Second year Mini Project Report

Submitted in partial fulfillment of the requirements
of the degree
BACHELOR OF ENGINEERING IN

COMPUTER ENGINEERING

By

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CERTIFICATE

This is to certify that the Mini Project entitled " **Nishulkh Bhojan Seva (NBS)"** is a bonafide work of **Jiten Purswani(43), Srimathi Srinivasan (55), Aum Bhambhani (7), Maanav Valecha (60) submitted** to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of **"Bachelor of Engineering"** in **"Computer Engineering".**

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Mini Project Approval

This Mini Project entitled **"Nishulkh Bhojan Seva (NBS)"** by **Jiten Purswani (43), Srimathi Srinivasan (55), Aum Bhambhani (7), Maanav Valecha (60)** is approved for the degree of **Bachelor of Engineering** in **Computer Engineering.**

Examiners

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(Internal Examiner Name & Sign)

2……
(External Examiner name & Sign)

Date:

Place:

Contents

ABSTRACT

Levels of food insecurity are constantly on the rise due to various reasons such as economic disparity, severe climate change, inadequate public policies, impact of the pandemic. This paper is regarding a web application Nishulkh Bhojan Seva (NBS) which is a solution towards eliminating food waste and food insecurity. The website provides a platform for donors (individuals and food partners such as restaurants, grocery stores), volunteers and NGOs. This website is an approach concurrent with the UN Sustainable Development Goal 2 – Zero Hunger. This website functions as a redistribution outlet for excess food and curtails the production of food waste. It will act as a sustainable, open, and accessible platform having adequate verification measures and databases which will provide a tailored experience for the different types of users.

ACKNOWLEDGEMENTS

Acknowledgements are a vital space to express gratitude towards every individual who has significantly contributed to our journey in completing this project. Initially, we extend our heartfelt thanks to our Principal, J. M. Nair Madam, whose guidance has been pivotal in the success of this endeavor.

Our journey would have been incomplete without the unwavering support and motivation provided by our Head of Department, Dr. Nupur Giri.

We extend our deepest gratitude to our mentor, Prof. Rupali Soni, whose unwavering support has been instrumental throughout this project. We are immensely thankful for her tireless efforts in translating our project vision into reality. Her constructive feedback, insightful guidance, and unwavering faith in our capabilities have been invaluable.

Our heartfelt appreciation also goes to all our faculty members for their consistent support and encouragement. Their patient guidance and invaluable insights have played a significant role in shaping this project.

We are grateful for the unwavering support and wise counsel provided by our families. We also express our gratitude to VESIT for providing us with the opportunity to work on this project. Additionally, we extend our thanks to all our friends and peers for their support and advice throughout this journey.

LIST OF ABBREVIATIONS

NBS: Nishulkh Bhojan Seva

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Logo of our website

INTRODUCTION

1.1 Introduction

In today's fast paced world, we are unable to see what kind of problems our society / community is facing. One of them is lots of food goes to waste while many people do not have enough to eat. This is a big contradiction! It is not because we do not produce enough food, but because some people can't get access to it. Our goal is to fix this.

We are creating a website that will connect people who have extra food, like restaurants or individuals, with groups who help those in need, like NGOs and volunteers. The idea is simple: instead of throwing away extra food, we give it to people who really need it.

On our website, there are four main groups of people:

1. Admin: They make sure everything runs smoothly on the website.
2. Donors: These are the people or businesses with extra food.
3. Receivers: These are the NGOs and volunteers who get the food to people who need it.
4. Food Partners: They are the businesses that supply the extra food.

Here is how it works:

- People sign up on the website, saying whether they have food to give or need food.
- We make sure everyone is who they say they are, so it is safe and fair.
- People who have food to give describe what they have, like how much and what type of food.
- Those who need food tell us how much they need.
- We encourage everyone to be honest and show pictures of the food, including when it expires.

Volunteers play a big part too. They help deliver the food to the people who need it. And we keep everyone updated along the way, so everyone knows what is happening.

Overall, our website is a way to connect the dots: linking up people who have food with those who need it, and making sure none of it goes to waste. It is a small step towards providing something to needy and making sure everyone has enough to eat.

1.2 Motivation

Even though we make enough food for everyone, a lot of it ends up in the trash while many people go hungry. That is not right, and we are determined to change it.

Our mission is fueled by a simple idea: no one should go without food when there is plenty to go around. We are here to make sure that surplus food doesn't go to waste but ends up in the hands of those who need it most.

We are on a mission to kick hunger to the curb. It is unacceptable that one in every three people does not have enough to eat. We are here to turn the tide and make sure everyone has access to good food.

As food prices keep climbing, the need to share surplus food becomes even more urgent. We are here to lighten the load for those struggling to put food on the table.

This is a team effort. We are bringing together generous folks with extra food and those who know how to get it to the people who need it most. Together, we are unstoppable.

We are using technology to make a real difference. With a straightforward website, we are connecting donors, volunteers, and organizations to fight hunger and food waste head-on.

Our passion comes from caring deeply about others. Together, let us make a difference in the fight against hunger and food waste.

1.3 Problem Statement and Objectives

Problem Statement

In today's world, food wastage is a big problem, especially when so many people still do not have enough to eat. We need smart solutions to connect surplus food with those who really need it.

Despite some efforts, many folks still struggle to get enough food, especially in smaller communities across India. The websites meant to help with this often are not easy to use and mostly focus on bigger areas, leaving out those who need help the most.

We need a solution that works for everyone, simple and easy to understand. It should connect people with extra food to those who can distribute it well, like NGOs.

Our goal is clear: we want to cut down on wasted food and make sure everyone has enough to eat. This lines up with the global aim of ending hunger, and we are ready to do our part.

Here is what we are aiming for:

1. Helping to end hunger by connecting surplus food with those who need it.
2. Matching up donations with the right organizations to avoid waste and get food to people fast.
3. Making it easier for groups to manage their extra food, so nothing goes to waste.
4. Giving people the chance to either donate food or offer it for sale, keeping our food system sustainable.
5. Providing opportunities for volunteers to get involved and make a difference in their communities.

