

Online Food Donation Website

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Abstract

A food donation website is designed to reduce food waste and support individuals in need by connecting donors with NGOs. The platform enables users such as households, restaurants, and event organizers to post surplus food, while receivers can access and request available donations. Key features include user authentication, location-based matching, and real-time notifications to ensure timely distribution. The system improves coordination and minimizes food wastage through efficient communication. By leveraging web-based technology, the platform encourages sustainable practices and social responsibility, contributing to hunger reduction and better resource utilization within communities.

Keywords: food donation, hunger, food waste, food banks, food insecurity, technology, user-friendly, efficient, efficient donation, easy donation, reduce food waste, alleviate hunger

I. INTRODUCTION

Food waste and hunger are two major global challenges that continue to coexist despite advancements in technology and economic growth. Every year, a significant amount of food is wasted at various levels, including households, restaurants, supermarkets, and social events. At the same time, millions of people suffer from hunger and malnutrition due to unequal distribution and lack of access to food. This imbalance highlights the urgent need for efficient systems that can bridge the gap between surplus food and those in need.

In recent years, rapid urbanization and changing lifestyles have contributed to an increase in food wastage. Events, parties, and commercial establishments often produce excess food that remains unused and eventually discarded. On the other hand, underprivileged communities, daily wage workers, and homeless individuals struggle to secure even one proper meal a day. Traditional methods of food donation are often unorganized, time-consuming, and lack proper coordination, resulting in missed opportunities to redistribute surplus food effectively.

With the growth of digital technology and internet accessibility, web-based platforms have emerged as powerful tools to address social issues. A food donation website provides a centralized system where donors and recipients can interact efficiently. Such platforms allow users to register, post available food donations, and connect with nearby NGOs who can collect and distribute the food. This digital approach ensures better communication, faster response times, and improved management of resources.

The proposed food donation website focuses on creating a user-friendly and reliable system that simplifies the donation process. Donors can easily upload details about surplus food, including quantity, type, and location, while receivers can browse and request donations based on their requirements. The integration of location-based services plays a crucial role in ensuring that food reaches its destination quickly, reducing the chances of spoilage. Additionally, real-time notifications and updates enhance transparency and coordination among users.

One of the key advantages of such a platform is its ability to minimize food wastage while maximizing social impact. By connecting multiple stakeholders—donors, NGOs—the system creates a collaborative environment that encourages community participation. It also promotes awareness about responsible

consumption and the importance of sharing resources. Moreover, the platform can help organizations maintain records of donations, track distribution, and analyze data to improve efficiency over time.

II. LITERATURE SURVEY

Food waste management and hunger reduction have been widely studied, leading to the development of various technological and non-technological solutions. Researchers and developers have proposed multiple systems to connect food donors with recipients, aiming to minimize wastage and improve distribution efficiency.

Gustavsson, J.; Cederberg, C.; Sonesson, U. Proposed “Global Food Losses and Food Waste – Extent, Causes and Prevention” [2011][1]. The primary objective of this study is to analyze the magnitude, causes, and effects of food loss and food waste at a global level. The authors highlight that approximately one-third of the food produced for human consumption is lost or wasted every year, which accounts for nearly 1.3 billion tons of food. The study categorizes food loss across different stages such as production, post-harvest handling, processing, distribution, and consumption. It also identifies that in developing countries, food loss mainly occurs during production and storage due to lack of infrastructure, whereas in developed countries, food waste occurs at the consumer level due to over-purchasing and improper usage. The study emphasizes the environmental impact of food waste, including unnecessary use of water, energy, and land resources. It concludes that implementing efficient food management systems and redistribution mechanisms can significantly reduce food waste and improve global food security.

Parfitt, J.; Barthel, M.; Macnaughton, S. Proposed “Food Waste within Food Supply Chains: Quantification and Potential for Change” [2010][2]. This study focuses on analyzing food waste across the entire food supply chain and identifying potential areas for improvement. The authors discuss how inefficiencies in supply chain management, including poor logistics, lack of coordination, and inadequate storage facilities, contribute to food wastage. The paper also highlights the role of consumer behavior, such as over-purchasing and improper food handling, in increasing food waste. The study suggests that improving infrastructure, implementing better supply chain practices, and increasing awareness can reduce food waste significantly. It also recommends the adoption of technology-based solutions, such as digital platforms, to enhance communication between stakeholders and ensure efficient food distribution.

