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Food for Life: A PHP Based Food Redistribution System to Minimize Waste and Combat Hunger

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ABSTRACT: Food waste is an issue that touches all of us. Individuals are affected wherever it exists, such as in our homes, schools, restaurants, grocery stores, workplaces, and even in transportation. With the assistance of this software, hotels can donate leftover food to needy individuals while minimizing food waste. Using this application, the food donors can record information regarding donations, and volunteers from NGOs are able to view the images of the food donated by each volunteer. Wasting food is common in our culture. Handling food waste is critical because it could make our economic and environmental sustainability better. We have established the way website can be utilized in order to reduce food waste management through which restaurants or users are able to contribute and donate leftover food to those in need. We aimed at doing this project in order to utilize a website in order to reduce food waste. The agent is thereafter sent a quick notice. The agent in the field can login and obtain the donor's information after receiving the notice. The program enables the donor to create an account, and he can log in and enter the location and food data at any point in time where there is wastage of food. The agent can also be able to get the data and holding an account. After the information has been obtained, the agent can go pick food from the donor and distribute it to the orphans or other vulnerable individuals. Redistribution of food is a very successful social innovation program that reduces food poverty and food waste. Since it has a unique account for each user, the information of the user is maintained confidential.

KEYWORDS: Food waste, Food donation, Waste Management, NGO Volunteers, Food Security, Donor Information, Food Redistribution Program, Community Support.

I. INTRODUCTION

Food waste is a serious issue that affects us all, wherever we are. Whether it's at home, school, work, or in our communities, food waste is a problem that we can't ignore. In fact, food waste is so common in our culture that it's estimated that a significant amount of food is wasted every day. But food waste isn't just a moral issue; it's also an economic and environmental problem. When food is wasted, it's not just the food itself that's wasted; it's also the resources used to grow, produce, transport, and store that food. This includes water, energy, land, and labour. By wasting food, we're also wasting these precious resources. Moreover, food waste contributes to climate change, pollution, and environmental degradation. It's estimated that food waste is responsible for around 8% of global greenhouse gas emissions. This is a staggering statistic, especially when we consider that climate change is one of the biggest challenges facing our planet today. So, what can we do to reduce food waste? One solution is to create a system that allows individuals and organizations to donate leftover food to those in need. This is where our project comes in. We've developed a website that enables hotels, restaurants, and individuals to donate leftover food to vulnerable populations, such as orphans and the homeless. Our website is designed to be user-friendly and efficient. Donors can create an account and log in to enter information about the food they want to donate. Volunteers from NGOs can then view this information and arrange to collect the food. The website also allows donors to track their donations and receive feedback from the recipients. By using our website, we aim to reduce food waste and provide food to those who need it most. We believe that everyone deserves access to nutritious food, and we're committed to making this a reality. Our project is a small step towards creating a more sustainable and equitable food system, and we're excited to see the impact it can have.

II. LITERATURE REVIEW

Food waste is a growing global issue with significant economic, environmental, and social consequences. The importance of addressing food waste has been increasingly recognized by researchers, policymakers, and organizations worldwide. The aim of this literature review is to explore the current body of knowledge on food waste, food donation programs, and the role of technology in managing food redistribution, with a particular focus on PHP-based platforms for food donation systems.

Food waste is a serious global issue, impacting the environment, economy, and food security. According to the Food and Agriculture Organization (FAO), approximately one-third of all food produced for human consumption is lost or wasted annually, which is about 1.3 billion tons of food [3]. This waste occurs at various stages of the food supply chain, including production, storage, distribution, and consumption. In developed nations, food waste is mostly attributed to consumer behaviour, whereas in developing countries, the primary sources of food loss are at the production and distribution levels [6].

Food donation programs have long been recognized as an effective method for reducing food waste and addressing food insecurity. Donating surplus food to individuals and communities in need not only reduces waste but also helps combat hunger. Studies have shown that food donations can have a significant impact on reducing food poverty, particularly for vulnerable groups such as the homeless, orphans, and low-income families [10]. This platform has gained popularity in many countries and has proven to be an effective tool for reducing food waste while providing affordable meals to users [12].

Miraz et al. [9] developed a web-based food donation platform using PHP and MySQL, which allows users to register as donors or volunteers, list available food, and track the status of donations. The platform also includes features for scheduling pickups, reporting food donations, and notifying users about the status of donations. Such PHP-based systems streamline the process of food redistribution and ensure that food reaches recipients in a timely manner, reducing food waste.

