EXCESS FOOD MANAGEMENT SYSTEM

A DBMS MINOR PROJECT REPORT SUBMITTED TO

THE NATIONAL INSTITUTE OF ENGINEERING, MYSURU
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Computer Science and Engineering

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CERTIFICATE

This is to certify that the Data Base Management System project work entitled "**Excess Food Management System**" is a bonafide work carried out by **Roshni V S Gowda 4NI23CI087, S Vignesh NI23CI090, Santhosh C R 4NI23CI097, Souparnika R 4NI23CI107** in partial fulfillment for the award of degree of **Bachelor of Engineering in Computer Science and Engineering**, of Visvesvaraya Technological University, Belagavi, during the year **2024-25**. It is certified that all corrections / suggestions indicated during internal assessment have been incorporated and the corrected copy has been deposited in the department library. This project report has been approved in partial fulfillment for the award of the said degree as per academic regulations of The National Institute of Engineering (Autonomous Institution).

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ABSTRACT

"Waste not the smallest crumb." – Benjamin Franklin

Food is one of the most essential resources for sustaining life, yet every day, enormous quantities are wasted while millions remain undernourished. This contradiction not only highlights inefficiencies in our food distribution systems but also underscores a moral and social responsibility to ensure surplus food reaches those in need. The **Excess Food Management System** is a digital initiative aimed at addressing this critical issue by providing an organized platform that connects food donors with verified beneficiaries across targeted regions.

Designed to serve five key districts of Karnataka that is Bangalore, Mysore, Kodagu, Hassan, and Chamarajanagar, the system enables individuals, households, and event organizers to register surplus food donations with ease. These donations can then be claimed by NGOs, orphanages, railway stations, and bus stands through a secure and transparent interface. The platform notifies delivery personnel in real-time, providing them with optimized routes to ensure prompt and safe transportation of the food. Donors are empowered to track their past contributions, while administrators can access detailed analytics through centralized dashboards for monitoring donation trends, volunteer participation, and delivery metrics.

By integrating technology with social impact, this system not only reduces avoidable food waste but also strengthens the humanitarian ecosystem. It encourages accountability, fosters community involvement, and transforms acts of donation into meaningful support for the underprivileged. To further enhance its reach and impact, the system includes a payment for distances feature, which covers transportation costs for delivering donated food, ensuring logistics are never a barrier to giving. Ultimately, the Excess Food Management System is more than just a platform—it is a step toward a more equitable and compassionate society.

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INTRODUCTION

1.1 Background

Food waste is a major issue, especially in countries like India where hunger and malnutrition persist. Despite daily surpluses from households, restaurants, and events, much of this food goes unused due to the absence of organized distribution channels. At the same time, many people struggle for basic nutrition. This highlights the urgent need for a technology-driven solution to connect donors with those in need, ensuring surplus food is utilized instead of wasted. The Excess Food Management System is designed to address this gap by providing a structured platform for food donations, promoting efficient redistribution, and creating a transparent, community-focused network.

1.2 Purpose

Efficient Food Redistribution:

The purpose of the Excess Food Management System is to provide a platform for easy and efficient redistribution of surplus food. It connects donors, such as individuals and event organizers, with verified beneficiaries like NGOs and shelters, ensuring that excess food does not go to waste.

Promoting Community Responsibility:

The system also aims to foster a sense of social responsibility by encouraging food donations. It facilitates transparent and timely coordination, ensuring that food reaches those in need, while also promoting sustainability and reducing food waste in communities.

1.3 Objectives

1.3.1 Streamline Food Collection and Distribution:

One of the primary objectives of the Excess Food Management System is to establish a streamlined process for collecting and distributing surplus food. By leveraging technology, the system ensures that food donors—ranging from restaurants and caterers to households—can quickly notify potential recipients. The system facilitates prompt pickups and deliveries, reducing delays and preserving quality for consumption.

1.3.2 Ensure Transparency and Accountability:

Another key objective is to introduce transparency into the food redistribution process. The platform will maintain records of all donations, transactions, and deliveries, ensuring traceability and building

trust among stakeholders. Verified users, including both donors and beneficiaries, will be rated and reviewed, which fosters accountability and helps maintain high operational standards across the network.

1.3.3 Encourage Community Engagement and Awareness:

The system also seeks to cultivate a culture of giving and social responsibility within communities. Through features such as donation histories, impact metrics, and volunteer opportunities, users are encouraged to actively participate in alleviating hunger. Educational campaigns integrated into the platform can raise awareness about food waste and highlight the collective role individuals and organizations can play in addressing it.