Together, let us work towards a world where no one must go hungry

1.4 Organisation of the report

The report is structured into several sections:

1. Introduction: This section provides an overview of the project's objectives, motivations, and problem statements. It outlines the key components of the proposed website, including its purpose, user groups, and functionality.
2. Literature Survey: Here, we compare existing systems and research findings related to food waste management and donation. We analyze various platforms and highlight their strengths and limitations compared to our proposed system.
3. Contributions: This section details the individual contributions of team members to the project. It acknowledges the collaborative effort involved in the development of the website.
4. Proposed System: The proposed system section delves into the technical aspects of the project. It outlines the workflow, hardware and software requirements, and the design of the website. Additionally, it discusses future plans for enhancing the system's efficiency and functionality.
5. Experiment and Results: Here, we present the experimental phase of the project, including the design and testing of the website interface. We showcase screenshots and descriptions of key features and functionalities.
6. Conclusion and Future Work: The conclusion summarizes the project's objectives and highlights its potential impact on reducing food waste and addressing hunger. The future work section outlines the next steps in the project's development, including backend implementation, user authentication, and performance optimization.
7. References: This section lists the sources and references cited throughout the report, providing additional resources for further exploration and research.

2 LITERATURE SURVEY

2.1 Survey of existing system

1. Waste Food Management and Donation App (IRJET Journal Volume 9 Issue 3)
Authors: Vanashree Mhatre, Shweta Chavan, Snehal Gamare, Prof. Varsha Salunkhe

Abstract:

Food waste is something that affects us all. It affects people everywhere like in our homes, at schools, at restaurants, the grocery store, in production, and even in transportation. This application uses mobile technology to reduce waste food and allow hotels to donate leftover food to needy people. Using this app, users can register, login, view, add, remove items from the cart, and then logout. The app also stores real-time database where donors can add food details and volunteers of the NGO can see the food images donated by different donors.

Inference Drawn:

The paper addresses the critical issue of food wastage and proposes a mobile application solution to reduce waste by facilitating donations from hotels to needy individuals through NGOs. It highlights the significance of using technology to tackle food wastage, emphasizing the role of mobile apps in connecting donors with recipients efficiently. Through features like real-time database storage and user-friendly interfaces, the proposed app aims to streamline the donation process and contribute to minimizing food wastage in society.

2. "Online Food Ordering Management System" [online], July 2021.

Authors: Karan Dhiman & Mayuresh Phansikar

Abstract:

The main purpose of the Online Food Ordering Management System is to use it in the food-service industry. This feature helps hotels and restaurants to increase their online food ordering systems. Customers can choose from a wide range of food menu items within just a few minutes. In today's modern food business, it's also able to deliver fast and easily to a customer's place. The work presented as Online Food Ordering Management System simplifies the ordering process. The proposed solution presents a user interface and changes the menu to include all available options, creating customer work easier. Allows customers to order any item that they like and adjust the quantity of the food item. The order confirmation is displayed to the customer on the Homepage of the website. The order is put to the queue, updated across both the database and the admin panel, and provided in real-time. This system aids the staff with checking over orders in real-time and executing them effectively and easily with few errors. Here, the customer can also reserve a table at a restaurant of his/her choice and will get the confirmation of their reserved table on the homepage of our website.

Inference Drawn: The paper presents an Online Food Ordering Management System designed

to streamline food ordering processes in various establishments, including fast food restaurants and college cafeterias. By automating order acceptance and reservation management, the system aims to enhance efficiency and reduce labor costs. Implemented in PHP, HTML, CSS, and MySQL, with a focus on user experience and database connectivity, the system offers features like real-time feedback, admin control, and customer convenience. Through this innovative approach, the paper addresses the challenges faced by traditional food service industries and proposes a scalable solution for enhancing customer satisfaction and operational efficiency.

3. “The use of web-based technology as an emerging option for food waste reduction”

Authors: C. Corbo and F. Fraticelli

Abstract:

In recent years web technologies have been enabling new ways for reducing the food waste by enhancing unexplored connections between donors and beneficiaries of food commodities. In this context, the aim of this paper is to introduce a framework that can serve as a basis for identifying best technology practices for food waste management. As an explorative example, the framework is applied to 8 Italian IT platforms. This paper fosters the understanding of the implication of technology in pushing for emerging models in the food chain organizations, in terms of roles and

Inference Drawn:

This paper presents an ingenious solution to combat food wastage by proposing a mobile app that facilitates donations from hotels to those in need through NGOs. It echoes the findings of Corbo and Fraticelli, who emphasize the importance of leveraging technology to address food waste. Both studies highlight how innovative approaches, such as your mobile app, can play a crucial role in connecting donors with recipients efficiently, ultimately contributing to reducing food wastage and making a positive impact on society.

4. “Food waste management (IJRASET Vol 10 issue VII)”

Authors: Madiha Saba, Pooja, Dr. Priyadarshini. Patil:

Abstract:

The paper represents the website to reducethe food wastage by providing that too those who are in need. In today's world people are wastingmore food than consuming, which is a huge problem. India ranks 2nd in food wasting, about 68.8 million tons of food is wasted per year. This proposal is to overcome the food wastage problem. It will work as request and response

from Restaurants and NGOs. The quantity and lifetime of the food should be mentioned by the restaurants. NGOs should collect the leftovers from Restaurants before the lifetime of food and distribute them among those in need. And the restaurants can post the food donated details.

Inference Drawn:

This research paper offers a web-based solution to tackle food wastage by connecting restaurants with NGOs to redistribute surplus food. Highlighting India's significant food wastage issue, it proposes a platform for restaurants to specify leftover food details and for NGOs to collect and distribute it efficiently. By leveraging web technology, the paper emphasizes the importance of addressing food waste through systematic analysis and practical solutions. It underscores the potential of such initiatives to bridge the gap between surplus food and hunger, contributing to sustainability and poverty alleviation efforts.

