safe and timely delivery. The proposed platform helps reduce food wastage, supports underprivileged communities, and promotes sustainable and socially responsible practices through the use of digital technology.

Keywords

Food Waste Management, Community Platform, Food Donation, Web Application, Sustainability, Social Welfare

1. INTRODUCTION

Food wastage is a growing global issue that coexists with hunger and malnutrition, especially in developing countries like India. Every day, a large amount of surplus food from households, restaurants, hotels, and social events is discarded due to poor distribution systems. At the same time, many people lack access to adequate and nutritious food. The effective management and redistribution of excess food can significantly reduce food waste and help address food insecurity. With the advancement of digital technology, web-based platforms provide an efficient way to connect food donors with organizations that serve needy communities. This paper introduces a **Community Food Waste Sharing Platform**, designed to facilitate the collection and distribution of surplus food through NGOs and volunteers. The system aims to promote sustainability, social responsibility, and community participation by minimizing food wastage using technology.

2. PROBLEM STATEMENT

Food wastage is a serious social and environmental problem, especially in developing countries like India. Large quantities of edible food are wasted daily by households, restaurants, hotels, events, and institutions due to the lack of proper redistribution systems. At the same time, many people suffer from hunger and malnutrition. Existing food donation processes are mostly informal and unorganized, leading to delays, lack of coordination, and food spoilage. There is no centralized platform to connect food donors with NGOs and volunteers in real time. This results in inefficient food distribution, poor tracking, and increased wastage. Therefore, there is a need for a digital platform that can efficiently manage surplus food sharing and ensure timely distribution to needy communities.

3. RELATED WORK

3.1 Traditional Food Donation Methods

Traditionally, surplus food donation is managed through informal methods such as phone calls, personal contacts, or direct visits to NGOs. Restaurants, households, and event organizers usually contact nearby charities manually. This approach lacks proper coordination, real-time updates, and tracking mechanisms. As a result, food collection is often delayed, leading to food spoilage and increased wastage. There is also no centralized record to monitor donations or distribution efficiency.

3.2 NGO-Based Food Distribution Systems

Many NGOs operate food collection and distribution activities independently using their own volunteers and limited resources. While these organizations play a crucial role in reducing hunger, they often rely on manual record-keeping and basic communication tools. Due to the absence of a unified digital platform, coordination between multiple donors and NGOs becomes difficult, reducing overall efficiency and scalability.

3.3 Online Donation and Management Platforms

Several online platforms support monetary donations and resource sharing. These systems provide user registration, request management, and notifications. However, most of these platforms focus on financial donations rather than perishable food items. They often lack features such as time-based availability, location tracking, and food safety considerations, which are essential for effective food redistribution.

3.4 Digital Platforms for Feedback and Monitoring

Digital feedback and monitoring systems are widely used in service-based applications to improve transparency and service quality. Some food-related platforms allow basic feedback collection, but they are not fully integrated with food donation workflows. Incorporating structured feedback and status tracking in food sharing platforms can help improve coordination, accountability, and trust among donors, NGOs, and volunteers.

4. OBJECTIVES

- To reduce food wastage by redistributing surplus food
- To connect food donors with NGOs and volunteers
- To provide a real-time and organized food donation system
- To ensure timely collection and distribution of food
- To promote social responsibility and community participation
- To improve transparency and accountability in food sharing

5. FUTURE SCOPE

- Development of a mobile application for easier and faster access
- Integration of real-time location tracking for efficient food pickup and delivery
- Use of data analytics to predict food demand and reduce wastage
- Expansion of the platform to support large-scale and multi-city operations

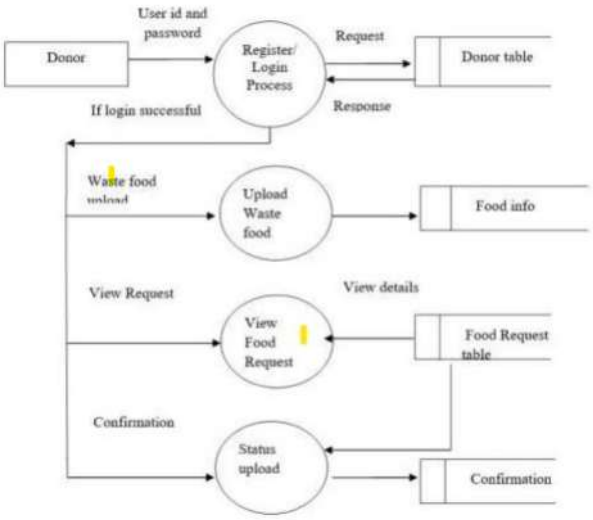
6. KEY FEATURES

- User registration and secure login for donors, NGOs, and volunteers
- Facility for donors to upload surplus food details such as quantity, type, location, and time
- Real-time display of available food donations
- Location-based matching between donors and nearby NGOs or volunteers
- Notification and alert system for quick coordination

7. PROCEDURE

7.1 Methodology

7.1.1 DFD Level 2



The DFD Level-2 diagram provides a detailed view of the internal processes of the Community Food Waste Sharing Platform, focusing on the donor interaction and food donation workflow.

The process begins with the User Authentication Module, where the donor enters login credentials. The system validates these credentials by accessing the Donor Database. Upon successful verification, the donor is granted access to the platform.

Next, the Food Upload Process allows the donor to enter surplus food details such as food type, quantity, location, and availability time. This information is stored in the Food Information Database for further processing.

The Food Request Viewing Process enables the donor to view requests submitted by NGOs or volunteers. The system retrieves request details from the Food Request Database and displays them to the donor.

After reviewing the requests, the donor selects an appropriate request and provides confirmation. The Status Update Process records the confirmation and updates the donation status in the Confirmation Database. This ensures real-time tracking, transparency, and efficient coordination between donors and receivers.

8. CONCLUSION

The Community Food Waste Sharing Platform provides an effective digital solution to reduce food wastage by enabling the efficient redistribution of surplus food. The system improves coordination between food donors, NGOs, and volunteers through real-time information sharing and automated processes. By offering features such as food posting, request management, and status tracking, the platform ensures transparency and timely distribution. The integration of notifications and feedback mechanisms enhances trust and accountability among users. This project demonstrates how web-based

technologies can play a significant role in addressing social challenges such as food waste and hunger, contributing to sustainable community development.

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