1.3.4 Promote Environmental and Economic Sustainability:

Finally, the Excess Food Management System aims to support environmental and economic sustainability by reducing food waste and its associated environmental impact. By efficiently redirecting edible surplus food, the system minimizes landfill waste and reduces the carbon footprint linked with food disposal. Additionally, it provides cost-saving opportunities for NGOs and shelter.

What sets the Excess Food Management System apart is its unique blend of technology, transparency, and community-centric design. Unlike traditional food donation methods that often rely on manual coordination and informal networks, our platform leverages real-time data and smart algorithms to instantly match donors with nearby verified beneficiaries. This not only minimizes food spoilage but also ensures that help reaches those in need as quickly as possible. Additionally, we emphasize transparency by tracking every donation and delivery through a secure system, allowing users to monitor the impact of their contributions. Our user verification process builds trust among participants, and by incorporating features like impact metrics, community ratings, and volunteer coordination tools, we create a holistic, user-friendly experience that goes beyond food redistribution—fostering a strong culture of giving and shared responsibility.

1.4 Existing System and Drawbacks

Traditional food donation methods are typically manual, inconsistent, and lack technological support. In the current system, donors often rely on word-of-mouth or personal networks to share surplus food, which results in delays, unorganized logistics, and missed opportunities to serve those in need. Moreover, there is no tracking system to monitor donations or delivery status, and in many cases, food spoils due to ineffective coordination.

This fragmented approach leads to several inefficiencies:

- No centralized management.

- Inability to track donations.

- Increased food wastage due to logistical delays.

- Prone to human errors and inconsistent records.

1.5 Proposed System

The Excess Food Management System is a web-based platform connecting food donors with recipients like NGOs, orphanages, and shelters in Karnataka. It allows users to donate surplus food, while delivery personnel receive real-time notifications with location details for efficient pickups and drop-offs. The platform includes features like user authentication, admin verification, and tracking delivery statuses (Active/Inactive). Additionally, the system covers **payments for distances**, reimbursing transportation costs to ensure smooth logistics. By streamlining communication and logistics, the platform reduces food waste, promotes proper utilization of surplus, and supports a sustainable, community-driven solution to hunger relief. Ultimately, it makes food donations more accessible and impactful.

Advantages of Proposed System:

- The system helps reduce food waste by redirecting surplus food to those in need.

- It effectively combats hunger by connecting donors with NGOs, orphanages, and shelters.

- Delivery personnel receive real-time notifications for efficient food pickup and drop-off.

- Transportation costs are reimbursed, encouraging more participation from delivery personnel.

- Secure access is ensured through user authentication and admin verification.

- The web-based platform is easy to use, making food donation and management simple for everyone.

- It increases community involvement by encouraging local donors and volunteers to contribute.

- Delivery statuses can be tracked, improving transparency and accountability.

- Admins can verify users and monitor operations to prevent misuse of the platform.

- The system can be scaled and adapted to other regions for broader impact.

Chapter 2

LITERATURE REVIEW

Food waste management has become a critical focus area globally, prompting several technological solutions aimed at minimizing wastage and redistributing surplus food to the needy. Notable initiatives like Feeding India by Zomato, No Food Waste, and Replate have made significant strides by creating platforms that connect donors with NGOs and other beneficiaries. These systems primarily rely on digital tools and volunteer networks to collect and redistribute excess food. They have proven effective in urban areas but often face challenges in real-time coordination, data tracking, and rural outreach.

Despite their impact, existing platforms tend to lack robust features such as live status updates, automated delivery workflows, and admin-level analytics that can enhance operational efficiency. Most of them function as intermediaries without offering deep integration with delivery systems or localized district-based deployment. In addition, many still depend on semi-manual coordination, which can lead to delays, miscommunication, and in some cases, spoilage of food due to inefficient logistics.

Our proposed system builds upon existing models, such as the (***Food Waste Management Survey)1***, which highlights the inefficiencies in food distribution systems, and (***Git Hub)5***, which focuses on food donation platforms with limited scalability. These models address important aspects of food insecurity but often fall short in regions with large geographical spread, real-time tracking, and automated routing. Our system overcomes these challenges by offering a more localized and scalable solution with features like real-time notifications, user/admin authentication, and optimized delivery routing across five districts in Karnataka. It also provides user-friendly interfaces for donors and receivers and dashboards for administrators to track and generate reports. The source code and updates for this project are available on GitHub, encouraging collaboration and further development. However, the main drawback remains the initial infrastructure investment and the continuous technical support required to maintain real-time accuracy and seamless operations.

