



## WEBSITE DESIGN FOR FOODWASTE DISPOSAL

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### Abstract

The disposal of food waste is accomplished through the use of a web-based system. This online application acts as the connection between those who are willing to donate food and others who are in need of it. Donors of food enter their addresses and details about the quantity of food they are donating into this application. The goal of this endeavor is to create a web-based application with the purpose of reducing how much food there is wasted in restaurants, events, and other settings. The current method just offers information on the sum of all the food that is thrown out, and not offer a way to contribute or analyze data. Utilizing data analysis to create a visual representation of the impact. Donating the excess food, which includes supplying the following information: first, the location of where the excess food is available, well as facts in relation to the amount of food that is now available. Send immediate alerts to neighboring nongovernmental organizations, orphanages, and volunteer groups asking them to collect them. A study found that each year, 1.3 billion tons of food are lost. This project's main goal is to develop a technique that reduces the amount of food wasted by focusing on the creation of a web application that uses data to visualize the impact that extra food has, with the end goal of lessening the quantity of food that is thrown away. It also makes it possible to donate the food that is produced in excess by providing the local users (such as NGOs and volunteers) with information regarding the food that is available for distribution.

**Keywords:** Food Waste Disposal, Sustainability, Waste Reduction, Zero Waste, Health and Hygiene and Environmental Impact

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## 1. INTRODUCTION

The term "food system" broadly refers to the elements, procedures, and frameworks connected to trade, retail, transportation, agriculture, and food consumption [1]. The European Union (EU) is frequently listed as single of the world's top five food producers. The quantity of food consumed by Europeans has changed significantly over time. For example, today we eat twice as much meat as we did fifty years ago. decline in the per-person intake of beef [2]. According to statistics, the typical European eats far more fish, poultry, veggies, sea food, and American [2]. This indicates that a third of all food produced worldwide is either thrown away or kept as waste. The "Roadmap to a Resource Efficient Europe" that was released in September 2011 [3] was developed by the European Commission includes a quantity of key areas that must be emphasized. both food and food waste two significant issues. Despite knowing that humans squander a fraction of food we produce, it is impossible to determine the worldwide food waste [4]. The European Commission, a total of 90 million tons of food—180 kg per person—are wasted each year [2]. The responsible for the generation of the greatest food waste are processing and production (39%), followed by bakery (25%). Organized these two sectors account for 64% of the food waste that is produced in the EU. The remaining percent comes from snacks and confectionery, frozen food, alcohol manufacturing and distribution, dairy products, soft drinks, and production and providing alcohol to the public [2]. Food waste can be divided into three types, rendering the manner in which it was generated. These categories are as follows: things that are still edible but are thrown out before being consumed (for example, bread,

veggies, meat, and so on); food that is derived from the groundwork of food that is not, and could not be, eatable food that the populace takes but does not (like bread crusts) or foods that can be troubled if prepared a certain way (like potato skins). [5, 6]. Food made from non-edible ingredients is unavoidable.

### Literature Survey

The literature survey reveals significant research and insights into the key aspects relevant to the design and implementation of "Food waste disposal," Systematic literature review of food waste in educational institutions: setting the research agenda This article emphasizes the importance of reducing food waste in educational institutions and highlights the need for research on strategies to reduce waste without compromising consumer satisfaction. It also discusses the diversion and disposal processes of food waste in educational institutions

Sustainability Assessment of Food Waste Prevention Measures: Review of Existing Evaluation Practices

This paper proposes an assessment framework for evaluating food waste prevention measures. It provides a definition of food waste and categorizes different measures for prevention. The article also discusses the overestimation of food waste value when using menu and retail prices.

Promoting Food for the Trash Bin? A Review of the Literature on Retail Price Promotions and Household-Level Food Waste This review focuses on the relationship between retail price promotions and household-level food waste. It examines the gradual process of food disposal in households and its connection to devices used for food preservation.

### Implementation

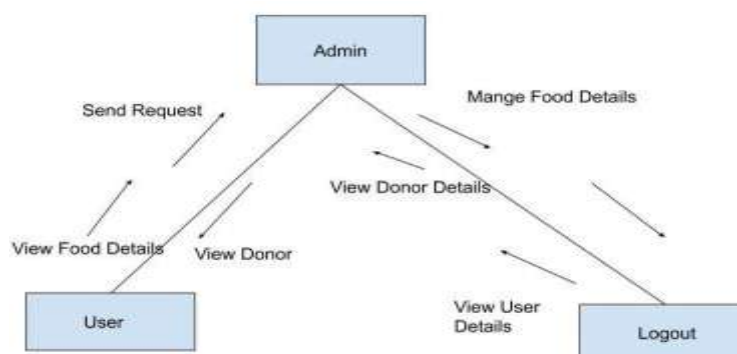


Fig 1. Activity diagram for Admin

**Manage Food Listings:** The admin can add, update, or remove food waste donation listings. This activity involves interactions with the database and may include verifying the details provided by donors.