III. PROPOSED SYSTEM

Our suggested system is a user-friendly and extensive online system that would fill the gap between food recipients and donors. The site will give a convenient and effective method of donating the surplus food to the needy through hotels, restaurants, and individuals. Donors can simply post the food they intend to donate, such as the type, amount, and date of expiration, upon registering on the website. This data will be important in helping ensure that the food is safe and fit for consumption. In addition, the website will also enable donors to indicate their preferred mode of donation, whether pickup or delivery. Alternatively, orphanages, NGOs, and needy individuals can also register on the website and get notified when food is in their locality. The system will use a highly advanced matching algorithm to match donors with recipients on location, type of food, and amount. This will help ensure that the food is delivered effectively and efficiently with little food wastage and maximum utilization of each donation. When a match is established, donor and recipient can chat and coordinate with each other via the website to plan for pickup or delivery at their convenience. Our system will not only help minimize food waste but also be a lifeline to individuals in need of access to nutritious food. Using technology and social networking, we want to develop a community that shares concern for food sharing and impacting the lives of others positively. Ultimately, our mission is to simplify food donation, making it more efficient and effective, so that everyone can have access to the healthy food they need to succeed.

IV. MODULE DESCRIPTION

Phase 1: User Registration and Profile Management

Community Managers Module

- Registration form: Allows community managers to create an account and register their community.
- Login form: Enables community managers to log in to their account and access community information.
- List of Food Distribution: Displays a list of upcoming food distributions, allowing community managers to plan and coordinate efforts.
- List of Donors: Shows a list of registered donors, enabling community managers to connect with potential donors.

- List of Volunteers: Displays a list of registered volunteers, allowing community managers to assign tasks and manage volunteer efforts.

Donors Module

- Registration form: Allows donors to create an account and register their donation.
- Login form: Enables donors to log in to their account and manage their donations.
- Donation form: Enables donors to submit their donation details, including food type, quantity, and expiration date.

Volunteers Module

- Registration form: Allows volunteers to create an account and register for volunteer work.
- Login form: Enables volunteers to log in to their account and access volunteer tasks.
- Automatically receive task: Volunteers receive automatic task assignments based on their location and availability.

Phases	Type of User		
	Community Managers	Donors	Volunteers
Phase 1	<ul style="list-style-type: none"> Registration form Login form List of Food Distribution List of Donors List of Volunteers 	<ul style="list-style-type: none"> Registration form Login form Donation form 	<ul style="list-style-type: none"> Registration form Login form Automatically receive task
Phase 2	<ul style="list-style-type: none"> Find the closed volunteers Reporting process 	<ul style="list-style-type: none"> Find the closed communities Food picture and food description 	<ul style="list-style-type: none"> Reporting task form Donation picture and description
Phase 3	<ul style="list-style-type: none"> Notification for every request Approval for the donation Tracking donation 	<ul style="list-style-type: none"> Notification Tracking donation 	<ul style="list-style-type: none"> Connecting to google map

Fig no :1 Table Design

Phase 2: Donation Management and Reporting

Community Managers Module

- Find the closest volunteers: Community managers can search for volunteers based on location and availability.
- Reporting process: Community managers can generate reports on donation distribution, volunteer efforts, and community impact.
- Find the closest communities: Community managers can search for nearby communities and connect with them for donation distribution.

Donors Module

- Food picture and food description: Donors can upload pictures and descriptions of their donated food.
- Reporting task form: Donors can submit reports on their donation, including details on food type, quantity, and expiration date.

Volunteers Module

- Donation picture and description: Volunteers can upload pictures and descriptions of the donations they collect.

Phase 3: Notification and Tracking

Community Managers Module

- Notification for every request: Community managers receive notifications for every donation request, allowing them to respond promptly.
- Approval for the donation: Community managers can approve or decline donations based on community needs and availability.

Donors Module

- Notification: Donors receive notifications when their donation is accepted or declined.
- Tracking donation: Donors can track the status of their donation, including when it is collected and distributed.

Volunteers Module

- Tracking donation: Volunteers can track the status of the donations they collect, including when they are delivered to the community.
- Connecting to Google Maps: Volunteers can use Google Maps to navigate to donation pickup and dropoff locations.