Chapter 3

SYSTEM REQUIREMENT SPECIFICATION

3.1 Hardware Requirements:

- Processor: Intel i3 or equivalent

- RAM: Minimum 4 GB (8 GB recommended)

- Hard Disk: At least 500 MB free space

- Display: 1024×768 resolution or higher

- Input Devices: Standard keyboard and mouse

3.2 Software Requirements:

- Operating System: Windows, Linux, or macOS

- Web Server: Apache HTTP Server (via XAMPP)

- Backend Language: PHP (version 7.x or above)

- Database: MySQL (managed via phpMyAdmin)

- Frontend: HTML5, CSS3, JavaScript

- Code Editor: Visual Studio Code

- Browser: Google Chrome, Mozilla Firefox, or Microsoft Edge

- Version Control (Optional): Git

3.3 Functional requirements:

- Users can register, log in securely, and access features by role.

- Users can add, view, update, and delete donation and profile data.

- Forms validate inputs instantly to prevent errors.

- The system allows searching and shows content based on user actions.

3.4 Non – Functional requirements:

- The system shall ensure security and protect against common threats to maintain data integrity.

- The system shall be optimized for fast performance with minimal latency in local networks.

- The system shall be designed for easy maintenance through modular coding practices.

Chapter 4
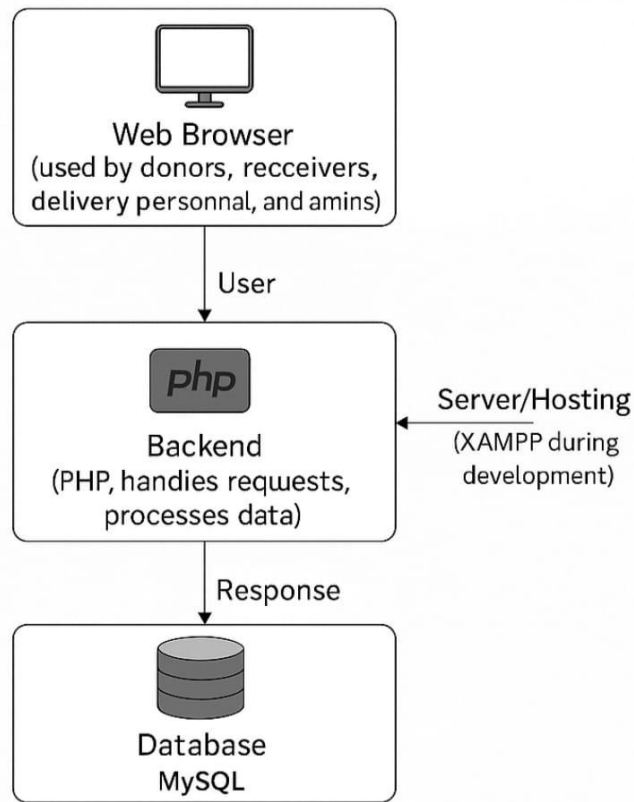# SYSTEM DESIGN

4.1 System Architecture

Fig 4.1 System Architecture

The system's frontend interface is accessed through a web browser, serving as the primary user interface for donors, receivers, delivery personnel, and administrators. The frontend is developed using HTML, CSS, and JavaScript, which together create and style the interactive pages displayed in the browser. On the backend, PHP is used to process user requests, execute application logic, and facilitate communication with the database. MySQL serves as the database management system, storing structured data such as user profiles, donation records, and delivery information. For development purposes, XAMPP is used to simulate a server environment, providing an integrated stack that includes Apache, PHP, and MySQL.

