Smash The Hunger

A PROJECT REPORT

for

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Submitted by:

Zeeshan Malik (202410116100255)

Suhel Saifi (202410116100213)

Syed Zaid Ashraf (202410116100215)

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Ms. Divya Singhal

Assistant Professor

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Uttar Pradesh-201206

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CERTIFICATE

Certified that that **Zeeshan Malik (202410116100255), Suhel Saifi (202410116100213), Syed Zaid Ashraf (202410116100215)** have carried out the project work having **"Smash The Hunger"** (**Mini Project-I, K24MCA18P**) for **Master of Computer Application** from Dr. A.P.J. Abdul Kalam Technical University (AKTU) (formerly UPTU), Lucknow under my supervision. The project report embodies original work, and studies are carried out by the student himself, and the contents of the project report do not form the basis for the award of any other degree to the candidate or to anybody else from this or any other University/Institution.

Ms. Divya Singhal
Assistant Professor
Department of Computer Applications
KIET Group of Institutions, Ghaziabad

Dr. Arun Kr. Tripathi
Dean
Department of Computer Applications
KIET Group of Institutions, Ghaziabad

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Zeeshan Malik, Suhel Saifi, Syed Zaid Ashraf

ABSTRACT

Food is one of the necessities of humans, and it stands first among all basic needs food, shelter, and clothing It is important as it nourishes the human body- sustaining the very existences of humans. However, with the rising population and development of this country, food wastage has risen to a new high. There are many people who wish to donate food to the needy but are unaware of how exactly they can execute that. Our application revolves around helping the needy by connecting NGOs and common people. The donors shall be able to sec a plurality of options by which they can donate. The NGOs will get the detail of the persons wishing via our application and thus a network is established between donors, people who aid the donors in donating (NGOS) and the actual needy people to whom the donated item is sent. Our application aims to bring about transparency, clarity and swiftness in the process of donation aiming to mitigate prevailing issues in whatever zone it is possible for us to do so.

ACKNOWLEDGEMENTS

The success and final outcome of this project required a lot of guidance and assistance from many people, and we are extremely fortunate to have got this all along the completion of our project work. Whatever we have done is only due to such guidance and assistance and we would not forget to thank them.

We owe our profound gratitude to our project guide Ms. Divya Singhal who took keen interest on our project work and guided us all along, till the completion of our project work by providing all the necessary information for developing a good system.

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Zeeshan Malik

Suhel Saifi

Syed Zaid Ashraf

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Chapter - 1

Introduction

1.1 Overview

"Smash the Hunger" is a comprehensive online platform designed to connect food donors, charities, and those in need, creating a seamless and efficient food donation system. The project aims to address food wastage and hunger simultaneously by leveraging technology to simplify the food distribution process. Through this platform, surplus food from individuals, restaurants, hotels, and grocery stores can be effectively donated to local shelters, food banks, and underprivileged communities.

The website fosters a collaborative ecosystem where organizations and individuals can contribute to fighting hunger while reducing food waste, promoting a more sustainable and equitable society. By bridging the gap between excess food and hunger-stricken communities, Smash the Hunger transforms surplus resources into life-saving opportunities.

1.2 System Objectives

The primary objectives of *Smash the Hunger* are:

1. **Eliminate Food Wastage:** Streamline the process of donating surplus food to reduce food wastage from households, businesses, and organizations.
2. **Hunger Alleviation:** Ensure equitable access to food for individuals and communities experiencing food insecurity.
3. **Efficient Donation Management:** Provide an easy-to-use system for managing food donations, including real-time tracking and logistics management.
4. **Community Collaboration:** Foster relationships among food donors, volunteers, NGOs, and food banks to build a shared commitment to ending hunger.
5. **Awareness and Engagement:** Educate users on food wastage issues, the importance of sustainability, and empower them to make meaningful contributions.

1.3 Functionality

The platform includes the following key features and functionalities:

1.3.1 For Donors:

1. **Food Donation Form:** A simple form to input food details (type, quantity, expiration date, location).
2. **Scheduling and Pickup Requests:** Allow donors to schedule food pickups at their convenience.
3. **Real-Time Tracking:** Track the status of their food donations until delivered.

4. **Donation History:** Keep a record of past donations for accountability and transparency.

1.3.2 For NGOs and Charities:

1. **Food Request Management:** Organizations can submit specific requests for food supplies based on their needs.
2. **Search and Match System:** Automatically matches donors with local charities based on location and food type.
3. **Notifications:** Real-time updates for food availability and logistics coordination.

1.3.3 Admin Dashboard:

1. **Data Analytics:** Monitor donations, track beneficiaries, and analyze food distribution trends.
2. **User Management:** Manage donor, NGO, and volunteer accounts.
3. **Report Generation:** Generate insights on food wastage reduction and community impact.

1.4 Significance

The significance of *Smash the Hunger* lies in its profound societal and environmental impact:

1. **Reduction of Food Waste:** Globally, one-third of all food produced is wasted, while millions go hungry. *Smash the Hunger* directly combats this by redirecting edible surplus food to those in need.
2. **Hunger Relief:** The platform connects food resources with marginalized and food-insecure populations, ensuring they have access to nutritious meals.
3. **Empowering Communities:** By involving donors, charities, and volunteers, *Smash the Hunger* fosters community participation in solving critical social issues.
4. **Sustainability and Environmental Impact:** Reducing food wastage lowers greenhouse gas emissions from landfills and promotes sustainable consumption practices.
5. **Transparency and Accountability:** Through real-time tracking and reporting, donors and charities build trust, ensuring food reaches intended beneficiaries.
6. **Social Awareness:** The project spreads awareness about hunger, food waste, and sustainability, encouraging individuals to take action and adopt more mindful practices.

Chapter - 2

Literature Review

The issue of food insecurity coexists with large-scale food wastage, making food donation a critical intervention. Research and existing initiatives highlight the importance of redistributing surplus food to combat hunger while minimizing environmental impact. This review explores key studies, existing platforms, and technological approaches to address food donation challenges.

