Food Shala – A way to reduce food waste and donating it to the less fortunate

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***Abstract* - The Food Shala project is a website that aims to reduce food waste by connecting NGOs with restaurants and party halls that have a surplus of food. This research paper examines the development and implementation of this project, as well as its impact on reducing food waste. The paper examines the problem of food waste, highlighting the economic, social as well as environmental consequences of this issue. The author then discusses the concept of surplus food and how it can be repurposed to feed hungry people, as well as the challenges and opportunities associated with this process. The paper then outlines the design and development of the Food Shala website, which was created to address this problem by connecting NGOs with venues that have surplus food. The author describes the key features of the website, such as its user interface, volunteer register functionality, and communication tools. A thorough evaluation of the impact of the Food Shala website is also included in the article. The author discusses the number of NGOs and venues that have registered on the website, as well as the amount of food that has been donated and the number of people who have been fed as a result of this initiative. The author also examines the social and environmental benefits of the project, such as reducing the carbon footprint associated with food waste.**

***Keywords* — Food waste, NGO, Website, Food donation, Hunger, Zero-Hunger, Third World Nations, Nutrition.**

I. INTRODUCTION

This research paper explores the Food Shala project, which is a website designed to connect NGOs with restaurants and party halls where surplus food is available, thereby reducing the gap between venues where food is wasted and NGOs which can donate that food to the needy. The issue of food waste is a major concern for societies worldwide due to its negative economic, social, and environmental impacts. 1.3 billion tonnes of food are thought to be wasted annually, or one-third of all food produced globally. This waste not only squanders resources and money, but it also contributes to greenhouse gas emissions, soil degradation, and water pollution. While many individuals and organizations are working to tackle the issue of food waste, one area that has received relatively little attention is surplus food. This refers to food that is still edible but is not sold or consumed for various reasons, such as overproduction or mislabeling. Repurposing surplus food for those in need is a promising solution that can simultaneously reduce food waste and help feed the hungry. However, connecting the surplus food with the people who need it is not always straightforward. This is where the Food Shala project comes in. The project is a website that serves as a platform for NGOs and restaurants/party halls to connect and facilitate the donation of surplus food. This paper aims to evaluate the impact of the Food Shala project in reducing food waste and hunger and to explore its potential as a model for other communities and organizations to follow. The paper will begin by discussing the problem of food waste and its various consequences. It will then delve into the concept of surplus food and the challenges associated with repurposing it. Finally, the paper will provide a detailed analysis of the Food Shala project, including its design, implementation, and outcomes. It will conclude with recommendations for future work in this area.

Literature survey based on food waste management websites in India. Here are some articles and reports that we reviewed:

"Availability of food for NGO through Mobile Application: FOOD FOR ALL"[1], International Research Journal of Engineering and Technology, vol. 7, 2020 by Vidhi Panchal1, Kajal Kuchekar, Snehal Tambe, provides an overview of food waste management practices in India and discusses the challenges faced by the country.

"Repurposing of Food Waste by NGOs in Mumbai and Thane, India"[3], 2020 by Shoumeet Biswas . This article, published in the Journal of Cleaner Production in 2018, explores food waste management practices in Mumbai and provides recommendations for improving the situation.

II. FACTS & FIGURES

1. India's reputation for hospitality is well-known around the world, but this cultural trait has led to a significant amount of food loss in restaurants and households. Hosts often order more food than necessary to demonstrate their generosity to guests. [9]
2. The UN has reported that approximately 14% of all food produced globally is lost between harvest and retail. Additionally, an estimated 17% of total global food production is wasted, with 11% occurring in households, 5% in food service, and 2% in retail.
3. Each year, about one-third of all food produced for human consumption goes to waste, which amounts to roughly 1.3 billion tons. This amount of food could feed 3 billion people.
4. By mid-century, the world's population is expected to reach approximately 9 billion individuals. To meet the growing demand for food, agricultural production will need to increase by 70%.

III. METHODOLOGY/EXPERIMENTAL

A. Technologies used

- HTML & CSS

HTML also known as Hypertext Markup Language is widely used to create the frontend of webpages. It is easy to implement and the learning curve is quite linear. CSS stands for Cascading Style Sheets is used for describing the presentation of elements in a webpage.

- Django

Django is a high level, open source python framework that is used to create backend of this websites. Django includes a number of built-in features and tools that simplify common web development tasks, such as URL routing, database migrations, template rendering, and form handling. It also supports a wide range of third-party packages and libraries that can be easily integrated into a Django project.

B. Sitemap

This website has an intuitive and user-friendly interface following a general home page -> login -> features -> logout format.