**View Donor Information:** The admin can access and view information about registered donors, including their contact details and donation history. This activity is essential for managing donor relationships and communication.

**View Donation History:** The admin can view the entire history of food waste donations made

through the website. This feature allows the admin to track the donations and monitor the disposal process.

**Generate Reports:** The admin can generate various reports related to food waste donations, donor statistics, disposal efficiency, or any other metrics relevant to the project. These reports may help in decision-making and project assessment.

**Manage User Accounts:** The admin has the authority to manage user accounts, including creating new admin accounts, modifying existing ones, or disabling accounts if necessary.

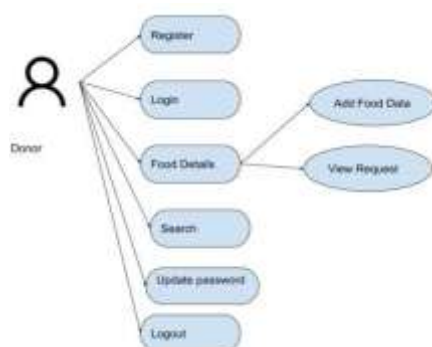


Fig 2. Activity diagram for Donor

Creating an activity diagram for the Admin section of the Website Design for Food Waste Disposal project will help visualize the flow of activities.

**Register/Log In:** The donor can either register for a new account or log in with existing credentials.

**Browse Listings:** After logging in, the donor can browse available food waste donation listings. These listings could include details about the type of food waste, quantity, location, and pickup schedule.

**View Food Waste Donation Details:** The donor can click on a specific listing to view more details about the food waste donation, including additional information provided by the donor or the

organization managing the disposal process.

**Make Donation:** If the donor is interested in donating the food waste, they can initiate the donation process by clicking on the "Make Donation" button.

**Confirm Donation:** The website may prompt the donor to confirm their intent to donate before finalizing the donation process.

**View Donation History:** The donor can access their donation history, which displays a record of past food waste donations made through the website.