4.2 Entity Relationship Diagram
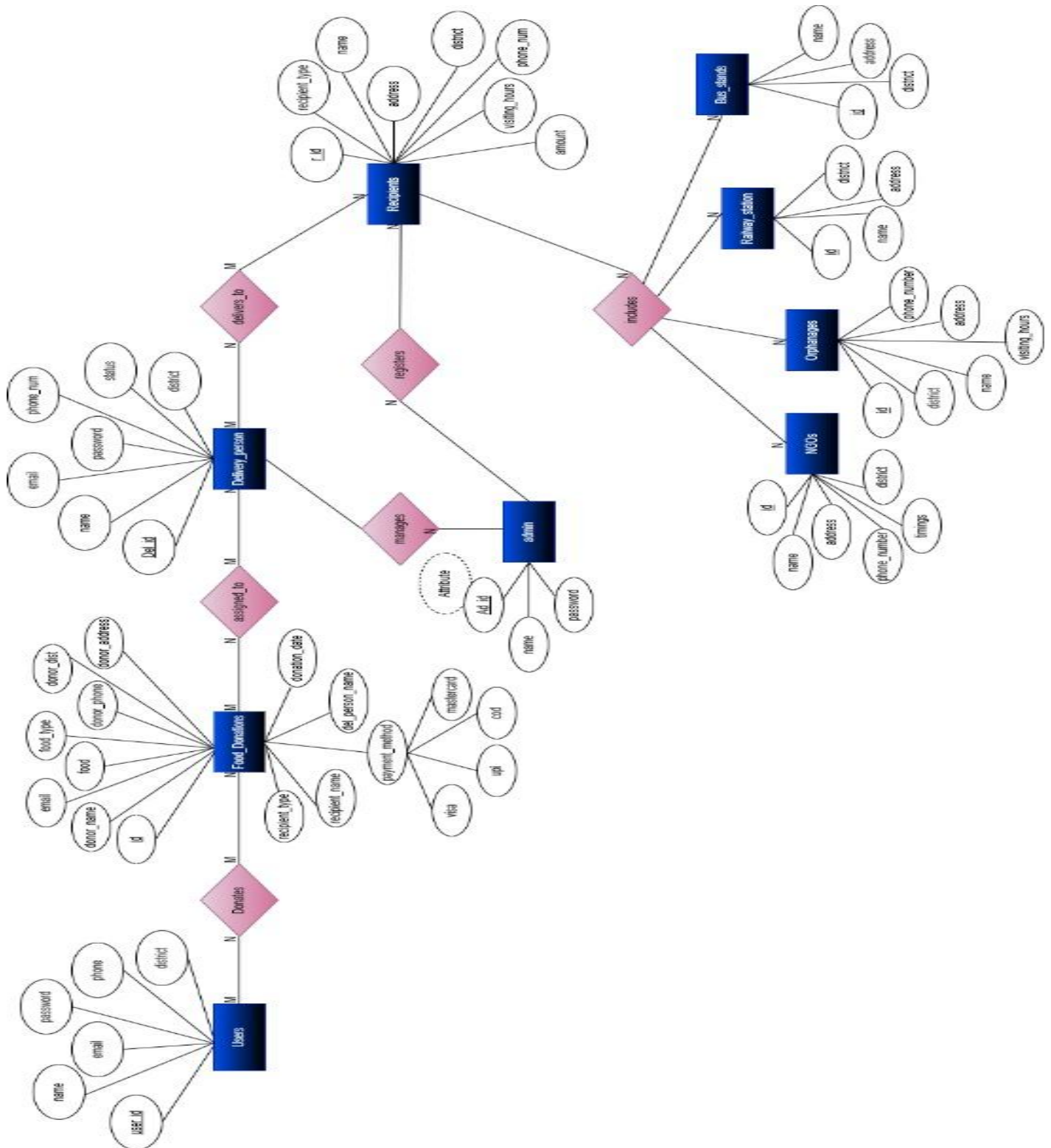
Fig 4.2 ER Diagram of Excess Food Waste Management System

Chapter 5

IMPLEMENTATION

5.1 Welcome page

BEGIN

SET up HTML structure with responsive design and styling

DISPLAY title: "Welcome to Food Connect

DISPLAY central login button:

TEXT: "Login"

ONCLICK: toggle visibility of login options

DEFINE hidden login options:

WHEN "Login" is clicked:

SHOW list of user types:

- Individual

- Community Events

- Hotels/Parties

- NGO

- Delivery (with truck icon)

DISPLAY fixed Admin Panel button:

POSITION: bottom-left of screen

LINK: 'admin/signin.php

DEFINE JavaScript function `showOptions()`:

TOGGLE visibility of the login options container (show/hide)

APPLY responsive styling for smaller devices:

Adjust font sizes, button sizes, and positioning

END

5.2 Login Page

BEGINSTART session
INCLUDE database connection
INITIALIZE message = ""
IF form submitted via POST AND 'login' button clicked THEN
GET 'username_email' and 'password' from POST and trim them

  PREPARE SQL query:

SELECT * FROM users WHERE username = ? OR email = ?

BIND 'username_email' to both placeholders

EXECUTE query

IF exactly one user is found THEN

FETCH user data

IF password entered equals user's stored password THEN

SET session variables:

- user_id

- username

- email

REDIRECT to 'home.php'

ELSE

SET error message: "Invalid credentials! Please try again."

ELSE

SET error message: "Invalid credentials! Please try again."