2.1 Food Insecurity and Wastage

Food insecurity and food wastage are two interrelated global challenges that affect millions of people and the environment. According to the Food and Agriculture Organization (FAO), approximately one-third of the food produced globally—about 1.3 billion tons per year—is wasted, while more than 820 million people worldwide suffer from hunger or food insecurity.

2.1.1 Food Insecurity

Food insecurity refers to the lack of reliable access to sufficient, affordable, and nutritious food. It affects individuals in both developing and developed countries, stemming from poverty, unemployment, inadequate distribution systems, and systemic inequalities.

1. In developed countries, food insecurity is often concentrated among marginalized populations, such as low-income families, the homeless, and the elderly.
2. In developing nations, challenges like inefficient supply chains, poor agricultural practices, and economic instability exacerbate food insecurity.

The consequences of food insecurity include malnutrition, reduced productivity, and long-term health complications. Addressing this issue requires innovative solutions that connect surplus food to food-insecure individuals efficiently.

2.1.2 Food Wastage

1. Production Level: Inefficient harvesting, storage, and distribution systems lead to significant losses.
2. Retail and Hospitality Sector: Supermarkets, hotels, and restaurants frequently discard edible food due to overproduction, unsold stock, and cosmetic imperfections.
3. Consumer Level: Households contribute to food wastage by discarding leftovers, expired goods, or over-purchased food.

Food wastage has significant environmental, economic, and social consequences. It contributes to greenhouse gas emissions, wastes natural resources (land, water, energy), and undermines efforts to alleviate global hunger. Therefore, creating a structured food donation system can mitigate both food wastage and food insecurity.

2.2 Existing Food Donation Systems

Several food donation systems and platforms have been developed globally to combat food insecurity and wastage. However, many of these systems operate locally, with limited scalability or technological integration.

2.2.1 Traditional Models

1. Food Banks and Shelters: Organizations like *Feeding America* and *Food Bank Australia* collect and distribute surplus food to local charities and food-insecure populations. These models often rely on physical infrastructure and logistical support.
2. Community Initiatives: Small-scale community-driven food drives and volunteer-based networks address localized hunger but lack centralized systems for coordination.
3. Restaurants and Businesses: Some restaurants and grocery stores donate unsold food to shelters or compost waste; however, these practices are inconsistent and lack a monitoring framework.

2.2.2 Technology-Based Systems

With advancements in technology, a few platforms have emerged to improve food donation:

1. Apps and Websites: Platforms like *Too Good To Go*, *OLIO*, and *Feeding Forward* allow businesses and individuals to donate surplus food. These systems use mobile applications to connect food donors with recipients.
2. Real-Time Matching Platforms: Some systems utilize algorithms to match food donors with local charities or food banks based on location and demand.
3. Volunteer Networks: Digital tools enable volunteers to manage food pickups and deliveries, improving the efficiency of food logistics.

2.2.3 Limitations of Existing Systems

1. **Limited Reach:** Many platforms focus on urban areas, leaving rural and underserved regions unaddressed.
2. **Technology Gaps:** Existing platforms often lack advanced features like real-time tracking, analytics, or logistics optimization.
3. **Lack of Awareness:** Donors and beneficiaries are often unaware of such platforms, leading to underutilization.
4. **Unorganized Systems:** Many traditional food banks operate without digital tools, resulting in inefficiencies in managing food donations and logistics.

2.3 Challenges and Gaps

Despite the efforts of existing food donation systems, significant challenges persist, which highlight the need for an improved platform like *Smash the Hunger*.

2.3.1. Logistical Barriers

1. Food Collection and Delivery: Coordinating food pickups and deliveries is complex, especially for perishable items that require timely distribution.
2. Lack of Volunteers: Many food donation systems rely on volunteers for transportation, leading to inconsistencies in food logistics.
3. Last-Mile Connectivity: Challenges arise in reaching remote and underserved areas, where hunger is often most prevalent.

2.3.2. Awareness and Participation

1. Donor Reluctance: Restaurants, grocery stores, and individuals may hesitate to donate food due to concerns about liability or lack of awareness about donation processes.
2. Low Community Engagement: Many platforms fail to engage communities actively or educate them about food wastage and hunger issues.

2.3.3. Technological Limitations

1. Inefficient Matching Systems: Existing platforms may lack intelligent algorithms to match food donors with recipients efficiently.
2. Lack of Real-Time Tracking: Transparency and accountability are often compromised due to the absence of real-time tracking systems.
3. Scalability Issues: Many food donation platforms are localized and cannot scale to accommodate growing donor and recipient networks.

2.3.4. Legal and Safety Concerns

1. Food Safety Regulations: Donating perishable food must comply with safety standards and regulations to ensure it is fit for consumption.
2. Liability Concerns: Donors may fear legal repercussions in case of food spoilage or health issues. While laws like the *Good Samaritan Food Donation Act* provide liability protection, awareness about such laws is limited.

2.3.5. Environmental Impact

Food wastage not only exacerbates hunger but also contributes significantly to environmental degradation. Without a structured platform to streamline food redistribution, surplus food continues to burden landfills, increasing methane emissions and wasting natural resources.

Chapter - 3

Project Objectives

3.1 Reduce Food Wastage

One of the main objectives of the project is to significantly reduce food wastage. In modern society, surplus food is often discarded at various levels, including households, restaurants, grocery stores, and events, despite being perfectly edible. *"Smash the Hunger"* addresses this issue by providing an organized platform that connects surplus food donors to recipients efficiently.

i. Food Collection Channels: The system facilitates food collection from donors such as restaurants, grocery stores, event managers, and individuals.

ii. Optimized Redistribution: By ensuring that food is quickly and efficiently redistributed to NGOs, food banks, and shelters, the platform reduces unnecessary spoilage.

iii. Environmental Impact: Diverting food from landfills reduces greenhouse gas emissions, contributing to a cleaner and greener environment.

3.2 Combat Hunger

Food insecurity continues to affect millions globally, and this project directly contributes to combating hunger. By bridging the gap between food surplus and food scarcity, *"Smash the Hunger"* ensures that food reaches individuals and families who need it the most.

i. Direct Beneficiary Support: The platform connects food donors with NGOs, shelters, food banks, and low-income communities to distribute nutritious meals.

ii. Nutritional Focus: Efforts are made to ensure the donated food is safe, fresh, and meets basic nutritional needs, improving recipients' health outcomes.

iii. Reducing Inequality: By redistributing food efficiently, the project supports vulnerable groups like the homeless, elderly, students, and low-income families.