5. A MODERN APPROACH FOR DEVELOPING FOOD DONATION APPLICATION

Authors: Vaishnavi P, Sushmitha H, Rohit N Ekbote, Darshan K, Akhil Menon

Abstract:

People waste food daily in a direct or indirect manner and as the population and economy is growing which increases the volumes of food waste. From what we've learned from our formative research, we decided to specialize in individual household donation. A large amount of individual household garbage is avoidable, especially in developed countries. Therefore, we would like to explore ways to encourage food donation from individual households. The Food Donation application is an android-based application that gives all poor people/organizations with a forum for donating leftover food. This project will be seen to be a powerful way of donating items over the interface to organizations, etc. Food pollution may be a troubling phenomenon in densely developed nations like India. Too much food gets stirred out from wedding ceremony, restaurants, taverns, social and family get-togethers and events. The system will bring them into rehearsal instead of losing these items by donating them to different organizations such as orphanages, old age homes, individuals, etc. Some entities and institutes want to contribute stuff to organizations in need.

Inference drawn:

The article proposes a modern food donation application to tackle food wastage by facilitating donations from individual households. It highlights the potential benefits in addressing hunger and aiding in times of crises, such as natural disasters. The system aims to be economically feasible and could significantly impact society by reducing food insecurity in India.

6. Availability of food for NGO through Mobile Application: FOOD FOR ALL

Authors: Vidhi Panchal, Kajal Kuchekar, Snehal Tambe

Abstract:

Food For All is a mobile application developed with an objective to focus on availability of food for the NGO and to avoid the wastage of food. In the current scenario food is wasted daily on large basis in weddings, restaurants, college/school canteens, social events and many other social functions. People nowadays donate food manually by visiting various NGO, organization around them. The proposed system is an internet-based application where food donors and volunteers from NGO communicate with each other over internet to discuss the availability of food and other details.

Inference drawn:

In this article from the International Research Journal of Engineering and Technology (IRJET) article. It can be deduced that there is a growing recognition of the problem of food wastage and a need for innovative solutions to address it. This paper discusses the development of a mobile application aimed at making the donation of excess food to NGOs easier, reducing food wastage.

7. **Our Website:**

Our website serves as a comprehensive platform catering to NGOs, volunteers, donors, receivers, and administrators. Accessible across multiple device platforms including laptops and mobile phones, it facilitates the donation process by providing detailed information about food items, quantities, shelf life or expiry dates, and timestamps of item addition by donors. Notably, the website implements verification measures for NGOs and food partners through registered IDs, ensuring the authenticity of participating entities.

Author And Publication Year	**User Modules**	**Platform/ Technology Used**	**Services And Details Provided**	**Verification**
Vanashree Mhatre, Shweta Chavan, Snehal Gamare, Prof. Varsha Salunkhe IRJET Journal Volume 9 Issue 3 [6]	Donor and Volunteer	Android APK app	Food items and quantity, address	No verification measures in place
Karan Dhiman, Mayuresh Phansikar IJRASET volume 9, issue VII, July 2021 [7]	Customers	Website	Order placement, food menu	No verification measures in place
C. Corbo and F. Fraticelli [8]	Other Food websites	Survey Providing	Services regarding the comparison with other websites	-
Madiha Saba, Pooja, Dr. Priyadarshini. Patil IJRASET Vol 10 issue VII [9]	Restaurants and NGOs	Website	Order placement, Food menu, real-time communication	No verification measures in place
Vaishnavi P, Sushmitha H, Rohit N Ekbote, Darshan K, Akhil Menon JETIR 2014 [17]	Donor and Receiver	Mobile application	Register details, Real time tracking	OTP verification

Vidhi Panchal, Kajal Kuchekar, Snehal Tambe March 2020 [16]	Donor and Volunteer	Android application	Food type, Location, Cooking date and time, availability of donor	No verification measures.
Our Website	NGOs, Volunteer, Donors, Receivers, Admins	Website (supported on multiple device platforms- laptops, mobile phones)	Food items, their quantity, shelf life/expiry date, Date and time of addition of item by donor.	Verification of NGOs and Food partners using their registered IDs.

Table 2.1: Literature Survey- Comparison of existing systems

2.2 Limitation of Existing System

- Scale of Donation: Currently existing systems are focused on NGOs and other organisations. This limits usage at the grassroot levels. These systems are oriented towards larger scale donations and interactions. Our system provides a platform for individuals as well as NGOs and Food Partners facilitating donations and exchanges at all levels.
- Verification: Most current systems have no verification measures established for their users. Our system will eliminate this issue by arranging for verification of individual donors by employing One Time Password verification and authentication of NGOs and Food partners by means of their registration details.
- Information: Existing systems have inadequate provisions for details of the surplus food. Our website will provide detailed fields of information and requirements for the convenience of all the users involved.

2.3 Mini Project Contribution

Throughout this project, our entire team has learned and co-operated with each other, utilizing our skill set and learning new skills to use them in the creation of the website. This website is a collaborative effort between the entire group which we are very proud of. The front-end work has been executed beautifully by Srimathi Srinivasan, Maanav Valecha and Aum Bhambhani in HTML making use of CSS and JavaScript as required. Backend and database connectivity has been done by Jiten Purswani and Aum Bhambhani. Coming back to the work done, we have collaborated and designed 20+ webpages for specific functions of our website and all of these are connected to a PHP backend which contains all the data entered by the user which is collected via the input fields. The backend team has also made effort to verify the details of the various user types. Hosting has been done using 000webhost as the base to power our website.

3. PROPOSED SYSTEM

3.1 Introduction

This interactive and user-friendly website aims to facilitate connections between restaurants, NGOs, donors, and volunteers, ensuring they collaborate effectively to provide necessary food supplies to local communities in need. Our surplus management website offers a streamlined solution for organizations to effectively manage surplus items. Users will create accounts, allowing for accurate matches based on, location, and surplus item specifics. After authenticating them properly, one can use the website. Clear surplus item listings, complete with images and descriptions, will enable quick understanding of available items. After matching the criteria one can easily supply or donate the food to various communities which then can distribute food to the local people. Also, one can volunteer as well in the distribution of the food by NGO's.