**Logout:** The donor can choose to log out from the website, ending their session.

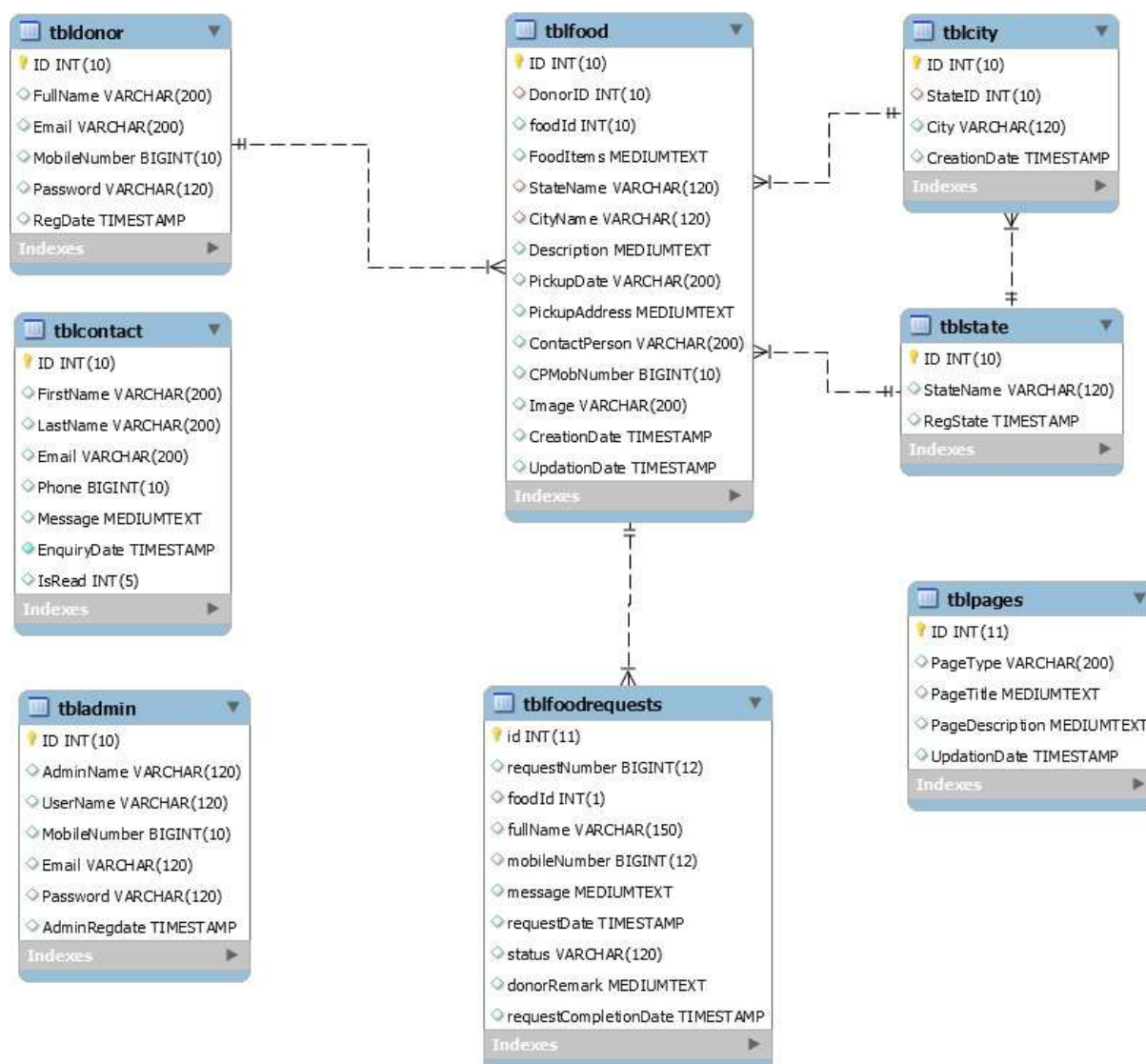


Fig 3. Database design

A database is a collection of data that is related to one another and is stored so that there is as little redundancy as possible. This allows the database to serve multiple users fast and effectively. The overarching goal is to provide the user with a database access experience that is simple, speedy, economical, and versatile. There will be an establishment of relationships between the data pieces, as well as the elimination of any data items that are not necessary. The goal of normalization is to have an internal consistency of the data, as well as to have as little redundancy as possible and as much stability as possible. This ensures that the minimum amount of data storage that is required, the minimum amount of chances for data inconsistencies, and the maximum amount of optimization for updates. The essential databases will be developed using MySQL, as that was determined to be the best option.

- tbladmin table Structure** : This table store the admin login and personal Details.
- tblcity table Structure** : This table store name of city
- tblstate table Structure** : This table store name of state.
- tblcontact table Structure** : This table store the detail of contact us persons.
- tbldonor table Structure** : This table store the detail of food donor.
- tblfood table Structure** : This table store the detail of donated food.
- tblpages table Structure** : This table store the detail of contact us and about us.
- tblfoodrequests table Structure** : This table store the detail of food request which is send by user.

### Screenshots

Admin login is essential to manage the website's backend, user data, and other critical functionalities. The admin login allows designated

individuals or administrators to access privileged areas of the website, granting them the ability to perform various administrative tasks



Fig 4.Admin login

It is a centralized interface accessible to authorized administrators and management personnel,

providing them with tools and functionalities to manage and monitor the entire system efficiently.

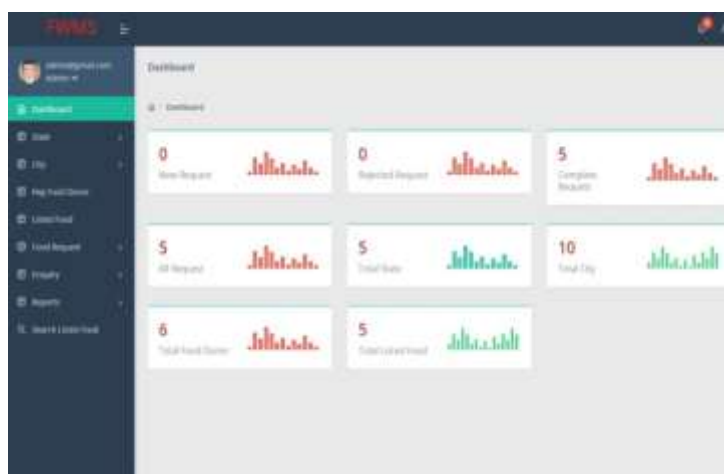


Fig 5.Admin dashboard

The administrator has the ability to access and review the current stock available within the

system, along with the comprehensive details of the donors.