A number of researchers have also addressed the issue of food safety and quality. Ensuring that donated food is safe for consumption is a critical aspect of any food donation system. Some proposed solutions include implementing time limits for food availability, adding quality checks, and providing guidelines for proper food handling. These measures help in maintaining trust among users and ensuring the reliability of the platform.

The proposed food donation website aims to overcome these limitations by providing a more efficient, secure, and user-friendly system. It focuses on improving coordination, ensuring food safety, and enhancing accessibility through better design and technology integration. By analyzing previous research and existing solutions, the system is developed to address current challenges and provide a more reliable approach to food redistribution.

III. PROBLEM STATEMENT

Food waste and hunger remain critical challenges in modern society, occurring simultaneously despite the availability of sufficient resources. Large quantities of edible food are discarded daily by households, restaurants, hotels, and event organizers due to poor planning, overproduction, and lack of proper storage. At the same time, a significant portion of the population struggles with food insecurity, unable to access nutritious meals regularly. This imbalance highlights the inefficiency in the current system of food distribution.

One of the primary issues is the absence of a structured and efficient mechanism to connect food donors with individuals or organizations in need. Traditional food donation methods are often informal, uncoordinated, and dependent on personal networks, which limits their reach and effectiveness. As a result, surplus food that could be redistributed is often wasted due to delays, lack of awareness, or logistical challenges.

Another major concern is the lack of real-time communication and coordination between donors and receivers. Without a centralized platform, it becomes difficult to identify nearby recipients, track donations, and ensure timely delivery before the food spoils. Additionally, concerns related to food safety, quality, and proper handling further complicate the donation process.

There is also a need to address issues such as user trust, verification, and data management. Without proper systems in place, the risk of misuse, fraud, or inefficiency increases. Furthermore, limited awareness and accessibility to existing solutions reduce participation from potential donors and beneficiaries.

IV. PROPOSED SYSTEM

A web-based food donation platform is designed to efficiently connect food donors with recipients such as NGOs and individuals in need. The system focuses on reducing food wastage by providing a centralized and user-friendly interface where donors can register and upload details of surplus food, including type, quantity, and location.

Location-based services are integrated to identify nearby receivers, ensuring timely collection and distribution before the food spoils. Registered users can view available donations in real time and request food according to their needs. Notifications and alerts are included to improve communication and coordination between donors and receivers.

A secure user authentication mechanism is implemented to ensure that only verified users can access the platform. The system uses a database to store user details, donation records, and transaction history, enabling efficient management. This improves transparency and accountability throughout the process.

In addition, food safety is considered by allowing donors to provide details such as preparation time and storage conditions. Guidelines for proper handling can also be incorporated to maintain quality standards.

V. METHODOLOGY

The development of the food donation website follows a structured software development approach to ensure smooth functionality, scalability, and ease of use. The system is implemented using HTML, CSS, Bootstrap, JavaScript, PHP, MySQL and XAMPP server, providing a reliable web-based environment for managing users and donations.

The methodology begins with requirement analysis, where the roles of Admin, Donor, and NGO are defined. Each role has specific functionalities within the system. Donors can add food donations, NGOs

can view and request available food, and Admin manages the entire platform including users, donations, and feedback.

In the system design phase, the architecture is divided into three dashboards:

- Admin Dashboard
- Donor Dashboard
- NGO Dashboard

Each dashboard is designed to handle role-specific operations. HTML is used to structure the web pages, while CSS and Bootstrap are used to create a responsive and visually appealing user interface. JavaScript is used to enhance interactivity, such as form validation, dynamic content updates, and alert notifications.

The implementation phase is carried out using PHP for backend development and MySQL for database management. XAMPP server is used to run the application locally. The database contains multiple tables including Users, Donations, Notifications, Reviews, and Contact Messages.