●The user first creates an account where users can choose between four types of accounts: NGO's, donors, restaurants and volunteers.

●The website accepts details of the user according to their selected categories, interacting with the UI of the website.

●Account login of a donor/volunteer is done through email.

●Verification for the accounts created under the category of NGOs are verified using the registered ID for the organization. Same can be used for Restaurants.

●Information by restaurants and donors about their surplus food including type, quantity and quality of food is added.

● The volunteers can participate in food distributing events.

● A transaction history is created where users can view their past food donations or donations received providing transparency.

3.2 Framework/Process Design

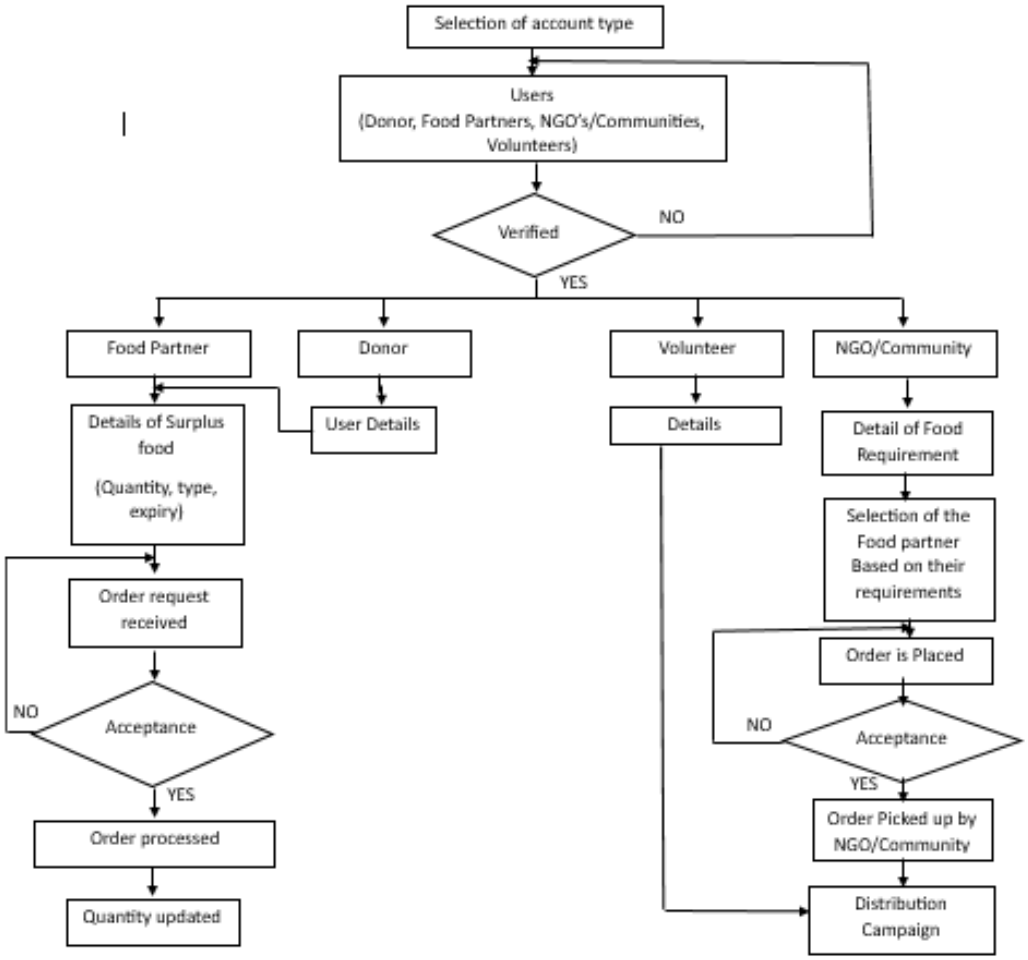

Fig 3.2.1: Block Diagram

In the above block diagram, we have shown the flow of the working on our website. We start with making the user register into one of the account types (Food Partner/ Donor/ Volunteer/ NGO). After registering, we verify the login credentials entered by the user for NGO and Food Partner logins by matching them to their respective databases (GSTIN / NGODarpan) post verification they are taken to separate views which are made according to their account type.

Starting with Food Partners, they are redirected to a page where they can input the details of their surplus food and wait till an NGO requests those specific items, they then have the option of accepting or rejecting that request. Accepting that request confirms the order with the NGO and it is then processed and the listing for surplus food created by the food partner is updated on the webpage. On the other hand, food partner can choose to reject the request and wait for another NGO to make a request. Moving to Donors, post login, they are also redirected to the

same page as the food partner where they can list the items of surplus food and NGOs can make requests the same way it was done for food partners. Now for NGOs, after login they are redirected to a webpage where they can see all the listings of surplus food items made by food partners, they can select a listing and place an ‘order’ with the food partner. This ‘order’ is then confirmed by the NGO and the food partner and if both accept, then the NGO can arrange for it to be picked up from the location provided by the food partner. Volunteers play the role of helping NGOs distribute this surplus food in drives. Volunteers can apply to be part of food donation drives organised by NGOs and lend them a helping hand.