3.3 Promote Community Engagement

Community involvement is a fundamental objective of the *"Smash the Hunger"* platform. The project encourages businesses, individuals, and volunteers to work together to solve food wastage and hunger.

i. Volunteer Involvement: The platform provides opportunities for volunteers to assist in food collection, delivery, and awareness campaigns.

ii. Donor Engagement: Restaurants, hotels, event organizers, and households are motivated to donate surplus food by simplifying the process and showcasing their contributions.

iii. Awareness Programs: Regular educational initiatives, campaigns, and workshops inform the public about the importance of food conservation and donation.

iv. Collaborative Network: By fostering partnerships with NGOs, local governments, and businesses, the project builds a strong and engaged community committed to social responsibility.

3.4 Leverage Technology for Efficiency

Technology is at the core of *"Smash the Hunger"*, enabling efficient management of food donations and ensuring transparency in the redistribution process.

i. Real-Time Matching: The platform uses intelligent algorithms to match food donors with nearby charities or recipients based on location, food type, and urgency.

ii. Logistics Management: Integration with mapping tools and delivery networks ensures that food pickups and deliveries are optimized, minimizing delays and waste.

iii. Automated Notifications: Donors, volunteers, and recipients receive timely notifications, ensuring quick action for perishable food items.

iv. Data Analytics: The system collects and analyses data on food wastage, donation trends, and beneficiary needs to improve decision-making and optimize resource allocation.

3.5 Ensure Food Safety and Quality

Ensuring food safety and quality is essential to building trust with donors and recipients. *"Smash the Hunger"* incorporates measures to ensure that all donated food is safe for consumption.

i. Donation Guidelines: Clear and detailed protocols are provided to donors for handling, packaging, and storing surplus food.

ii. Quality Checks: Partner charities and volunteers perform inspections to ensure that donated food meets safety standards.

iii. Compliance with Laws: The platform educates donors about food safety regulations, such as the *Good Samaritan Food Donation Act*, which protects donors from liability.

iv. Freshness Monitoring: Timely pickups and deliveries ensure that perishable food is delivered before spoilage.

3.6 Enhance Accessibility

The platform aims to enhance accessibility for all stakeholders, ensuring an inclusive and user-friendly experience.

i. User-Friendly Interface: The website is designed to be intuitive, enabling easy navigation for donors, recipients, and volunteers.

ii. Mobile Compatibility: The platform supports access through both mobile devices and desktops, ensuring usability across different devices.

iii. Geographic Coverage: By leveraging delivery networks and partnerships, the platform expands its reach to underserved and rural areas where hunger is most acute.

iv. Language Options: To accommodate diverse communities, the system can support multiple languages, increasing accessibility for users.

3.7 Encourage Sustainable Practices

The platform encourages environmentally sustainable practices by addressing food wastage and promoting resource efficiency.

i. Reducing Landfill Waste: By redistributing surplus food, the platform reduces the volume of food that ends up in landfills, thereby minimizing methane emissions.

ii. Raising Awareness: The project educates communities about responsible consumption, food conservation, and sustainable lifestyles.

iii. Resource Optimization: Preventing food waste reduces the unnecessary use of natural resources such as water, energy, and land required for food production.

iv. Supporting SDG Goals: The initiative aligns with the United Nations' Sustainable Development Goals, particularly SDG 12 (Responsible Consumption and Production) and SDG 2 (Zero Hunger).

3.8 Build a Scalable and Replicable Model

The platform is designed to be scalable and easily replicable, ensuring long-term impact and global applicability.

i. Scalability: The system can accommodate increasing numbers of donors, volunteers, and recipients, enabling it to expand to new regions, cities, or countries.

ii. Modular Design: The platform's architecture allows for the integration of new features, such as AI-based food demand forecasting and inventory tracking.

iii. Replicability: The project framework can be adapted to address food wastage and hunger challenges in different geographic and cultural contexts.

iv. Sustainability of Impact: By involving stakeholders such as governments, NGOs, and businesses, the project creates a self-sustaining ecosystem that ensures continued operation and expansion.

Chapter - 4

Hardware and Software Requirements

4.1 Hardware Requirements

4.1.1 Server Requirements

I. Processor: Intel Xeon or AMD Ryzen (multi-core, 2.5 GHz or higher)

II. RAM: Minimum 8 GB (Recommended: 16 GB or higher for scalability)

III. Storage: SSD with at least 250 GB (expandable based on data volume)

IV. Network: High-speed internet connection with redundancy options

V. Backup Device: External storage or cloud backup for disaster recovery

4.1.2 User Devices (For End-Users)

I. Donors/Recipients: Smartphones or computers with internet access

II. Volunteers/Administrators: Laptops or desktops with updated browsers

4.1.3 Hosting Infrastructure

Cloud services like AWS, Google Cloud, or Microsoft Azure for hosting, with load balancing and scalability support.

4.2 Software Requirements

5.2.1 Frontend Development

I. Languages/Frameworks: HTML5, CSS3, JavaScript, React.js or Angular

II. UI/UX Tools: Figma or Adobe XD for design prototyping

4.2.2 Backend Development

I. Languages/Frameworks: Node.js, Django (Python), or PHP (Laravel)

II. Database: MySQL, PostgreSQL, or MongoDB for dynamic data handling

III. APIs: Google Maps API for geolocation; Firebase for real-time notifications

4.2.3 Hosting and Deployment

I. Operating System: Linux (Ubuntu/CentOS) or Windows Server
II. Web Server: Apache or NGINX for server management
III. Version Control: GitHub or GitLab for collaborative development

4.2.4 Other Tools and Platforms

I. **CMS**: Optional, like WordPress, for blog or content management
II. **Analytics**: Google Analytics for user insights and traffic monitoring
III. **Security Software**: SSL/TLS encryption, firewalls, and antivirus solutions

5.2.5 Testing Tools

Selenium, Postman, and JMeter for testing functionality, APIs, and performance.