Key functionalities of the system include:

- User authentication based on roles (Admin, Donor, NGO)
- Food donation posting with location and expiry time
- Notification system where alerts are sent to Admin when a donor adds a food donation
- Review system for feedback from NGOs
- Contact message module for communication
- Email notification feature for updates and alerts
- Client-side validation using JavaScript for secure and error-free form submission
- Dynamic UI updates using JavaScript for better user experience

The system does not include pickup time; instead, expiry time is used to ensure food is collected before it becomes unsafe for consumption. Location-based donation details help NGOs find nearby food easily.

Testing is performed to ensure proper functionality of login, donation management, notifications, database operations, and front-end responsiveness across different devices and browsers.

The system is deployed using XAMPP for local execution and can be extended to a live server in the future.

Overall, this methodology ensures an efficient, secure, and role-based food donation platform that connects donors and NGOs while reducing food waste effectively, while also providing an interactive and user-friendly experience through modern front-end technologies like HTML, CSS, and JavaScript.

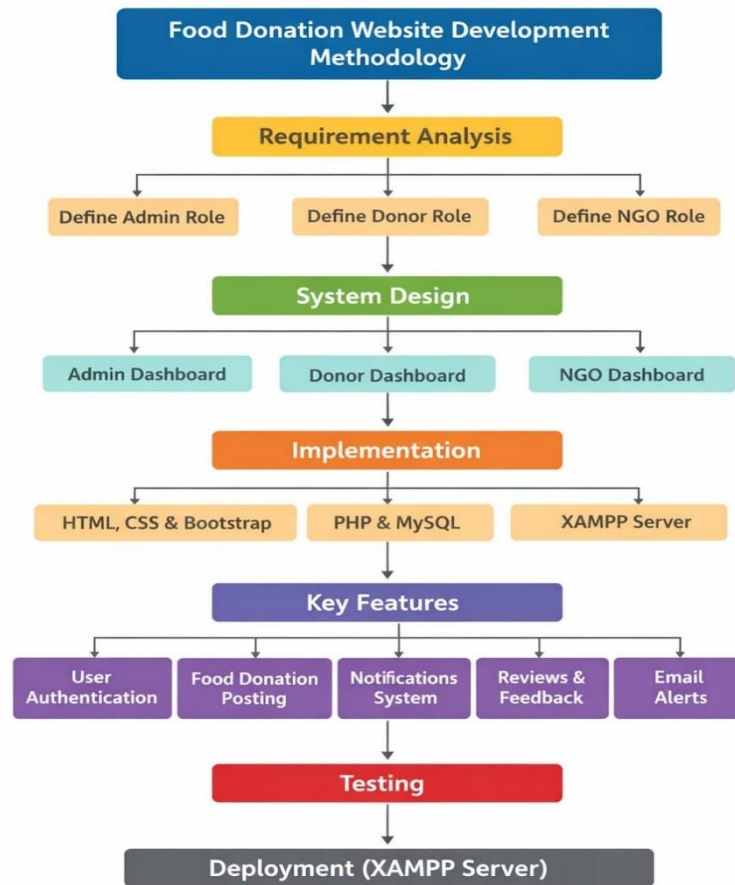
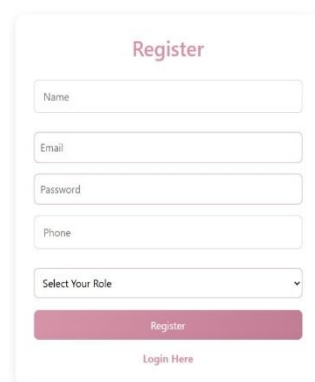


Fig 1. Flowchart Diagram

VI. RESULTS

1.Registration

The registration page of the food donation Website is designed to allow new users to create an account easily and securely. It provides a simple and user-friendly interface where users can enter their basic details such as name, email address, password, and phone number. Each input field is clearly labeled to ensure that users can understand what information is required. The design focuses on clarity and accessibility, making it convenient for users of all backgrounds to register without confusion.



The screenshot shows a registration form titled "Register". It contains the following fields: Name, Email, Password, Phone, and a dropdown menu for "Select Your Role". Below the fields are two buttons: "Register" and "Login Here".