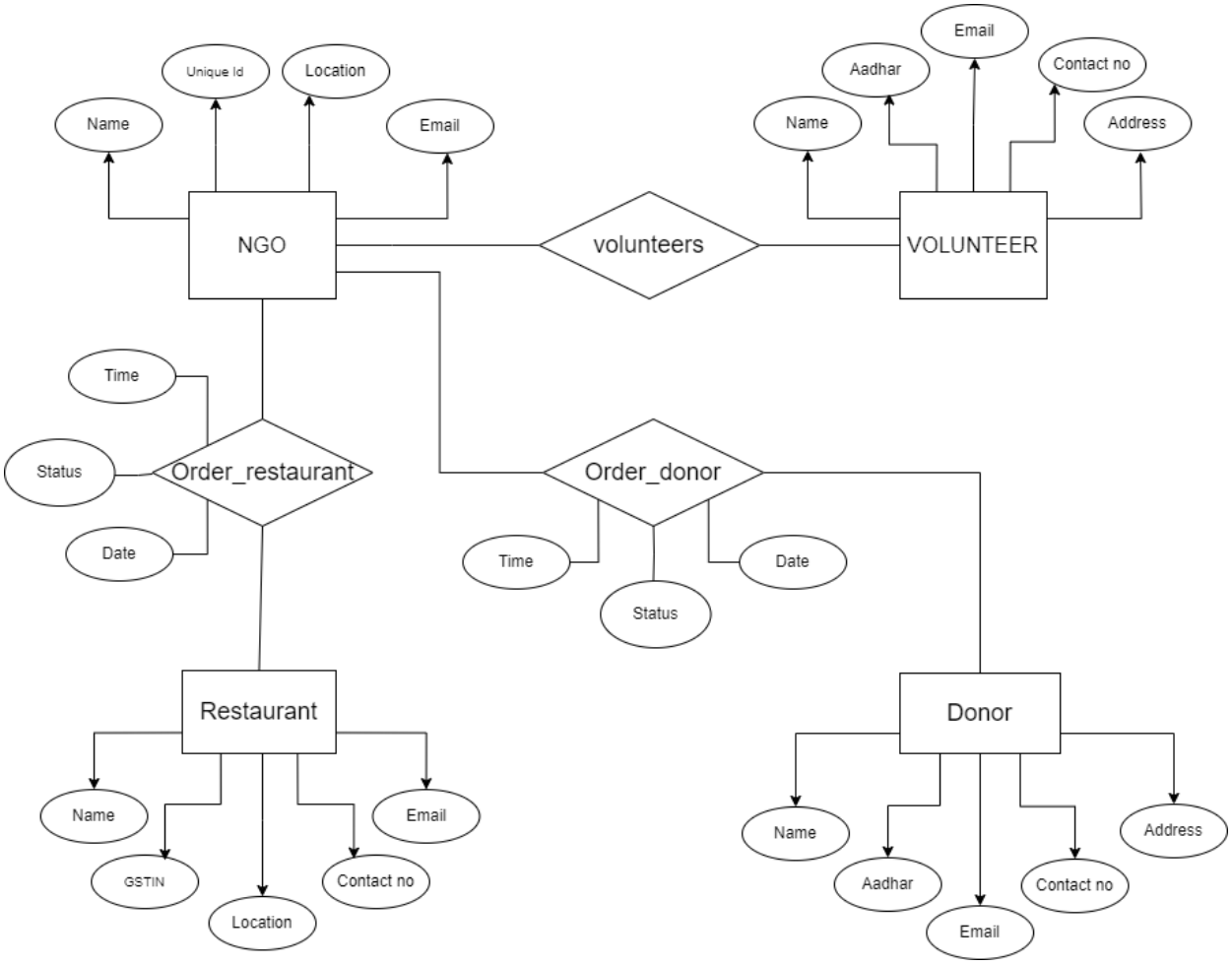

Fig 3.2.2: ER Diagram

In the above Entity – Relation diagram, we show the 4 main entities of our website and the relationship between them, visualising how it works in the background. We start by making 4 user groups and retrieving their basic information in order to make a profile for them in order to track their history and data. We take basic information custom to each type of profile for example: Name, GSTIN, Location, Contact and Email ID of Restaurants and the equivalent IDs for NGO and other users. This data is stored in our database and helps us from a relationship between different objects to make clear and precise data available in our frontend design. We use relationships like ‘order_restaurant’ and ‘order_donor’ to track the time, date and status of the product ordered by the NGO. The ‘volunteers’ relationship between NGO and volunteer users takes the details of the volunteers who have applied to certain drives and shows them to the NGOs who have created those drives.

3.3 Process of verification through database

In our system, NGOs and restaurants are required to log in using their unique identification credentials: UniqueID for NGOs and GSTIN (Goods and Services Tax Identification Number) for restaurants. This login process ensures that only authorized entities can access the system and perform relevant actions.

1. Input Validation:

When NGOs and restaurants attempt to log in, they are prompted to enter their respective UniqueID or GSTIN, along with a password. Before proceeding with the authentication process, the system performs input validation to ensure that the provided credentials meet the required format and criteria.

2. Database Query:

Upon submission of the login form, the system initiates a database query to retrieve the stored credentials associated with the entered UniqueID or GSTIN. This query is executed using PHP, which communicates with the backend MySQL database to fetch the relevant data.

3. Credential Verification:

Once the database query returns the retrieved credentials, the system compares the provided password with the stored password for the corresponding UniqueID or GSTIN. If the entered password matches the stored password, the login attempt is considered successful.

4. Session Management:

In cases of successful authentication, the system establishes a session for the logged-in user. This session management mechanism allows the system to maintain the user's authentication status throughout their interaction with the application. For instance, in the case of NGOs, their UniqueID is stored in a session variable (`$_SESSION['UniqueID']`) for future reference.

5. Redirection and Access Control:

Upon successful login, the system redirects the authenticated user to their respective dashboard or home page. Access to specific functionalities and features within the system is controlled based on the user's role (NGO or restaurant) and their authorization level.

3.4 Details of Hardware and Software

Hardware

PC:

Minimum Requirements

OS: Windows 10, macOS 10.13, Linux.