Chapter – 5

Project Flow

5.1 Requirement Gathering and Analysis

Objective: Identify the core features, functionalities, and technical requirements of the food donation platform.
Tasks:

I. **Stakeholder Meetings**: Conduct discussions with potential users (donors, recipients, volunteers) and stakeholders (NGOs, food banks, organizations).

II. **Defining Features**: Identify essential features such as user registration, food listing, geolocation, volunteer coordination, real-time notifications, and analytics.

III. **Technical Specifications**: Determine hardware and software requirements, hosting platforms, security measures, and integration needs.

IV. **User Stories and Use Cases**: Develop clear user stories and flow diagrams to understand user needs and system behaviour.

5.2 System Design

The system will be designed to allow seamless integration and user-friendly. Security features will also be incorporated to protect user data.

5.2.1 Use Case Diagram

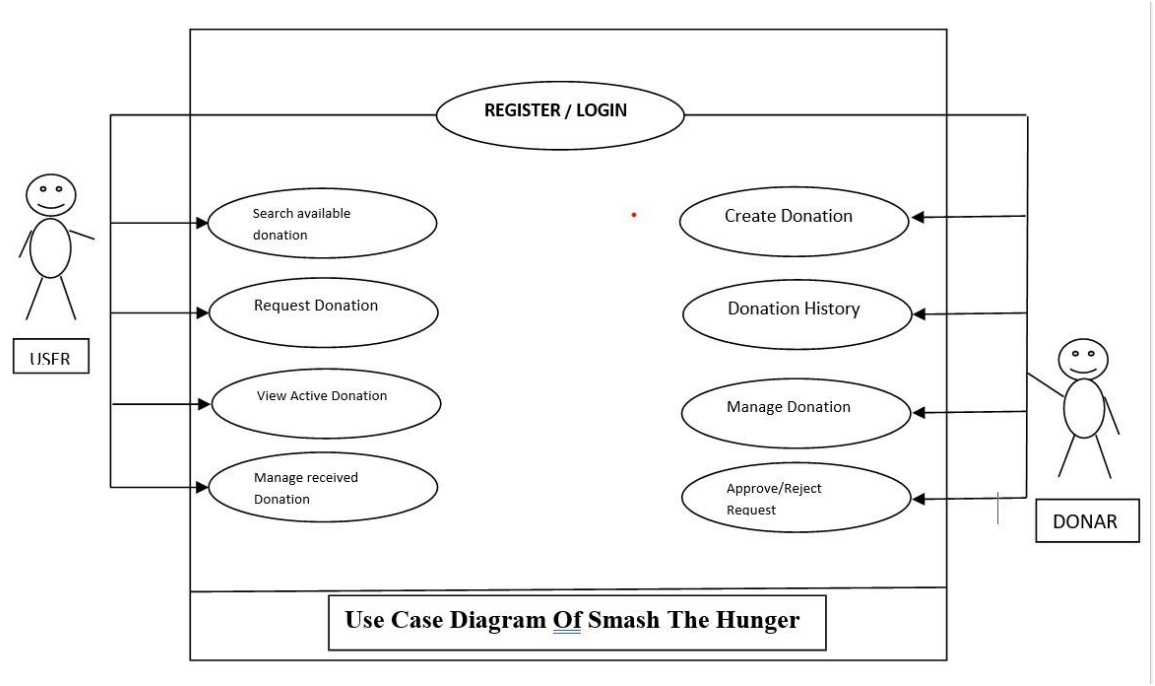

Fig 5.1 Use Case Diagram

Here's an expanded breakdown of the main use cases for each actor with the general use case diagram afterwards.

5.2.1.1 Actors

1. Donor an organization or individual providing food for donation.

2. Recipient Organization This is a non-profit or charity organization that solicits food donation and accepts it.

5.2.1.2 Donor Use Cases

1. Register and Login: These are the activities that donors make up an account and log into the system.

2. Create Donation: The donor can create a new donation specifying food type, quantity, date of expiration, and pickup location.

3. View Donation History: This allows the donors to view the history of their previous donations with all details concerning fulfilled and pending donations.

4. Manage Active Donations: The donors are able to view, edit, or delete the active donations still available.

5. Approve/Reject Requests: The donor can choose to approve a recipient's request or decline it with an option to add comments as appropriate.

5.2.1.3 Recipient Organization Use Cases

1. Register and Login: The recipient organization has decided to register itself into the system and then log into the system.

2. Search Available Donations: A recipient organization can browse a list of available donations done by donors in his locality.

3. Request Donation: A recipient organization can request donation specifying the quantity he needs and further details for the collection also.

4. View Active Requests: It would help recipient organizations track the status of their active requests and whether those requests have been accepted or declined.

