
FOOD SHARING AND WASTE REDUCTION PLATFORM

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DOI : <https://www.doi.org/10.56726/IRJMETS52726>

ABSTRACT

This paper explores the transformative potential of a food sharing platform in revolutionizing food sustainability efforts. In today's world, where food waste remains a pressing issue, innovative solutions are imperative. The food sharing platform discussed herein serves as a nexus, connecting hotels and individuals committed to mitigating food waste. Through a user-friendly interface, participants can list surplus food items, ranging from leftovers to soon-to-expire products. This facilitates a seamless exchange process wherein users and hotels can search for, negotiate, and finalize deals, akin to navigating a vast online market. Integral to the platform's functionality is its adherence to stringent safety regulations, ensuring that all food transactions meet requisite standards. Furthermore, the platform fosters a sense of community, providing a space for individuals to share recipes, tips, and stories. By harnessing the power of technology, this platform not only reduces food waste but also promotes resource sharing and environmental stewardship. Ultimately, this paper advocates for the widespread adoption of such initiatives as pivotal steps towards a more sustainable future.

Keywords: Food Sharing Platform, Sustainability, Food Waste Reduction, Community Engagement, Technology Integration.

I. INTRODUCTION

Food waste is a significant global challenge with far-reaching economic, social, and environmental implications. According to recent estimates, approximately one-third of all food produced for human consumption is wasted each year, amounting to nearly 1.3 billion tons annually (FAO, 2019). In light of these staggering statistics, innovative solutions are urgently needed to address this issue and promote sustainability in the food system. One such solution is the emergence of food sharing platforms, which leverage technology to connect surplus food producers with consumers in need.

This paper explores the transformative potential of a food sharing platform in revolutionizing food sustainability efforts. Specifically, it examines how such platforms serve as a nexus, facilitating the exchange of surplus food items between hotels and individuals committed to mitigating food waste. By providing a user-friendly interface and adhering to stringent safety regulations, these platforms enable seamless transactions while fostering a sense of community and collaboration among participants. Through a combination of technology integration and community engagement, food sharing platforms have the capacity to significantly reduce food waste and promote environmental stewardship.

The food sharing platform connects hotels and people who care about reducing food waste. When you sign up, hotels can list their extra food, like leftovers or soon-to-expire items. Users can also list any extra food they have. Then, users and hotels can search for what they need and make deals. It's like a big online market where everyone can find what they want. The platform makes sure all the food meets safety rules. After transactions, people can leave feedback to help build trust. There's also a community space where people share recipes and stories. It's all about using technology to help reduce waste and share resources, making everyone happy and helping the planet too.

II. LITREATURE REVIEW

Food waste is a significant global issue with far-reaching environmental, economic, and social consequences. This literature review aims to synthesize recent research on food waste generation, management strategies, and its impact on various sectors.

1. Abbasi and El Hanandeh (2016) utilized artificial intelligence modeling approaches to forecast municipal solid waste generation, providing insights into predictive methods applicable to food waste. Bozkir and Sezer (2011) focused on food demand prediction in food courts, employing decision tree approaches, indicating potential strategies for waste reduction through better inventory management.
2. Schanes et al. (2018) conducted a systematic review of household food waste practices, highlighting the need for targeted interventions at the consumer level. Marangon et al. (2014) examined consumer attitudes and behaviors towards food waste in northeastern Italy, shedding light on socio-cultural factors influencing waste generation.
3. O'Shea et al. (2017) presented a case study on reducing food waste at an institution, emphasizing the importance of operational strategies and behavioral interventions. Okwachi et al. (2018) focused on food waste management in hospitality restaurant operations, outlining mechanisms for minimizing waste and enhancing food security.
4. Depta (2018) discussed the environmental impact of global food waste, underlining the urgency of sustainable waste management practices. Pinstруп-Andersen (2000) addressed the future world food situation and the role of plant diseases, highlighting the interconnectedness of food security and waste reduction efforts.
5. Makkar and Kumar (2020) proposed an efficient deep learning-based scheme for web spam detection, demonstrating the potential application of machine learning in addressing spam and misinformation related to food waste. Additionally, Makkar et al. (2020) introduced a cognitive spam protector for advertisement malicious images, showcasing innovative approaches to combat digital threats in the food industry.

Related Work:

Previous research on food waste reduction and sustainability initiatives has laid the groundwork for understanding the challenges and opportunities in this domain. Several studies have examined the environmental, economic, and social impacts of food waste and explored various strategies for mitigating it. Additionally, research on technology-enabled solutions, such as food sharing platforms, has highlighted their potential to facilitate surplus food redistribution and promote sustainable consumption practices.