Processor: Intel Pentium 4 or AMD equivalent

RAM: 1GB RAM

Storage: 64GB

Browser: Google Chrome, Microsoft Edge, Firefox

Software

HTML5, CSS, JavaScript, php, MySQL, Figma

3.5 Experiment and Results:

After deciding our website's work, we tried various combinations of colours on how website should look like and here are the results:

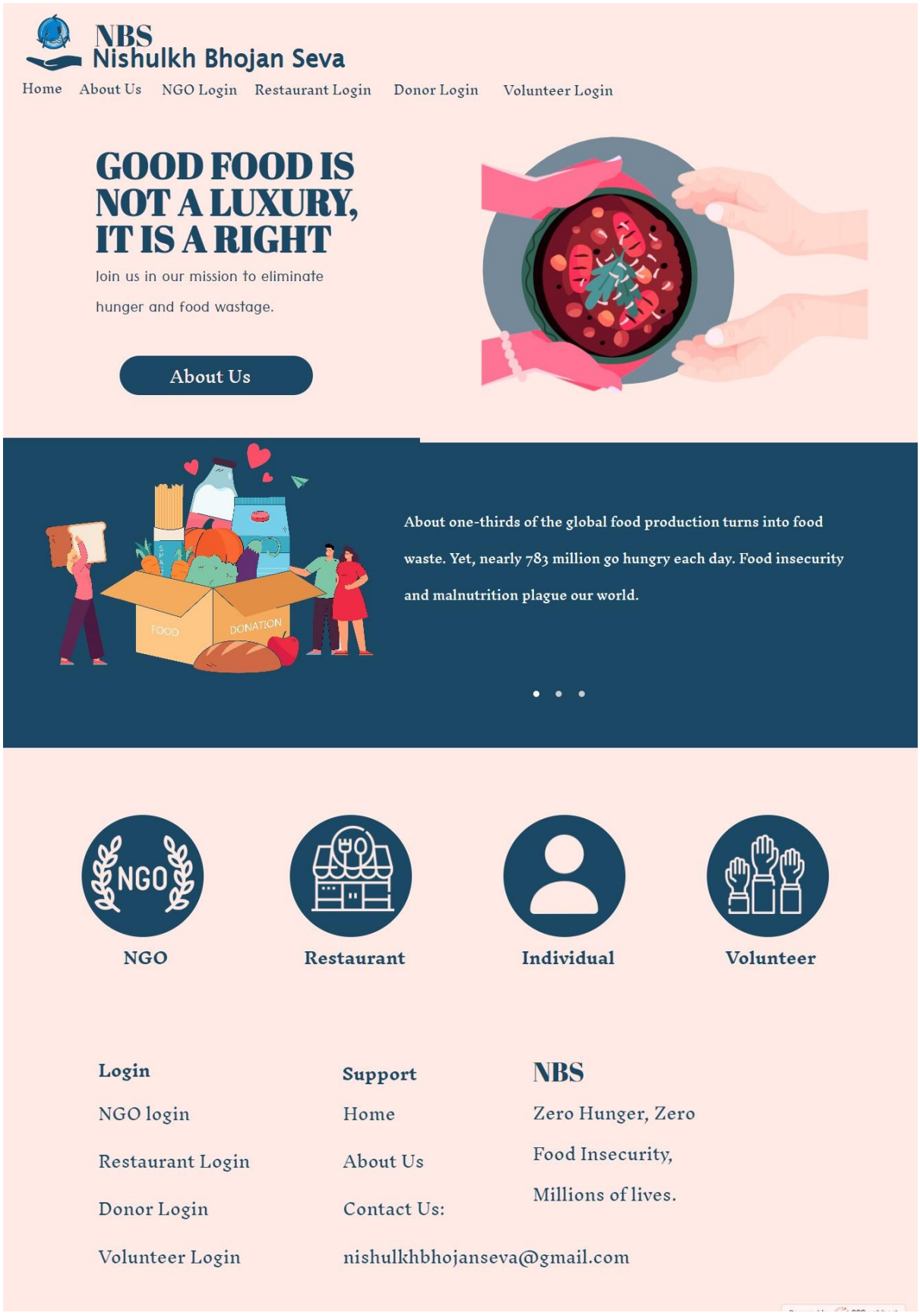

Fig 3.4.1 Home Page

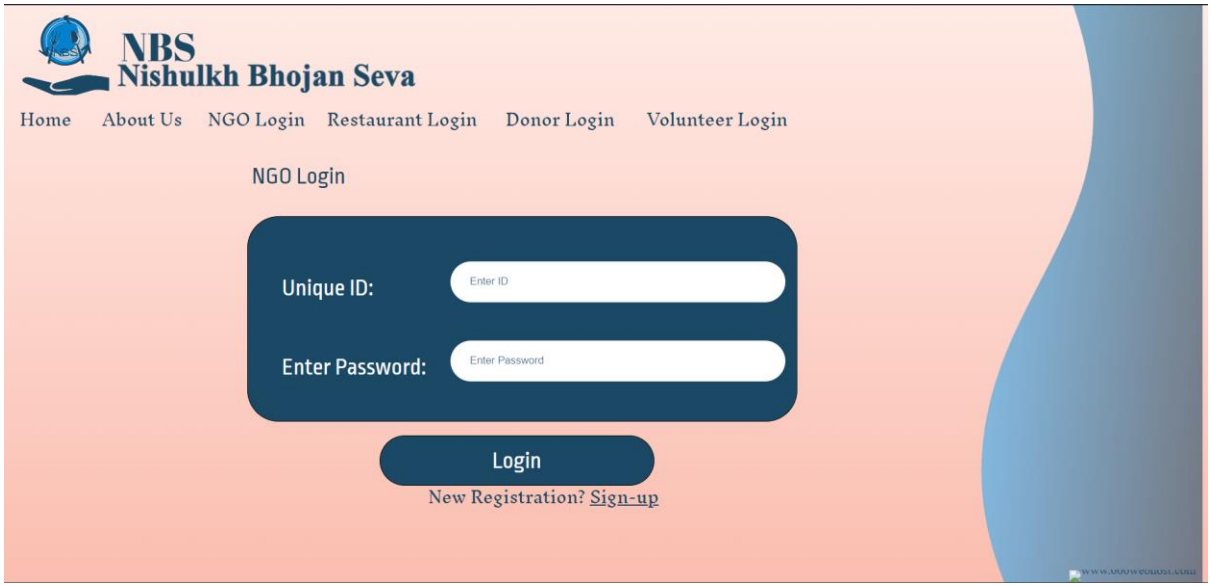

Fig 3.4.2 Login Page

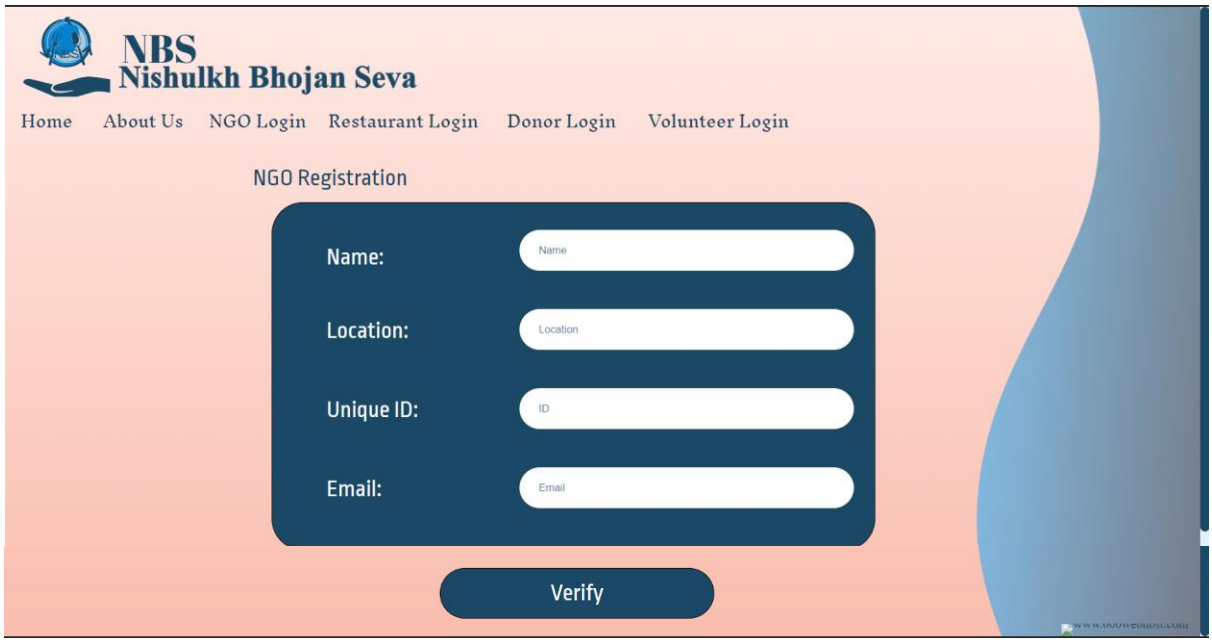

Fig 3.4.3 Registration Page

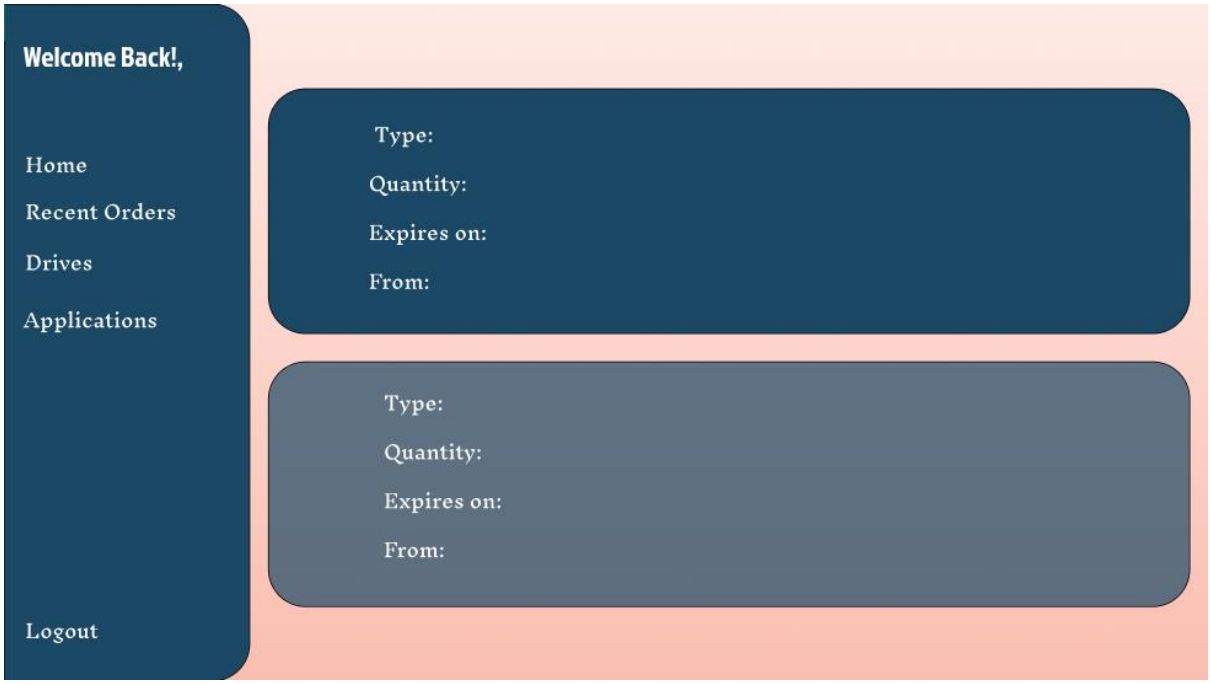

Fig 3.4.4 NGO Home

Fig 3.4.5 Restaurant New Order

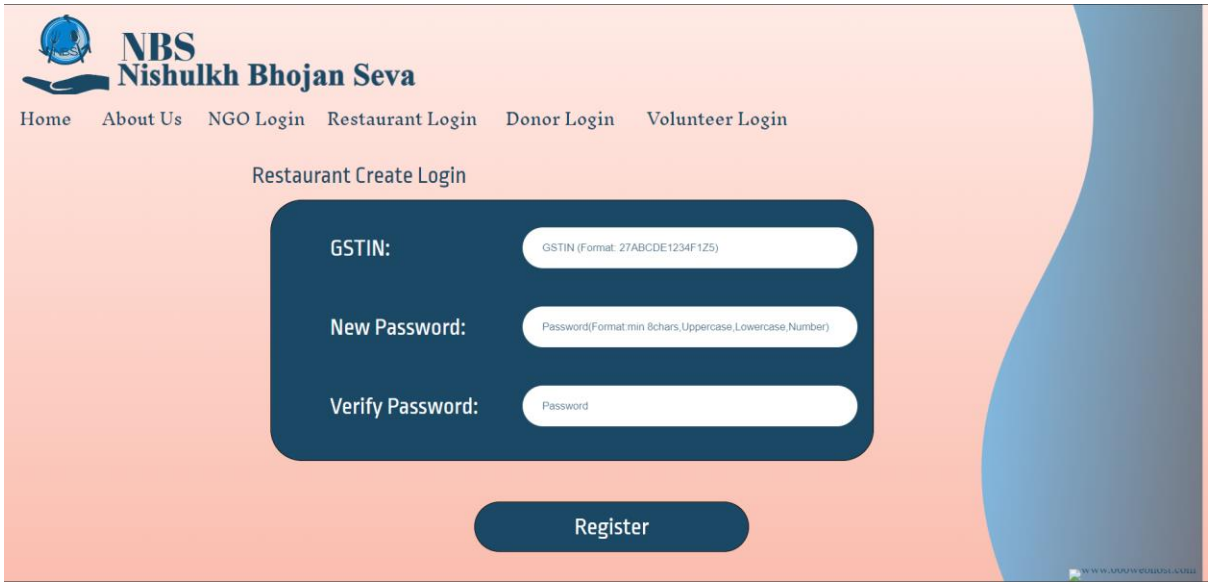

Fig 3.4.6 Create Login

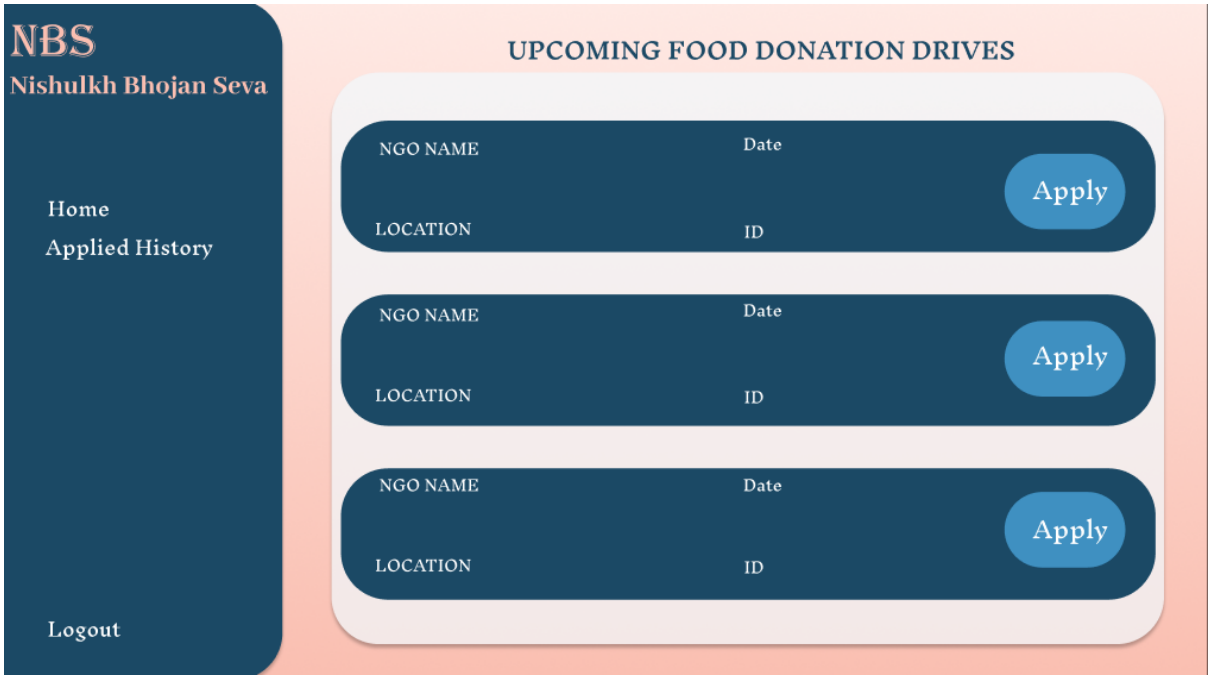

Fig 3.4.7 Volunteer Drive Application

3.6 Conclusion and Future work

Conclusion