5. Manage Received Donations They can mark donations as received when they have been picked up.

5.2.2 E-R Diagram

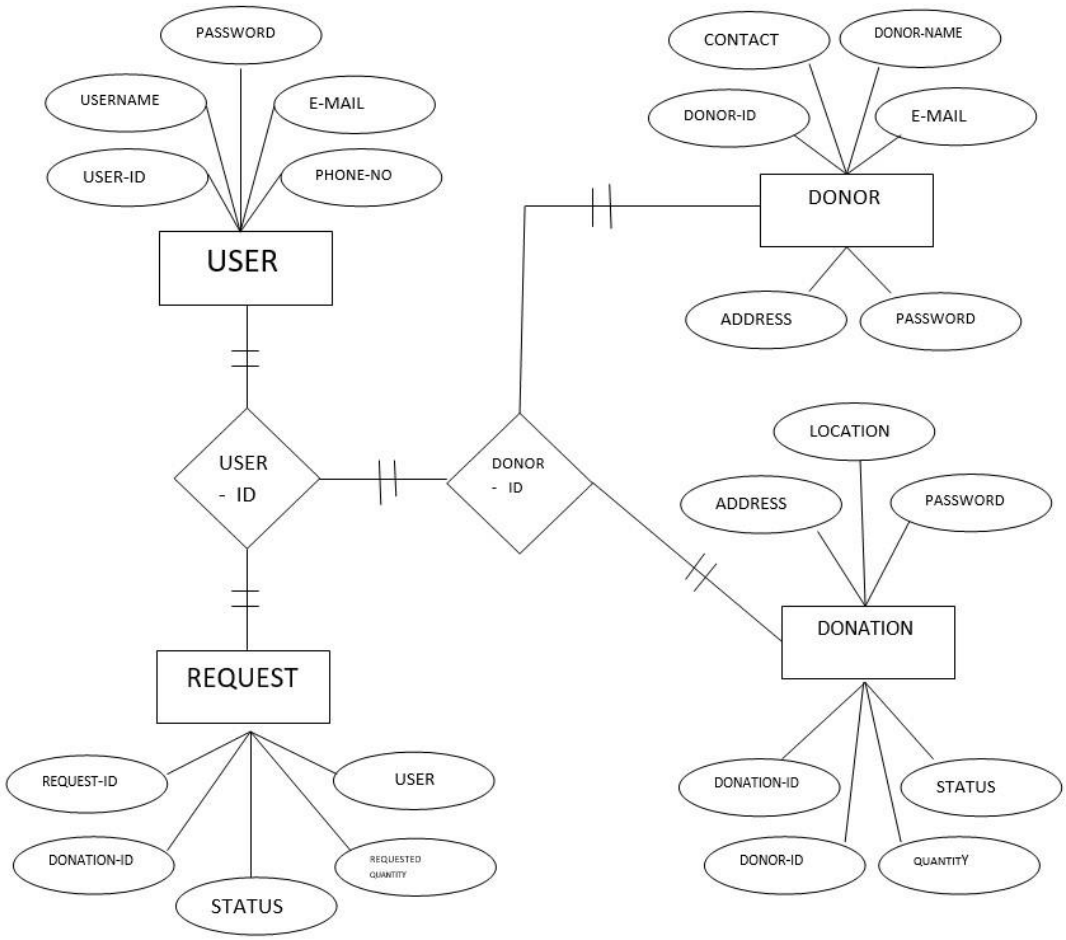

Fig 5.2 E-R Diagram

Key Entities in Smash The Hunger

5.2.2.1. User

5.2.2.2. Donor Profile

5.2.2.3. Donation

5.2.2.4. Request

Entities and Attributes

Here is a brief description of the major entities, including their attributes and relationships.

5.2.2.1 User

All users of the system will be represented by this entity.

Attributes:

I. user_id (Primary Key): Unique identifier for each user.
II. username: The chosen username of a user.
III. password: Hashed password to ensure security.
IV. email: The email address of the user.
V. phone_no: Contact number of the user to connect.

5.2.2.2 Donor Profile

This is the extra information contained about a user having the "Donor" role.

Attributes:

I. donor_id (Primary Key): Unique identifier to donor.
II. donor_username: The chosen username of a donor.
III. phone_no: Contact number of the user to connect.
IV. password: Hashed password to ensure security.
V. email: The email address of the user.
VI. Address: Address where pickup for donation is to be done

5.2.2.3 Donation

This represents a donation made by each donor.

Attributes:

I. donation_id (Primary Key): Unique identifier for each donation.
II. donor_id (Foreign Key to Donor Profile): foreign key of the donor profile.
III. food_type: The type of food - canned, perishable or nonperishable.
IV. quantity: number or amount of items donated.
V. expiry_date: the date when food will expire, if required.
VI. location: physical location where the donation will be picked up.
VII. Status: Current status (as : available, claimed, expired).

5.2.2.4 Request

This is an entity that represents a request placed by a recipient organization for a particular donation.

Attributes:

I. request_id (Primary Key): Unique id for each request.

II. donation_id (Foreign Key to Donation): Foreign key referencing to the requested donation.
III. recipient_id (Foreign Key to Recipient/user Profile): This is the reference to the recipient organisation that requests.
IV. Req_quantity: Quantity of the donation requested.

Relationships

1. User - Request: one to one relationship.

2. Donor Profile - Donation: one to many relationship. A Donor Profile can have several Donations.

3. Donation - Request: one-to-many relationship: one Donation could have many different Requests from various Recipient Organizations.

4. Donor – Request: one to many relationship. A Donor Profile can have several requests for food.

5.2.3 Database Table

5.2.3.1 Admin Table

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	admin_id	int(255)			No	None		AUTO_INCREMENT	Change Drop More
2	email	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
3	password	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
4	first_name	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
5	last_name	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
6	user_name	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
7	mobile	bigint(255)			No	None			Change Drop More
8	city	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
9	state	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
10	pincode	bigint(255)			No	None			Change Drop More
11	date	timestamp			No	current_timestamp()		ON UPDATE CURRENT_TIMESTAMP()	Change Drop More

Fig 5.3 Admin Table

5.2.3.2 Donor Table

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	donor_id	int(255)			No	None		AUTO_INCREMENT	Change Drop More
2	email	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
3	password	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
4	first_name	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
5	last_name	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
6	user_name	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
7	type	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
8	mobile	bigint(255)			No	None			Change Drop More
9	city	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
10	state	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
11	pincode	bigint(255)			No	None			Change Drop More
12	aadhar	bigint(255)			No	None			Change Drop More
13	date	timestamp			No	current_timestamp()		ON UPDATE CURRENT_TIMESTAMP()	Change Drop More

Fig 5.4 Donor Table

5.2.3.3 Receiver Table

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	rec_id	int(255)			No	None		AUTO_INCREMENT	Change Drop More
2	email	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
3	password	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
4	first_name	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
5	last_name	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
6	user_name	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
7	mobile	bigint(255)			No	None			Change Drop More
8	otp	bigint(255)			No	None			Change Drop More
9	city	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
10	state	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
11	pincode	bigint(255)			No	None			Change Drop More
12	date	timestamp			No	current_timestamp()		ON UPDATE CURRENT_TIMESTAMP()	Change Drop More

Fig 5.5 Receiver Table

5.2.3.4 Donations

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	d_id	int(255)			No	None		AUTO_INCREMENT	Change Drop More
2	email	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
3	first_name	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
4	last_name	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
5	fname	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
6	alter_mobile	bigint(255)			No	None			Change Drop More
7	mobile	bigint(255)			No	None			Change Drop More
8	qty	int(255)			No	None			Change Drop More
9	qty_value	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
10	mfg	date			No	None			Change Drop More
11	exp	date			No	None			Change Drop More
12	city	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
13	state	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
14	pincode	varchar(255)	utf8mb4_general_ci		No	None			Change Drop More
15	dt	timestamp			No	current_timestamp()		ON UPDATE CURRENT_TIMESTAMP()	Change Drop More

Fig 5.6 Donation Table

5.3 Technology Selection

Objective: Choose the appropriate technologies that align with project goals and technical feasibility.