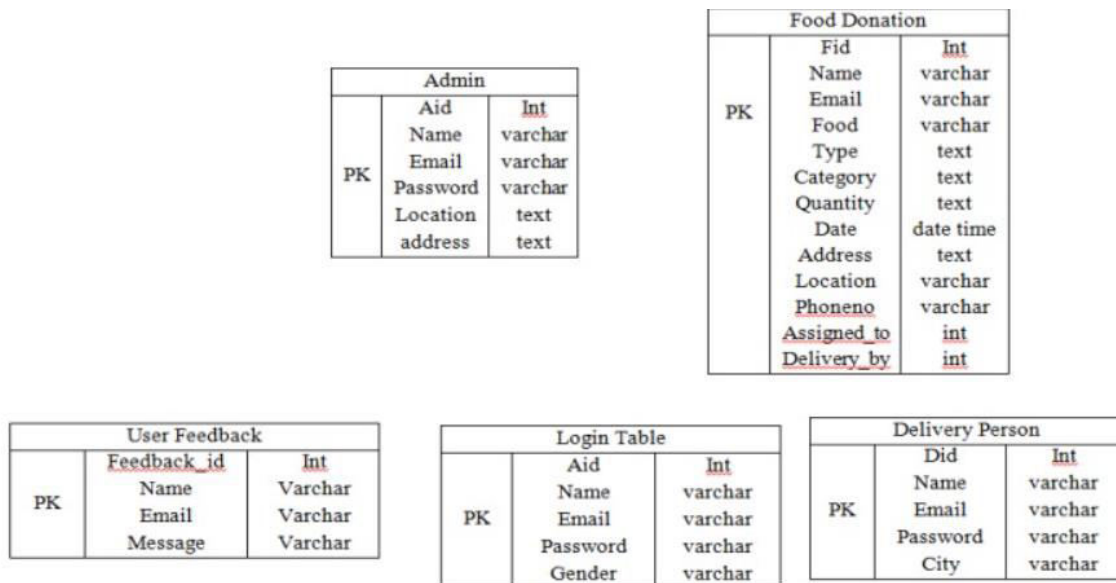


Fig no:2 ER Diagram

V. OBJECTIVES

The primary objective of the Food Donation Project System is to create a platform that connects hotels and restaurants with surplus food to nearby orphanages and organizations that need it. Specifically, the objectives of this project are:

To provide a user-friendly online platform for hotels and restaurants to login and offer their surplus food.

To send notifications to nearby orphanages and organizations about the availability of surplus food.

To facilitate the collection of surplus food by orphanages and organizations, reducing food waste and providing nourishment to those in need.

To create a win-win situation for hotels and restaurants, who can reduce their food waste and costs, while also supporting their local community.

By achieving these objectives, the Food Donation Project System aims to make a positive impact on the community by reducing food waste, supporting local organizations, and providing nourishment to those in need.

VI. METHODOLOGY

This project will utilize a mixed-methods strategy, utilizing both qualitative and quantitative methods to attain the goal.

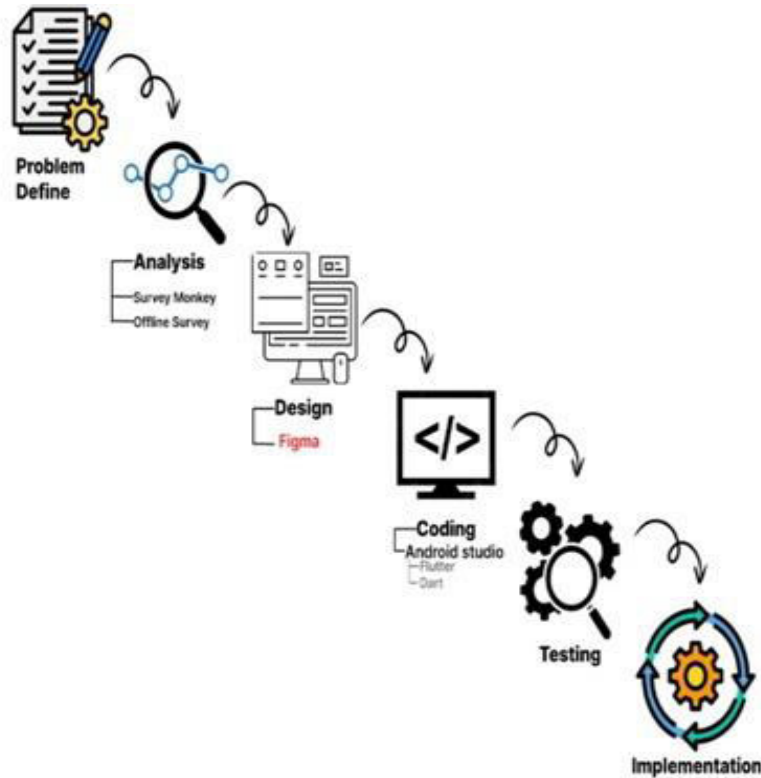


Fig no:3 SDLC Model

Qualitative Methodology

Literature Review: A thorough review of the current literature on food waste, food donation, and online platforms will be carried out in order to understand the current situation of the issue and possible solutions.

Expert Interviews: Experts to be interviewed will include hotel and restaurant managers, orphanage administrators, and food donation experts on the feasibility and challenges and benefits of the proposed system.

Focus Group Discussions: Focus group discussions to be conducted with stakeholders that include hotel and restaurant staff, orphanage administrators, and beneficiaries with the aim of gathering feedback and suggestions on the proposed system.