In conclusion, our project aims to connect restaurants, eateries, and event organizers who may have surplus food to non-government organizations so that they can provide it to those in need. Our project uses verification methods to make sure that every restaurant and NGO on the website is legitimate and no one gets cheated. Our aim is to reduce food wastage and help those in need. Through this project, we have the chance to impact the lives of thousands, if not lakhs of people in our country who are suffering from food insecurity. "Good Food is NOT a luxury, it is a RIGHT" and we truly believe in this statement, though this project, we want to bring good quality food to people who are in need.

Future Work

- Recommendation and matching algorithm- Learning algorithms can be employed to provide tailored recommendations to the NGOs of the food items updated by other users as per their requirements. This could increase efficiency and facilitate effective utilization of resources.

- Live tracking- Feature of tracking the location of the order placed by the NGOs and for tracking the volunteers can be a very useful addition contributing to a better experience in the future. Location alerts and real time updates can be added as a means of better user engagement.

- Feedback- The website can have provisions for users to provide feedback which can help to improve the overall user experience.

- Data analytics- Data analytics can be implemented by using AI models for monitoring trends of donation. It can be used as a prediction model for anticipating demand. Data analysis can also help provide improved customer service.

- Mobile Application- This website could be translated into a mobile based application for a broader reach and enhanced user experience.

4 REFERENCES

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