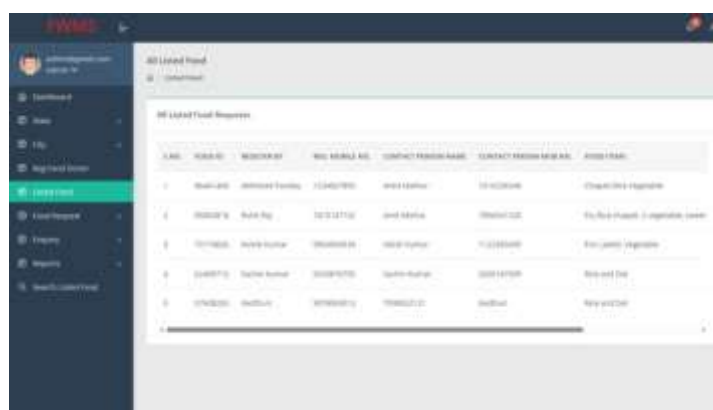


Fig 6.Admin listed food

It is the process of allowing donors to sign up or register on the website. Donors are individuals, organizations, or businesses who wish to

contribute resources, funds, or services to support the initiative's goals related to food waste disposal and reduction.

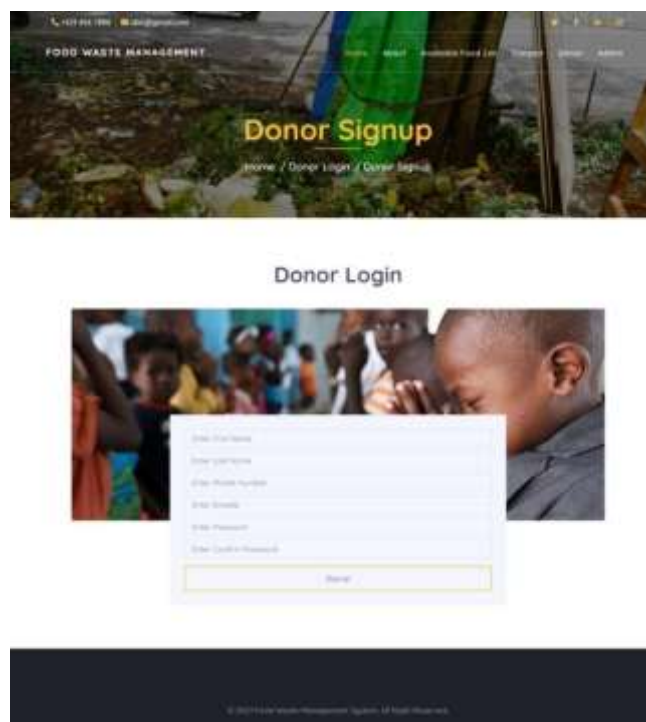


Fig 7.Donor signup

The donor feature enables individuals, restaurants, grocery stores, and other food suppliers to contribute surplus or unused food to local charities,

food banks, or organizations dedicated to distributing food to individuals experiencing food insecurity.

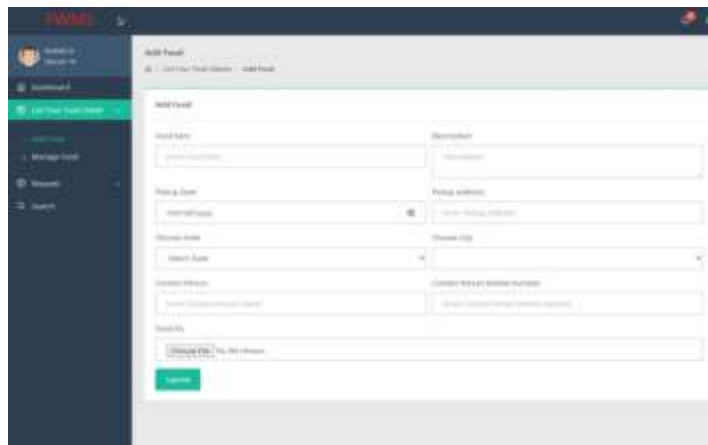


Fig 8. Donor add food

## Benefits and Limitations

### Benefits:-

1. **Reduction of Food Waste:** The primary benefit is reducing food waste by connecting donors with surplus food to those in need or organizations capable of proper disposal. This contributes to environmental sustainability and hunger alleviation.
2. **Increased Food Security:** The project can help improve food security in communities by redistributing surplus food to those who are food-insecure or in need.
3. **Awareness and Education:** The website can serve as an educational platform to raise awareness about the impact of food waste on the environment and society, encouraging more responsible food consumption habits.
4. **Convenience and Accessibility:** Donors can easily access the platform to donate their surplus food, and beneficiaries can find nearby donations, making the process more convenient and accessible.
5. **Community Engagement:** The project can foster a sense of community involvement by encouraging individuals, businesses, and organizations to work together for a common cause.
6. **Data Insights:** The website can generate valuable data insights into food waste patterns, donation trends, and disposal practices, which can inform policy and decision-making.
7. **Incentives for Donors:** Implementing incentives like recognition or rewards for donors can further encourage food waste reduction.
8. **Platform Scalability:** As the website gains popularity, it can scale up to handle larger volumes of donations and beneficiaries.