ENDIF

CLOSE statement if used

DISPLAY login form:

- Input: Username or Email

- Input: Password

- Submit button: Login

END

5.3 Food Donation Form

BEGIN

START session

CONNECT to MySQL database

IF database connection fails THEN

TERMINATE with error IF form is submitted THEN

IF user is NOT logged in THEN

SHOW alert: "Please log in first"

ELSE

RETRIEVE input values:

- Food name, meal type, donor name, phone, district, address

- Recipient (split ID, type, name)

- Delivery person (split ID, name)

CONSTRUCT SQL INSERT query to save donation details

IF query executes successfully THEN

SHOW success alert and REDIRECT to home

ELSE

SHOW error alert

5.4 Render Donation Form

- Food details
- Donor details (pre-filled name from session)
- District selection → triggers JS to fetch:

→ Matching recipients (grouped by type: NGO, Orphanage, etc.)

→ Available delivery personnel

JS fetches data from:

- `get_recipients.php

- `get_delivery_persons.php`

and POPULATES dropdowns dynamically

STYLE form with responsive, clean design

END

5.5 Admin Page

BEGIN

START session

INCLUDE database connection fil

CONNECT to MySQL database

IF POST request contains 'food', 'delivery_person_id', and 'order_id' THEN

ESCAPE all inputs for safety

CHECK if the selected food donation (order) is already assigned

IF already assigned THEN

TERMINATE with message: "Already assigned"

ELSE

UPDATE 'food_donations' table to assign delivery person to the order

IF update fails THEN

    TERMINATE with error message

    ELSE

    REDIRECT to current page (to refresh dashboard)

   END IF

    END IF

5.4 Delivery Person Credentials

BEGIN

START session

IF session does not contain deliveryPersonID, Name, or District THEN

ALERT user to login

REDIRECT to login page

TERMINATE script

SET deliveryPersonName = SESSION['Name']

SET deliveryPersonDistrict = SESSION['District']

INCLUDE database connection   QUERY:

    SELECT donor and donation details

    FROM 'food_donations'

    WHERE donor_district = deliveryPersonDistrict

     AND delivery_person_name = deliveryPersonName

    ORDER BY donation_date DESC

DISPLAY welcome message with delivery person's name and district

IF query returned rows THEN

DISPLAY donation records in a table:

Columns: Donor Name, Phone, Address, Food, Meal Type, Recipient Type, Recipient Name

END

DISPLAY message: "No deliveries assigned in [district]