Quantitative Methodology

Survey Study: Online questionnaires will be administered to hotel and restaurant managers, orphanage officials, and beneficiaries to collect information on the prevailing food waste and donation trends.

Data Analysis: Descriptive and inferential statistics will be employed for analyzing the survey data to determine trends, patterns, and correlations.

System Development Methodology

The Food Donation Project System will be designed using an iterative and incremental methodology, and the following phases will be followed:

Requirements Gathering: The requirements will be collected from stakeholders via surveys, interviews, and focus group discussions.

System Design: The system will be designed by utilizing the requirements obtained, employing tools like wireframes, prototypes, and use cases.

System Development: The system will be developed with a programming language like PHP, employing a database management system like MySQL.

Testing and Quality Assurance: The system will be tested and quality assured via unit testing, integration testing, and user acceptance testing.

Deployment and Maintenance: The system will be deployed and maintained with frequent updates and bug fixes.

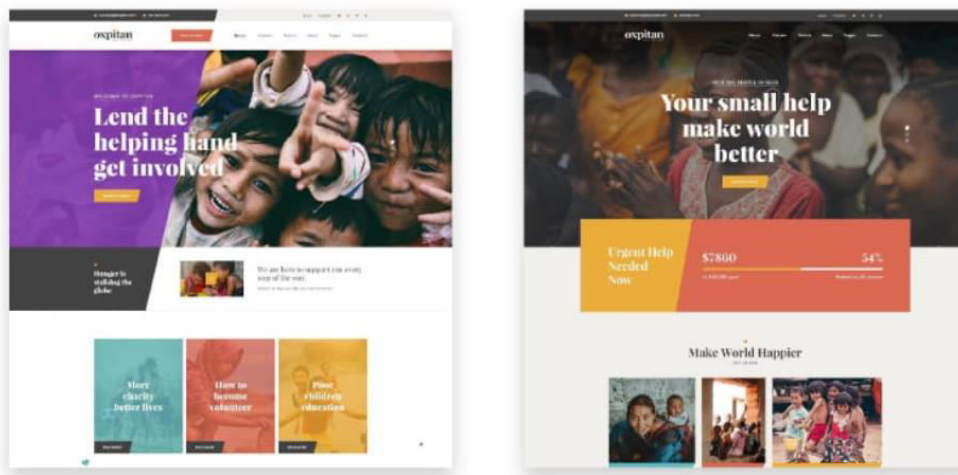


Fig no:5 Home page

Evaluation Methodology

The Food Donation Project System will be assessed by a combination of quantitative and qualitative approaches, such as:

Usage Statistics: Usage statistics, including users, donations, and collections, will be monitored and quantified.

User Feedback: User feedback will be gathered by means of surveys, interviews, and focus group discussions.

Impact Assessment: The system's impact on food waste reduction, donation, and collection will be evaluated using both quantitative and qualitative methods. Utilizing a mixed-methods design, where qualitative and quantitative approaches are integrated, this project hopes to give a thorough picture of the problem and the proposed solution, and create an efficient and sustainable Food Donation Project System.

VII. CONCLUSION

The Food Donation Project System, as mentioned in this paper, is a viable solution to the increasing global issue of hunger and food wastage. Using technology, or a PHP-based web platform in this case, the system bridges the gap between donors like restaurants and hotels and orphanages, NGOs, and needy individuals in need of excess food. The system makes the donation of food efficient, reducing wastage and feeding those in dire need. The major functionalities of the suggested system, including easy registration, tracking of donations, and coordination of volunteers, render it an inclusive system that can be localized to achieve global reach. Using a matching algorithm, the system optimizes food donations distribution such that the usage of available resources is maximized and food insecurity minimized. It also enables community organizations to leverage an easy-to-use platform for monitoring and managing donations.

In the end, this project has the capacity to significantly aid in food reduction and the combat against hunger. Simplifying and making the food donation process more effective can encourage the culture of sharing and social obligation. Its success can become an impetus for greater change within society, driving more individuals and companies to take part in the redistribution of food, opening up the gates towards a greener and fairer future.

VIII. FUTURE ENHANCEMENTS

To make our food donation system better and more effective, we plan to use AI to match donors with recipients, a mobile app for easy coordination, and AI tools to check food safety. Blockchain will keep donation tracking clear and trustworthy, while rewards and games will motivate people to donate. Features like testimonials and discussion forums will help build a strong community. Smart logistics will improve food delivery, and partnerships with NGOs and governments will expand reach and offer tax benefits. A chatbot will assist users in different languages, and an environmental tracker will show the impact of reducing food waste. These improvements will make food donation simpler, fairer, and more useful for everyone.

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