For example, studies by Xue et al. (2019) and Spiteri et al. (2020) have investigated the role of technology in reducing food waste through online platforms and mobile applications. These studies have identified factors influencing user engagement, platform usability, and the effectiveness of food redistribution efforts. Furthermore, research by Pinto et al. (2018) and Stø et al. (2021) has explored the social dynamics and community-building aspects of food sharing initiatives, emphasizing the importance of trust, communication, and collaboration among participants. Building on this existing literature, the proposed study aims to contribute new insights into the effectiveness and impact of food sharing platforms in reducing food waste and promoting sustainability. By examining both quantitative usage data and qualitative user perspectives, this research will provide a comprehensive evaluation of the platform's functionality, benefits, and challenges, informing future strategies for enhancing food waste reduction efforts and advancing sustainability goals.

III. METHODOLOGY

To investigate the efficacy of food sharing platforms in addressing food waste and promoting sustainability, this study employs a qualitative research approach. Data collection methods include literature review, case studies, and interviews with stakeholders involved in the development and implementation of food sharing initiatives. The literature review provides a comprehensive overview of existing research on food waste, sustainability, and the role of technology in addressing these issues. Case studies offer insights into real-world examples of food sharing platforms, highlighting their successes, challenges, and impact on food waste reduction.

Additionally, interviews with stakeholders, including representatives from food sharing platforms, hotels, and community organizations, provide firsthand perspectives on the benefits, challenges, and opportunities associated with these initiatives. Through a combination of qualitative data analysis techniques, including thematic analysis and narrative synthesis, this study aims to identify key themes, patterns, and insights related to the transformative potential of food sharing platforms in promoting sustainability. Overall, this mixed-methods approach enables a comprehensive examination of the role of food sharing platforms in addressing food waste and advancing sustainability goals, providing valuable insights for policymakers, practitioners, and researchers alike.

Proposed Methodology:

To assess the effectiveness and potential impact of the food sharing platform in reducing food waste and promoting sustainability, a mixed-methods approach will be employed. This approach will include both quantitative and qualitative research methods to gather comprehensive data and insights. The proposed methodology consists of the following steps:

Data Collection:

Quantitative Data: Quantitative data will be collected through the platform itself, including metrics such as the volume of surplus food listed, number of transactions, types of food exchanged, and geographical distribution of users and hotels. This data will provide quantitative indicators of the platform's usage and impact.

Qualitative Data: Qualitative data will be gathered through interviews with platform users, including representatives from hotels, individuals listing surplus food, and users purchasing food. These interviews will explore perceptions, experiences, challenges, and benefits associated with the platform, providing qualitative insights into its effectiveness and potential areas for improvement.

Data Analysis:

Quantitative data analysis will involve descriptive statistics to summarize the usage patterns and trends observed on the platform. This analysis will provide quantitative evidence of the platform's impact on reducing food waste and promoting sustainable consumption practices.

Qualitative data analysis will employ thematic analysis techniques to identify recurring themes, patterns, and insights from the interviews. By systematically analyzing the qualitative data, this approach will help uncover nuanced perspectives and experiences related to the platform's functionality and effectiveness.

Integration of Findings:

The quantitative and qualitative findings will be integrated to provide a comprehensive understanding of the food sharing platform's impact on reducing food waste and promoting sustainability. By triangulating the data from multiple sources, this integration will enhance the validity and reliability of the study's conclusions.

IV. MODELING AND ANALYSIS

The terms in the system for the food waste control system designed for hotels to manage and share information about surplus food items can be outlined as follows:

User Authentication and Authorization:

Hotels are provided with login credentials to access the platform securely.

User roles and permissions are defined to ensure authorized access to different features and functionalities.

Inventory Management:

Hotels can create and maintain an inventory of surplus food items available for sharing or sale.

The inventory includes details such as item name, quantity, description, expiry date, and price (if applicable).

Listing and Sharing:

Hotels can list surplus food items on the platform, specifying availability and other relevant details.

Listings can be shared with other hotels or users interested in purchasing or acquiring the surplus food items.

Search and Discovery:

Hotels and users can search for available surplus food items based on various criteria, such as item type, quantity, location, and price.

Advanced search filters and sorting options facilitate efficient discovery of relevant listings.

Purchase and Transaction Management:

Hotels and users can initiate purchases directly through the platform for the surplus food items they are interested in acquiring.

Transaction management features enable secure payment processing, order tracking, and communication between buyers and sellers.