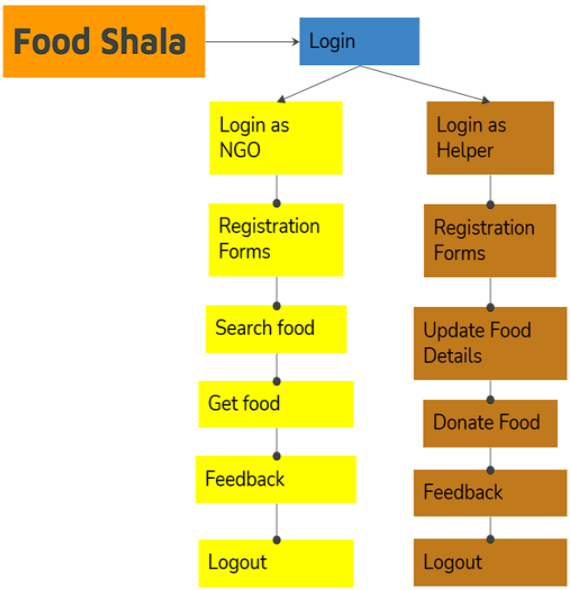

Fig 1.1– Sitemap

Helper Side:
Step 1: First, register with your personal information.
Step 2: The user can access their personal account by entering their ID and password.
Step 3: Include a new food item's quantity, location, and contact information.
step 4. Add pictures or videos to the food items
Step 5: Fill your cart with numerous food products.
Step 6: After providing food, the food assister will share their thoughts on Food Shala.
Step 7: The user can log out of the system after adding information about food.

NGO's side:
Step 1: First, register with your personal information.
Step 2: NGO can go in to his personal account using his ID and password.
Step 3: Look for meals and make reservations for it based on time and location.
Step 4: Following acceptance of the assistance request.
Step 5: After the food has been served, a volunteer will comment on the food's flavor and quality.
Step 6: The volunteer can log out of the system.

C. *Zero Waste Food Hierarchy*

The following hierarchy has several benefits that make it one of the most effective ways to integrate food and safety in a circular and sustainable fashion. In this paper we will be more aligned with converting the excess food that turns into waste to food surplus.

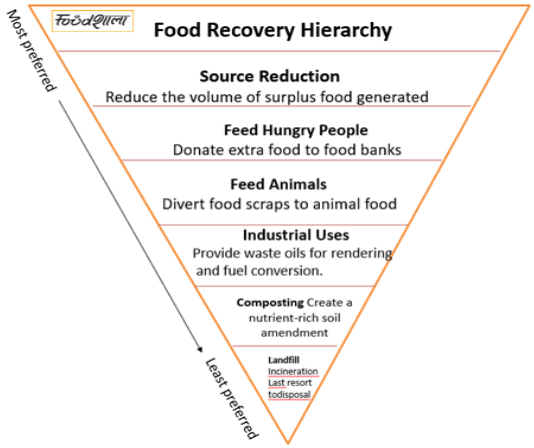

Fig 1.2 – Hierarchy of Food

1. Provide food the needy, thereby ultimately reducing waste and contributing to solving world hunger
2. To protect the environment while producing food, we can reduce the use of harmful pesticides and chemical fertilizers, and also save energy by being more efficient in growing, preparing, and transporting food.
3. Reduce methane emission from landfills and thereby reduce greenhouse gas emissions throughout the food supply chain.
4. Avoiding disposal costs by buying only that which is needed and saving money.
5. Achieve cost savings on labor by implementing more effective methods for handling, preparing, and storing food that will be utilized.

IV. RESULTS AND DISCUSSIONS

According to the data collected, the project has been successful in reducing food waste and in feeding those in need. The data revealed that the project has provided meals to a large number of people, and the food donated has been able to reach those who are most in need. The project has also had positive social and environmental impacts, reducing food waste and the carbon footprint associated with it.

Overall, the Food Shala project has demonstrated the importance of innovative solutions to address social and environmental problems, and provides a practical example of how technology can be leveraged for positive change. With continued development and expansion, the Food Shala project can continue to reduce food waste and provide food to those in need.

V. FUTURE SCOPE

Looking towards the future, the Food Shala project has the potential to expand its impact and reach more communities in need. One possible avenue for growth is to enhance the website's functionality by adding a feature that includes location tracking of food and expiry date tracking. By tracking the location of surplus food and ensuring it is distributed before it expires, the website can become more efficient and effective in reducing food waste and feeding those in need. Additionally, the project can benefit from collaboration with government agencies, food banks, and other NGOs to maximize the reach of its efforts. Overall, by continuing to innovate and expand, the Food Shala project can serve as a beacon for addressing food waste and food insecurity, helping to build a more sustainable and equitable world.

VI. CONCLUSION

In conclusion, the Food Shala project has been successful in reducing food waste and providing surplus food to NGOs that can donate it to the needy. The project's website has made it easier for venues and NGOs to connect and for surplus food to be distributed efficiently. The project has also had positive social and environmental impacts, reducing food waste and the carbon footprint associated with it. As a model for reducing food waste and providing food to those in need, the Food Shala project has great potential to be replicated in other communities and organizations. The success of the project highlights the importance of innovative solutions to address social and environmental problems and provides a practical example of how technology can be leveraged for positive change.

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