Tasks:

I. **Frontend Technologies**: Select Html, Css, JS for responsive and dynamic user interfaces.

II. **Backend Technologies**: Decide between Node.js, Django, or PHP, depending on scalability, security, and ease of integration.

III. **Database**: Choose databases (e.g., MySQL, PostgreSQL, MongoDB) based on data handling and structure requirements.

IV. **Hosting/Cloud Services**: Determine cloud platforms (AWS, Google Cloud, or Microsoft Azure) to host the website and manage scalability.

V. **Security and APIs**: Implement security tools like SSL encryption and use APIs like Google Maps (for geolocation) and Firebase (for real-time notifications).

5.4 Development

Objective: Begin the actual development of the website, incorporating both frontend and backend features.
Tasks:

I. **Frontend Development**: Build user interfaces and integrate design elements, ensuring compatibility with different devices and screen sizes.

II. **Backend Development**: Set up server-side logic, database management, user authentication, and donation tracking.

III. **API Integration**: Implement third-party services like geolocation, payment gateways (for optional donations), and notifications.

IV. **Database Setup**: Develop database models, establish relationships, and ensure data consistency and scalability.

5.5 Testing

Objective: Conduct rigorous testing to identify and fix issues, ensuring that the website functions as intended.
Tasks:

- **Unit Testing**: Test individual components and modules (e.g., donation posting, registration).
- **Integration Testing**: Verify that different parts of the system (frontend, backend, database) work together seamlessly.
- **User Acceptance Testing (UAT)**: Engage real users in testing the platform's usability, identifying any potential pain points or missing features.
- **Performance Testing**: Ensure the website handles high traffic and performs well under load, using tools like JMeter.
- **Security Testing**: Conduct penetration tests and vulnerability scans to ensure the platform is secure from cyber threats.

5.6 Deployment

Objective: Launch the website and make it publicly available to users.
Tasks:

I. **Final Review and Optimization**: Review the code for optimization, ensure all features are working, and remove any unused resources.

II. **Server Setup**: Configure the production environment on the selected cloud platform, ensuring that all necessary configurations are in place.

III. **Deployment**: Deploy the application to the cloud server and set up continuous integration (CI) pipelines for future updates.

IV. **DNS Configuration**: Set up domain names, SSL certificates, and email configurations for secure communication.

V. **Monitoring and Maintenance**: After deployment, continuously monitor the platform for any bugs, user feedback, and performance issues. Implement regular updates and enhancements.

Chapter – 6

Project Outcome

The **"Smash the Hunger"** food donation website successfully achieves its intended objectives by providing a reliable, user-friendly platform for connecting food donors, recipients, and volunteers. Below are the key outcomes of the project

6.1. Efficient Food Redistribution

I. The platform facilitates the seamless redistribution of surplus food from donors (restaurants, individuals, businesses) to recipients (NGOs, shelters, food banks).

II. Geolocation features ensure that donations are matched with recipients in close proximity, reducing transportation time and cost.

6.2. Reduced Food Wastage

I. By offering an accessible platform to list and request surplus food, the project helps minimize food wastage.

II. Food that would otherwise be discarded is efficiently redirected to people in need, promoting sustainability.

6.3. Community Engagement

I. The platform encourages community participation by involving volunteers to assist with food collection and delivery.

II. Businesses and individuals are motivated to contribute toward a social cause, fostering a sense of responsibility and collaboration.

6.4. Enhanced Accessibility and Scalability

I. The platform provides a responsive design, ensuring easy accessibility from mobile phones, tablets, and desktops.

II. It is scalable, allowing the website to serve multiple regions and accommodate an increasing number of users over time.

6.5. Improved Food Security

I. Vulnerable communities gain access to nutritious food, improving their overall food security and reducing hunger.

II. The platform acts as a bridge between surplus food and those who need it, creating a significant social impact.

6.6. Real-Time Tracking and Notifications

I. Users (donors, recipients, and volunteers) receive real-time updates and notifications on food availability, requests, and delivery status.

II. This feature enhances the efficiency of coordination and logistics.

6.7. Promotes Sustainability

I. The project contributes to environmental sustainability by reducing food waste and its associated carbon footprint.

II. It aligns with global sustainability goals, such as the UN SDG 12 (Responsible Consumption and Production).

6.8. Data Insights for Better Decision-Making

I. The website can track data on donations, food requests, and successful deliveries, providing insights for improving operations and expanding the initiative.