Chapter 6
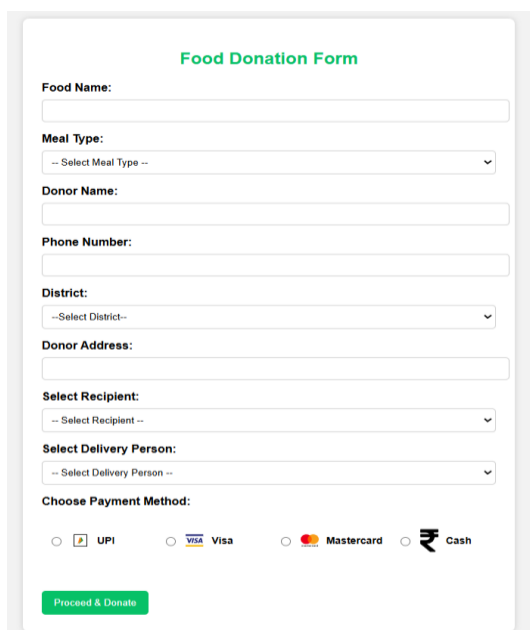
RESULT AND SCREENSHOTS
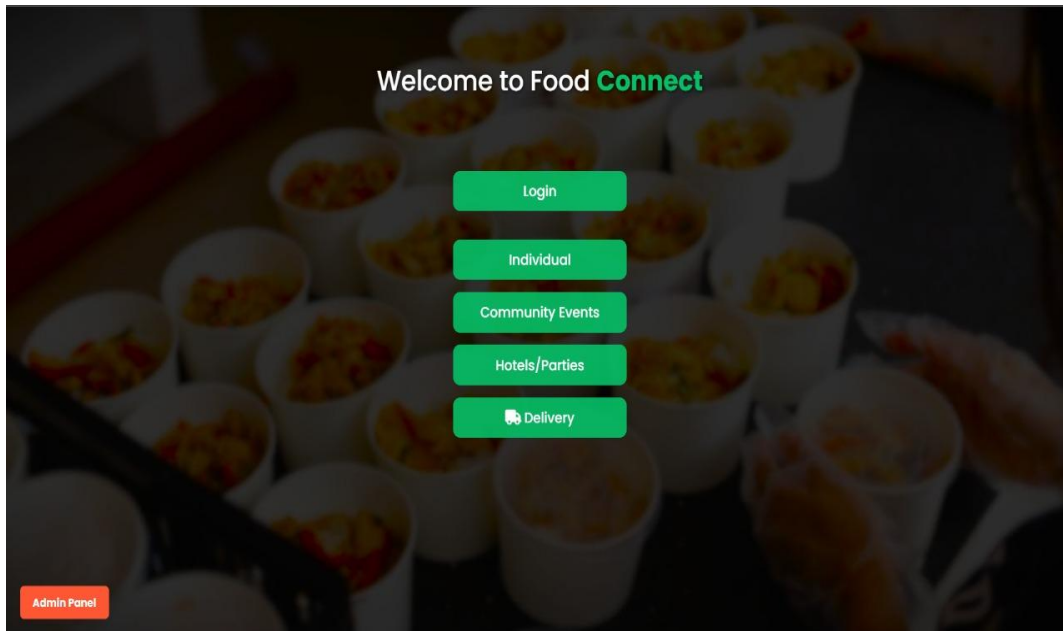
Screenshot 6.1: Login Page
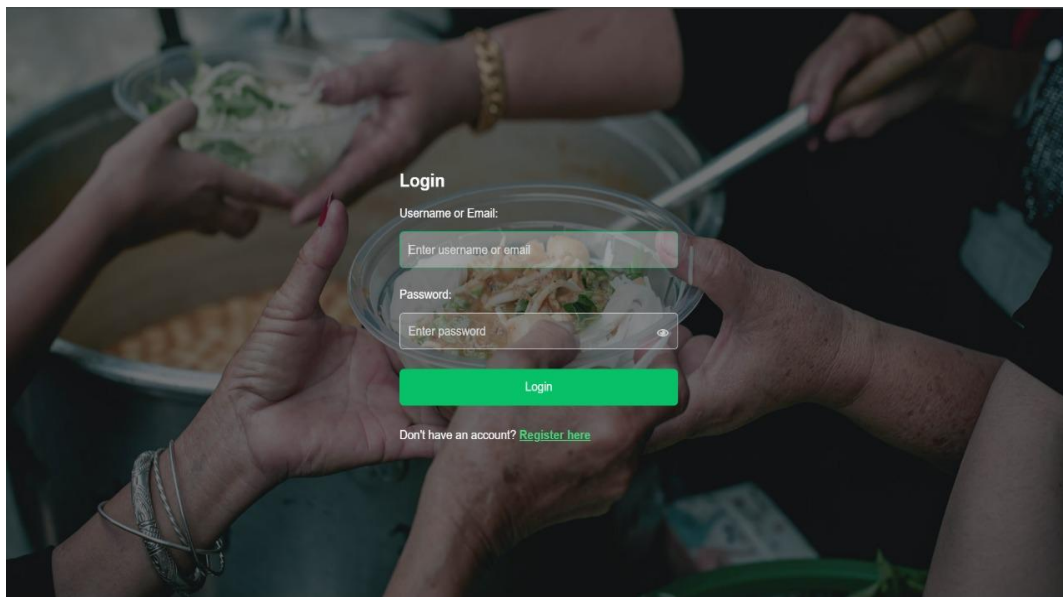
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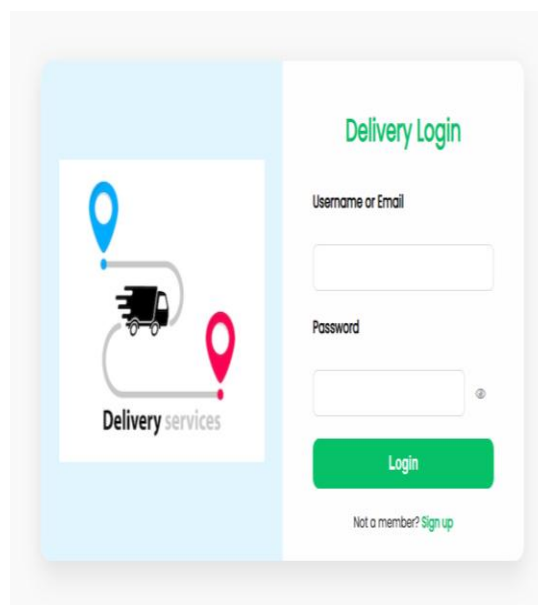
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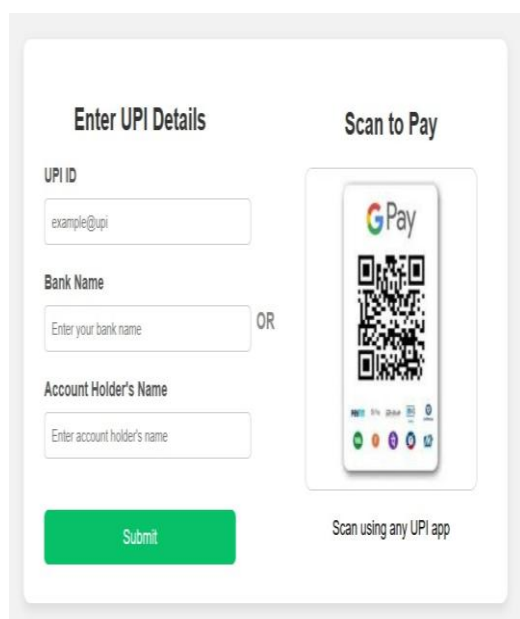