### Limitations:-

1. **Digital Divide:** Not everyone may have access to the internet or the necessary technology, potentially excluding some potential donors or beneficiaries.

2. **Reliance on User Participation:** The success of the project relies on the active participation of donors, which can be challenging to sustain over time.
3. **Quality Control:** Ensuring the safety and quality of donated food is crucial; the website must have protocols to verify the condition of food before distribution.
4. **Logistical Challenges:** Coordinating food pickups and deliveries can be complex, especially when dealing with perishable items and varying quantities.
5. **Data Privacy and Security:** Handling personal information on the website raises concerns about data privacy and security, requiring robust safeguards.
6. **Regulatory Compliance:** The project must comply with relevant laws and regulations related to food handling, safety, and data protection.
7. **Disparity in Resources:** The project may face challenges in distributing food waste evenly across different regions or addressing areas with higher food insecurity.
8. **Volatility of Donations:** Donations might vary seasonally or due to external factors, leading to fluctuations in available food waste.

## Future Directions and Challenges

### Future Directions:

1. **Mobile App Integration:** Consider expanding the project beyond just a website and developing a mobile app to reach a broader audience. A mobile app can make it more convenient for users to access information, report food waste, and find nearby disposal locations.
2. **Data Analytics and Insights:** Implement data tracking and analytics to gather valuable insights into food waste patterns. Analyzing this data can help identify trends, hotspots, and potential solutions to reduce food waste more effectively.
3. **Gamification Elements:** Incorporate gamification features to engage users actively and reward them for their efforts in reducing food

waste. This could include challenges, points, badges, or leaderboard rankings to motivate users to participate.

4. **Collaboration with Restaurants and Food Suppliers:** Partner with restaurants, grocery stores, and food suppliers to tackle the issue of food waste at the source. This can involve real-time inventory management and surplus redistribution to minimize waste.

5. **Educational Resources:** Enhance the website with educational content, articles, and videos on food waste reduction, composting, and sustainable practices. This can help raise awareness and empower users to make informed choices.

6. **Integration with Social Media:** Integrate social media platforms to allow users to share their experiences, tips, and success stories in reducing food waste. Social sharing can foster a sense of community and inspire others to join the cause.

#### Challenges:

1. **User Adoption:** Convincing users to actively participate in reporting food waste and using the disposal services can be a challenge. Overcoming the inertia of existing habits and behaviors will require creative marketing and awareness campaigns.

2. **Data Accuracy and Privacy:** Ensuring the accuracy of reported data on food waste while maintaining user privacy can be tricky. Implementing data verification mechanisms and robust privacy policies will be essential.

3. **Local Regulations and Infrastructure:** Food waste disposal regulations and infrastructure may vary depending on the location. Adapting the website to comply with different regulations and coordinating with local authorities will be necessary.

4. **Technical Complexity:** Building a feature-rich website with real-time tracking, user accounts, and interactive elements can be technically complex. Ensuring a smooth user experience across different devices and platforms is crucial.

5. **Funding and Sustainability:** Securing funding for ongoing maintenance and updates of the website can be challenging. Exploring partnerships, grants, or sponsorship opportunities could help sustain the project in the long run.

6. **Behavior Change:** Changing user behavior and fostering a culture of food waste reduction require consistent effort. Continued engagement, incentives, and communication will be necessary to drive lasting change.

## 2. CONCLUSION

In order to create and implement the Food Waste Management System project, extensive research and analysis were performed on that project. It was carried out under the direction of the seasoned project guide who supervised the work. During the course of the project, each and every one of the existing requirements and opportunities were carefully considered.

Because of this, our project will have a stronger influence not only on the cost savings but also on the food wastage management system, and it will have a greater impact on the day-to-day food waste as well. Our target audience for this project is the individual who wants to donate food that has been thrown away. As we move further with this project, one of our goals is to combine it with other developing technologies, such as block chain, so that it can serve a wider range of purposes.

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