II. Analytics can help identify high-demand areas and optimize food redistribution strategies.

6.9. User Interface

6.9.1 User Registration

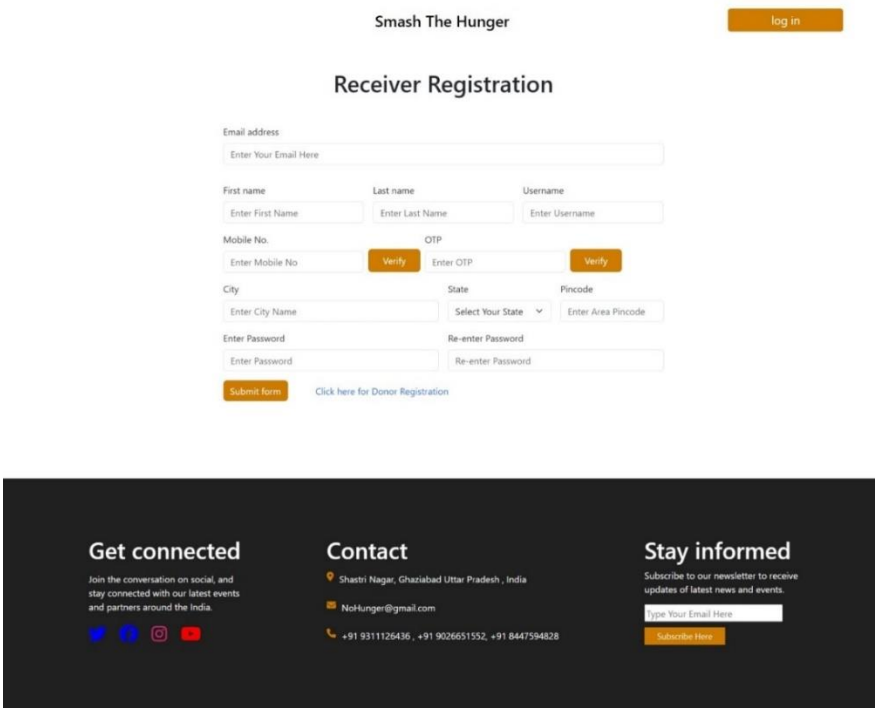

Fig 6.1 Receiver Registration

This is a user registration form where user register himself for the Website

6.9.2 Index

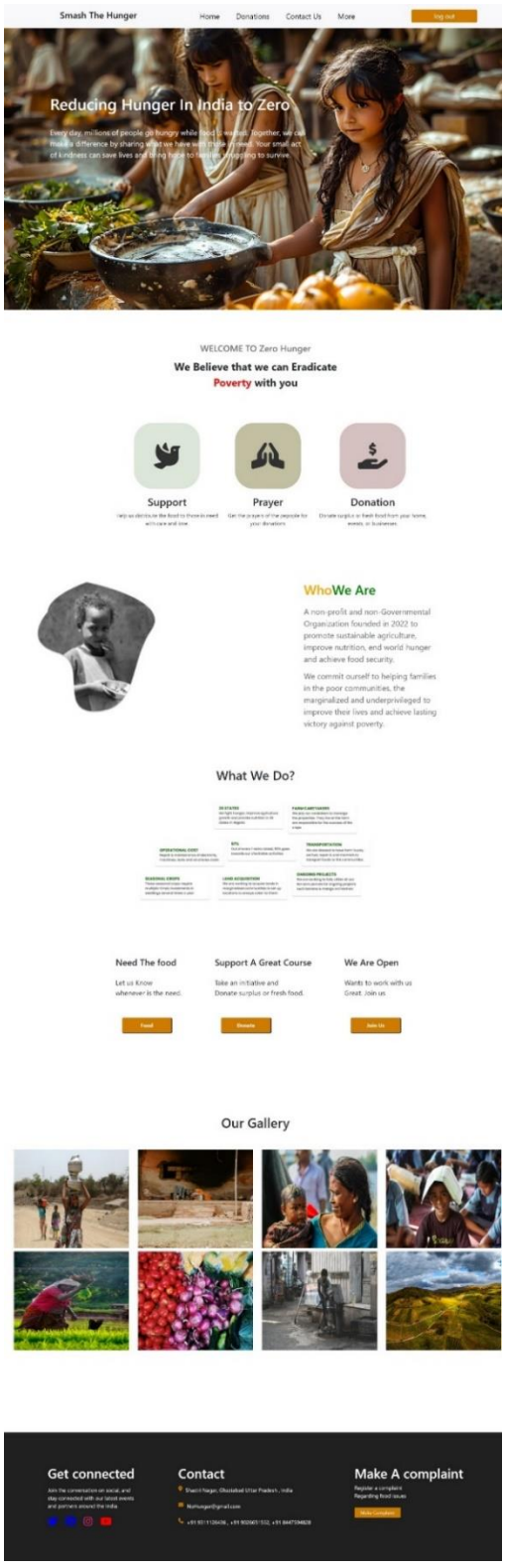

Fig 6.2 Index Page

This is the index page of the website were you can see the donations and donate items.

6.9.3 Receiver Login

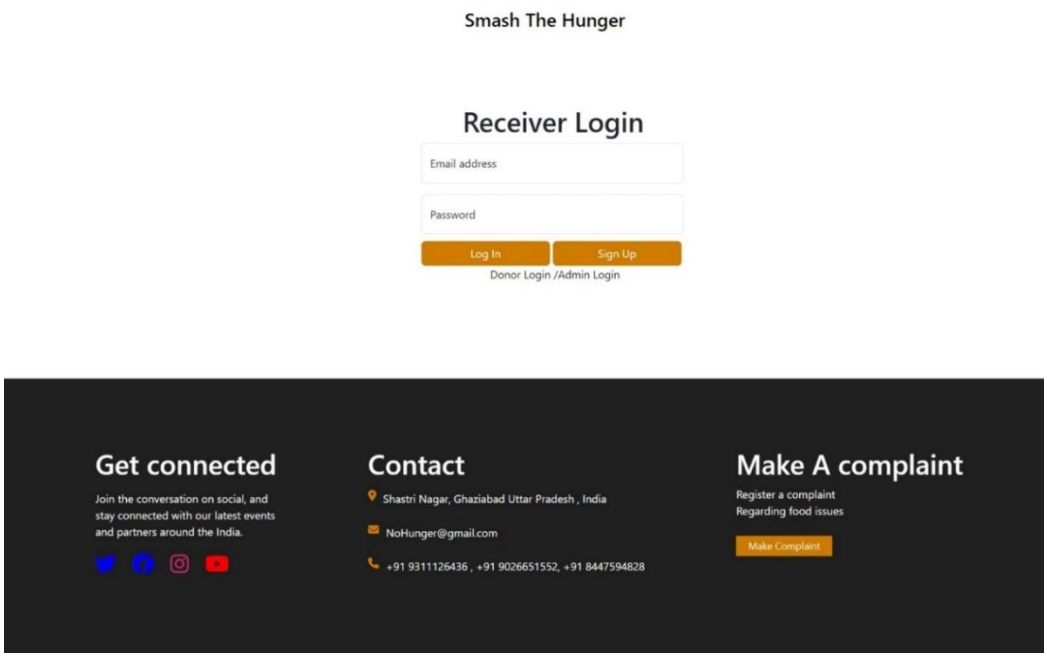

Fig 6.3 Login Page

This is login page in which user enter and authenticate himself and redirect to index page.