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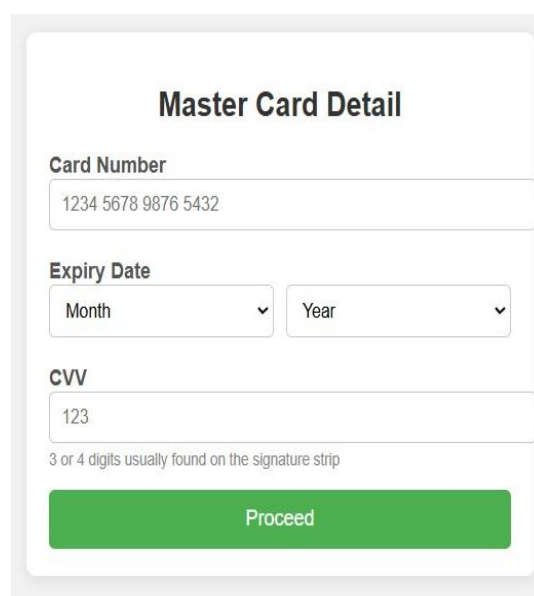
Screenshot 6.5: UPI Payment
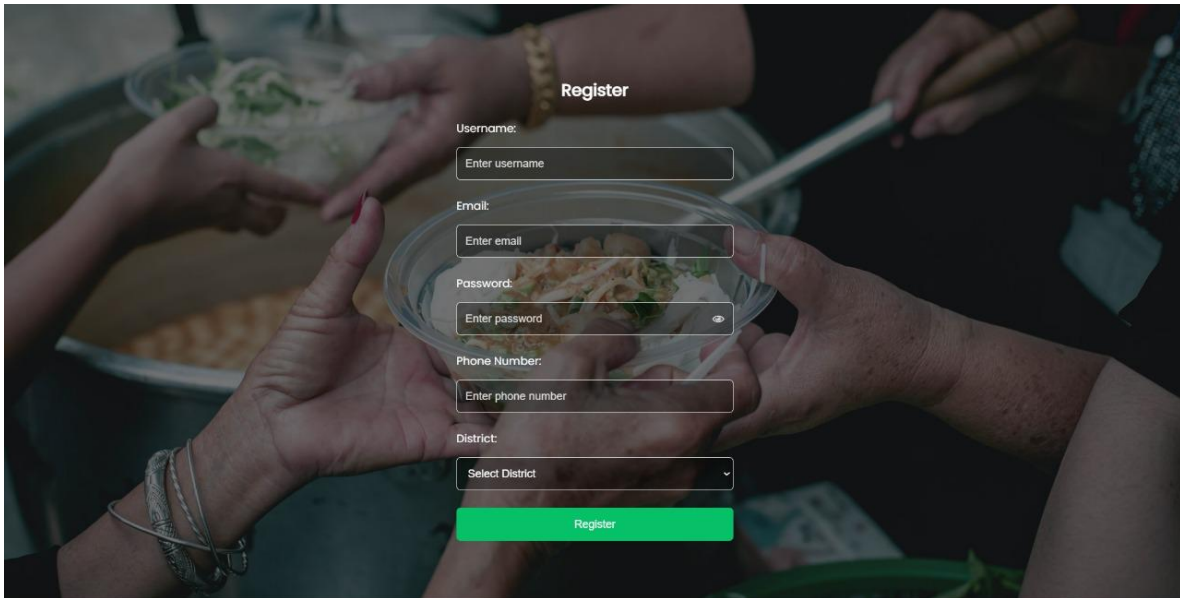
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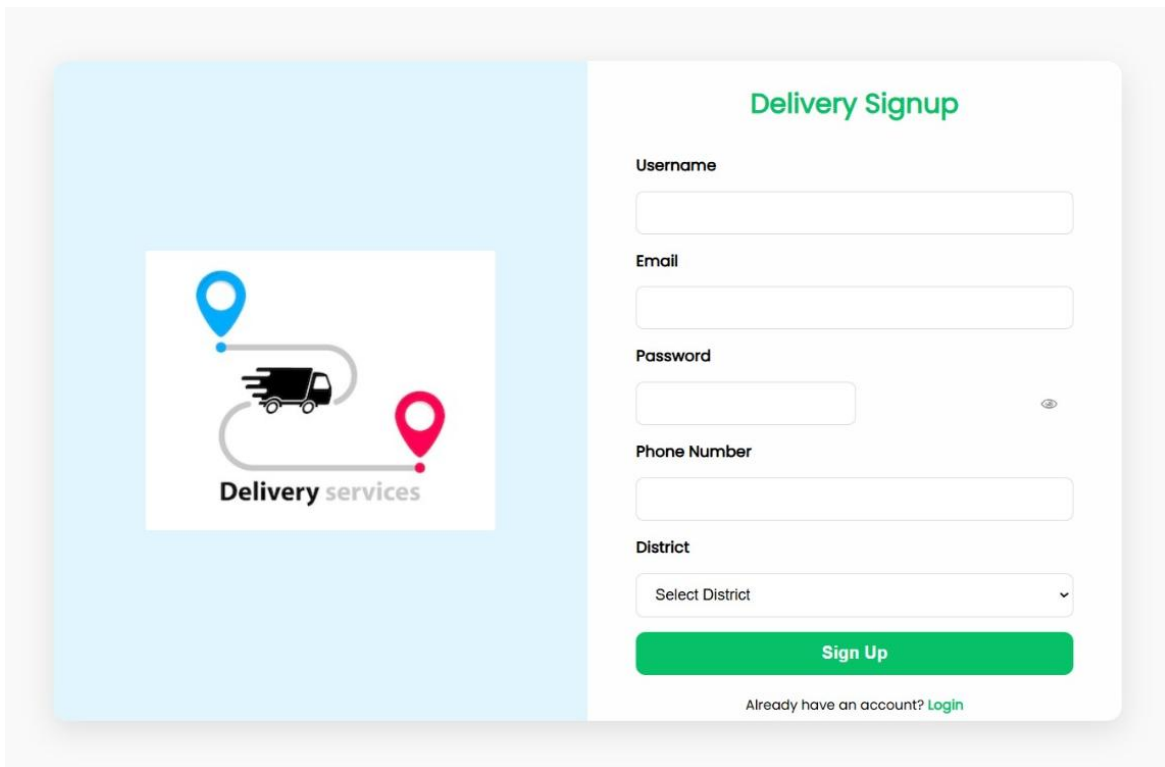
Screenshot 6.7: Donor's Registration