Fig 2. Registration

2. Login

This page represents the login section of an online food donation website, where registered users such as donors and recipient organizations can securely access their accounts. The title Login clearly indicates the purpose of the page. It includes input fields for email and password, allowing users to enter their credentials. After providing the required information, users can click the Login button to access their dashboard, where donors can manage their food donations, and recipients can view and request available food. Additionally, the Register Here link is provided for new users who have not yet created an account, enabling them to sign up and become part of the platform. The simple and clean design ensures a smooth user experience, making it easy to log in and contribute to reducing food waste while supporting those in need.



Fig 3. Login

3. Donar Dashboard:

The donor dashboard of an online food donation website provides a personalized space where donors can manage and track their contributions and efficiently. It displays an overview of their recent and past donations, including details such as food type, quantity, and donation status. Donors can easily add new food donations by providing necessary information like pickup location, expiry time, and description of the food items. The dashboard may also allow donors to edit or cancel their listings if needed. Additionally, it helps donors stay informed about which organizations have received their donations, promoting transparency and trust. With a simple and user-friendly interface, the donor dashboard makes it convenient for individuals or businesses to contribute to reducing food waste and supporting those in need.

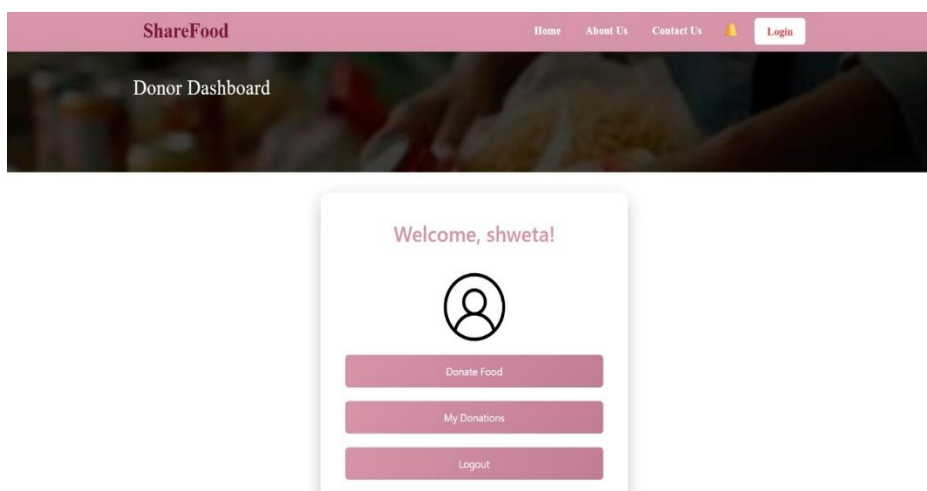


Fig 4. Donar Dashboard

4. NGO Dashboard

The NGO dashboard of an online food donation website provides a dedicated interface for registered organizations to efficiently manage and access available food donations. It offers an overview of all listed donations, including details such as food type, quantity, location, and availability time, allowing NGOs to quickly identify suitable resources.

Through this dashboard, organizations can request or claim donations based on their needs and track the status of their requests. It may also include features to view past donations received, manage their profile, and update requirements. With a clear and organized layout, the NGO dashboard helps streamline the process of connecting surplus food with those in need, ensuring timely distribution and reducing food waste.

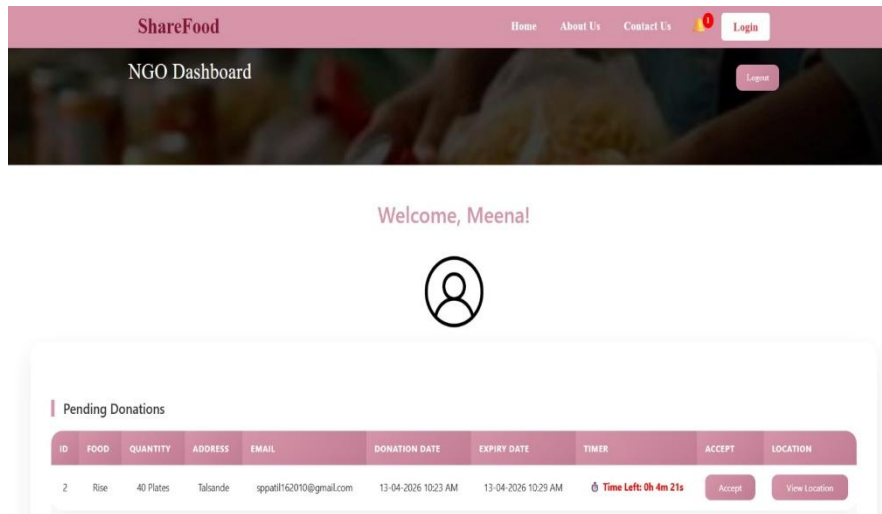


Fig 5. NGO Dashboard

3.Admin Dashboard:

The admin dashboard of an online food donation website serves as the central control panel for managing all platform activities. It provides the administrator with an overview of key information such as total donations, active donors, registered recipient organizations, and recent transactions. Through this dashboard, the admin can monitor and manage user accounts, verify and approve new registrations, and ensure that food donations are properly listed and distributed. It may also include features for tracking donation status, handling requests from recipients, and generating reports to analyze platform performance. With a clear and organized interface, the admin dashboard helps maintain transparency, efficiency, and smooth operation of the food donation system.

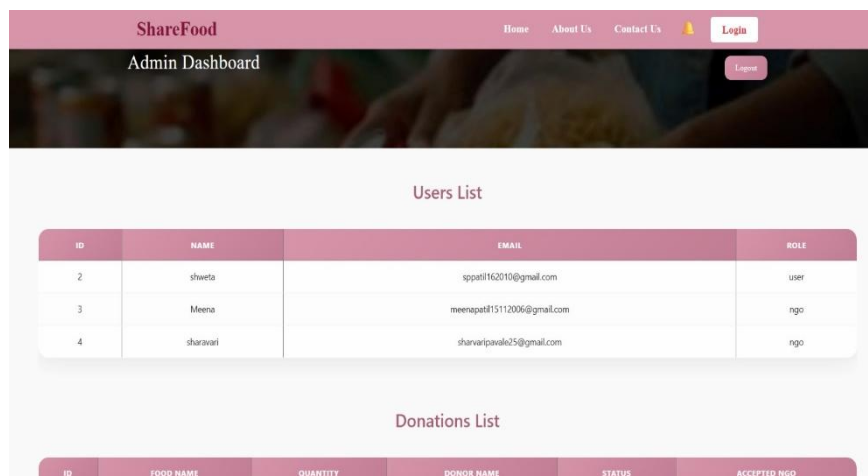


Fig 6. Admin Dashboard

VII. FUTURE WORK

The food donation website can be further enhanced by adding advanced features and improving scalability to increase its real-world impact. In future development, the system can be deployed on a cloud platform to make it accessible globally with higher reliability and performance. This will also help in handling a large number of users simultaneously without system downtime.

A mobile application version can be developed for both Android and iOS platforms to improve accessibility and user engagement. This will allow donors and NGOs to manage donations more efficiently through smartphones.

Advanced location-based services can be integrated using GPS tracking to improve the accuracy of nearby donation matching. This will help NGOs collect food faster and reduce wastage due to expiry time constraints.

Artificial Intelligence (AI) can be introduced in future to predict food demand and optimize donation distribution. AI-based recommendations can also suggest suitable NGOs for specific donations based on location and past activity.

In addition, a real-time chat system can be added to improve communication between donors and NGOs. Payment or support tracking features can also be included for organizations that provide additional services.

VIII. CONCLUSION

The food donation website provides an effective solution for reducing food wastage and supporting people in need by connecting donors and NGOs through a centralized platform. The system ensures that surplus food from households, restaurants, and events can be efficiently distributed before its expiry time, thereby minimizing waste and maximizing social benefit.

By implementing role-based access for Admin, Donor, and NGO, the platform ensures organized management and smooth operation of all activities. Features such as food donation with location and expiry time, notification system, review system, and contact messaging improve communication and transparency among users. The use of PHP, MySQL, Bootstrap, and XAMPP ensures a reliable and user-friendly environment for system development and execution.

The system successfully addresses the limitations of traditional donation methods by providing faster coordination, better tracking of donations, and improved accessibility. It also promotes social responsibility by encouraging individuals and organizations to actively participate in food redistribution.

Overall, the developed platform contributes towards reducing hunger and food wastage by efficiently utilizing available resources. It serves as a practical and scalable solution that can be further enhanced in the future to achieve greater impact in society.

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