6.9.4 Donation Page

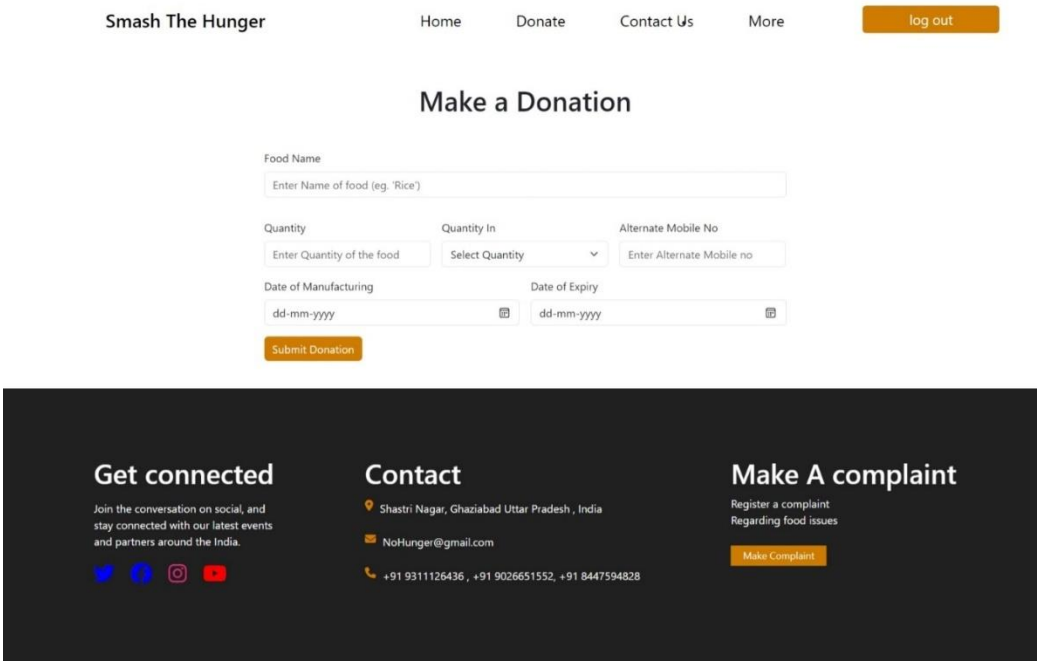

Fig 6.4 Donation Registration

This the donation page where you can donate items with quantity and date of the item.

6.9.5 Active Donations

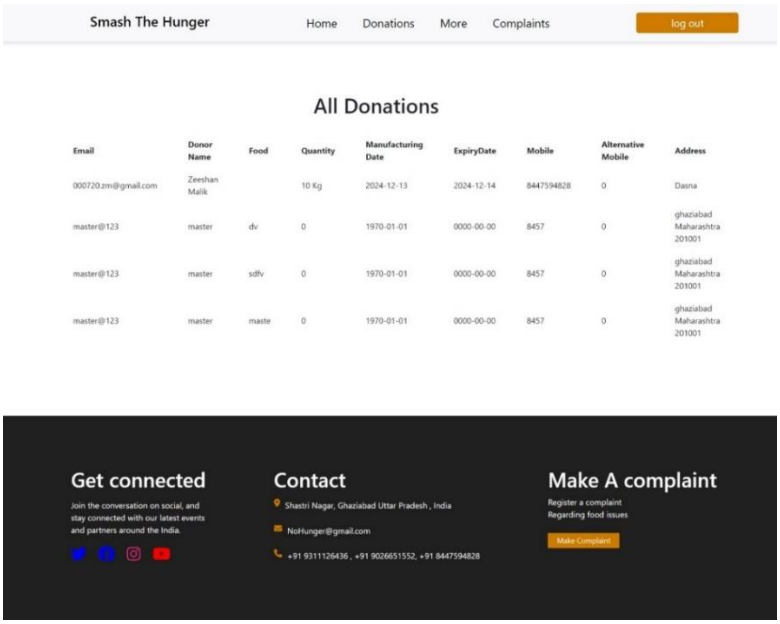

Fig 6.5 Active Donations

This is the page where all the listed Food that is available currently is visible.

6.9.6 Complaint Registration

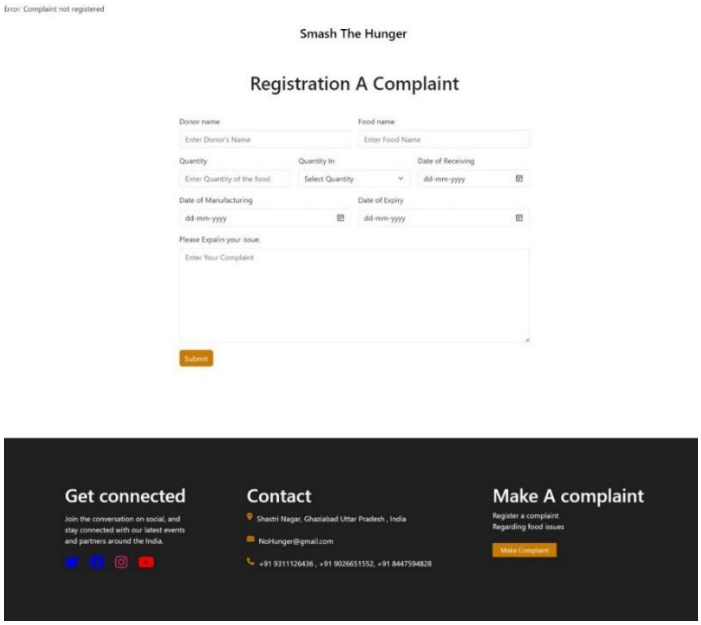

Fig 6.6 Complaint Registration

On this page you can file a complaint regarding any food related issues.

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