Screenshot 6.8: Delivery Persons Registration

CONCLUSION

The Excess Food Management System offers an innovative solution to the pressing issue of food waste while addressing hunger in local communities. By connecting donors with those in need, the system ensures that surplus food is put to good use. Through streamlined processes, real-time coordination, and fostering a sense of social responsibility, it not only reduces food waste but also supports a sustainable and compassionate approach to food distribution. As the system evolves, its potential for greater impact continues to grow, offering a meaningful solution to a global problem.

As the platform expands and evolves, its potential to create a wider impact grows, positioning it as a key player in the global movement to reduce food waste, tackle hunger, and promote social responsibility. The future of food redistribution is bright, and this system plays a pivotal role in driving change on both local and global scales.

FUTURE ENHANCEMENTS

In the future, the Excess Food Management System could be expanded to include advanced features such as AI-driven food allocation to optimize distribution based on demand patterns. Additionally, integrating real-time data analytics would allow better forecasting of surplus food and more efficient routing for delivery personnel. The system could also extend to more regions, with the potential to collaborate with more organizations globally, enhancing its scope and impact on reducing food waste.

Additionally, the platform could expand its reach to more regions, fostering collaboration with global organizations. By establishing partnerships with both local and international NGOs, businesses, and government agencies, the system could enhance its impact on a global scale. This would not only help reduce food waste but also contribute to addressing hunger in underserved communities worldwide. Such growth would provide a scalable, sustainable solution that can be adapted to different regions and contexts, creating a more resilient global food-sharing network.

The ability to predict food availability and demand could improve logistics, ensuring that food reaches the right places at the right time, reducing food waste and maximizing its use.

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