Communication and Collaboration:

Built-in messaging or communication tools allow hotels and users to communicate with each other regarding listings, purchases, and logistics.

Collaboration features facilitate coordination and negotiation between parties involved in food transactions.

Feedback and Ratings:

Hotels and users can provide feedback and ratings based on their experience with transactions and interactions on the platform.

Feedback mechanisms help maintain transparency and trust within the community and drive continuous improvement.

Reporting and Analytics:

Comprehensive reporting and analytics tools provide insights into food inventory, transactions, user activity, and trends over time.

Data analytics capabilities support informed decision-making and optimization of food waste reduction strategies.

Compliance and Regulations:

The system ensures compliance with food safety regulations, hygiene standards, and legal requirements governing the sale and distribution of food items.

Compliance checks and documentation management features help mitigate risks and ensure regulatory compliance.

Security and Privacy:

Robust security measures, such as encryption, authentication, and access controls, safeguard sensitive data and transactions.

Privacy policies and data protection mechanisms ensure the confidentiality and integrity of user information and transactions.

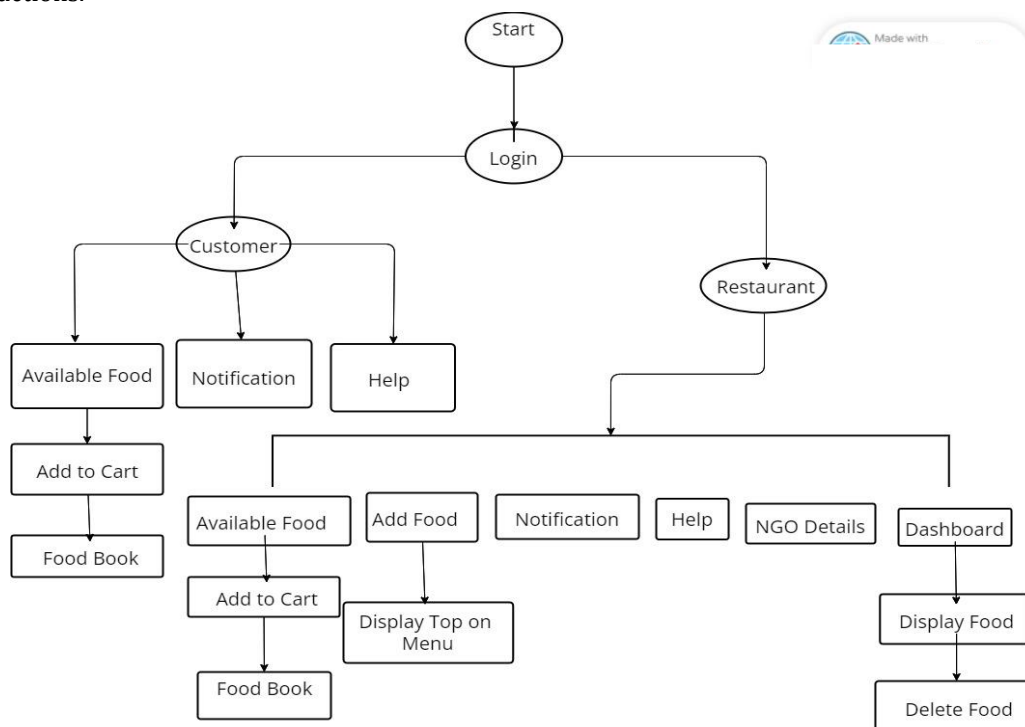


Fig 1: Flowchart of proposed system

V. RESULTS AND DISCUSSION

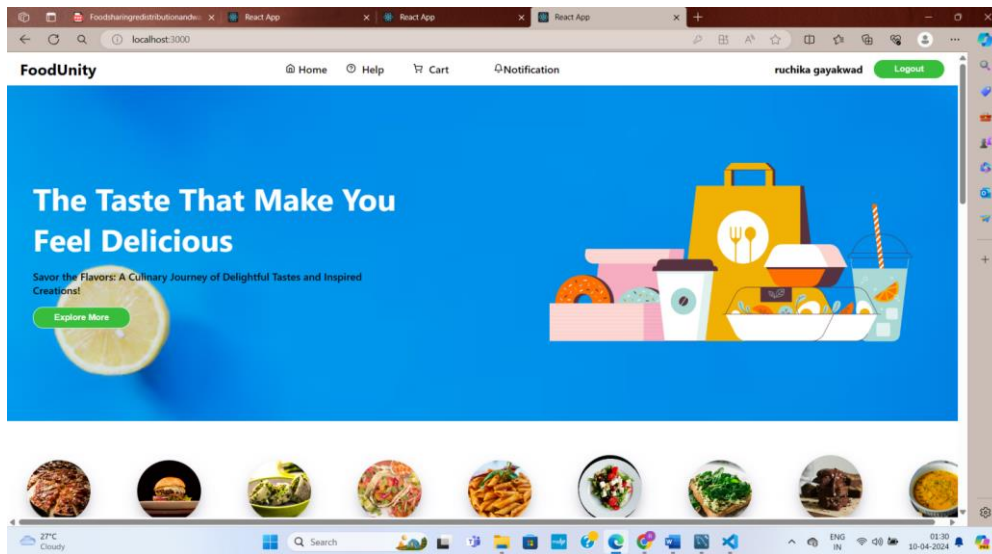


Fig 2: Main Page

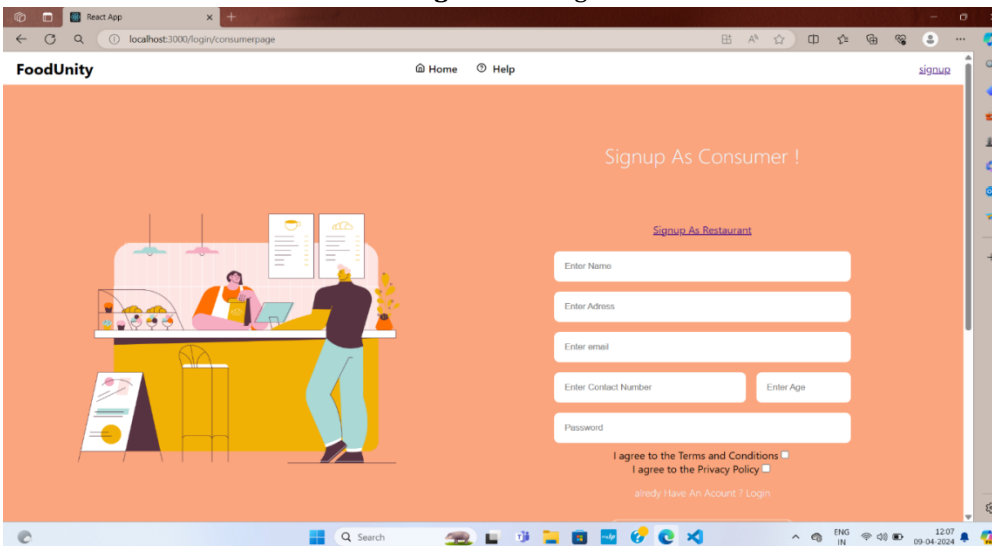


Fig 3: Signup Page for Customers

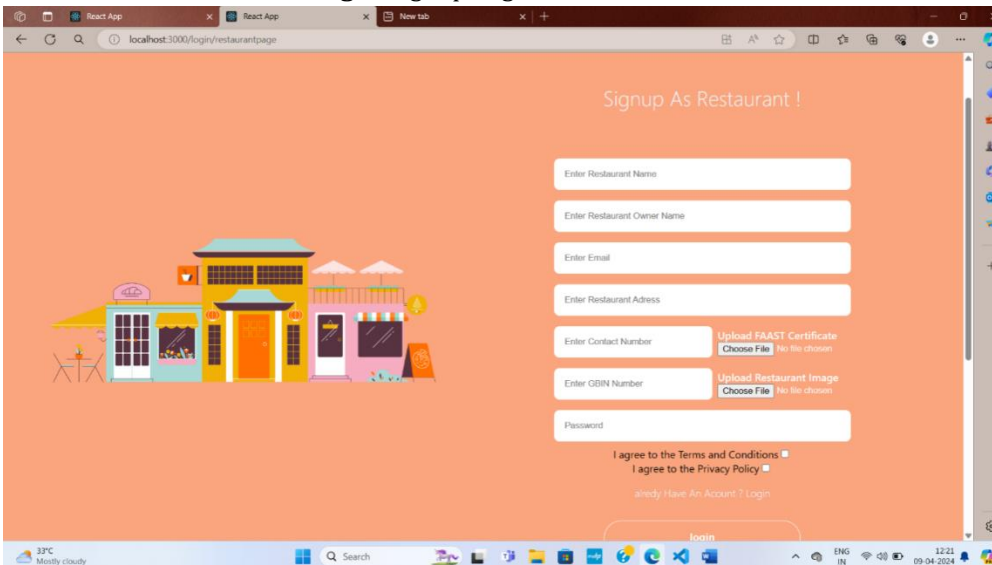


Fig 4: Signup Page for Restaurants

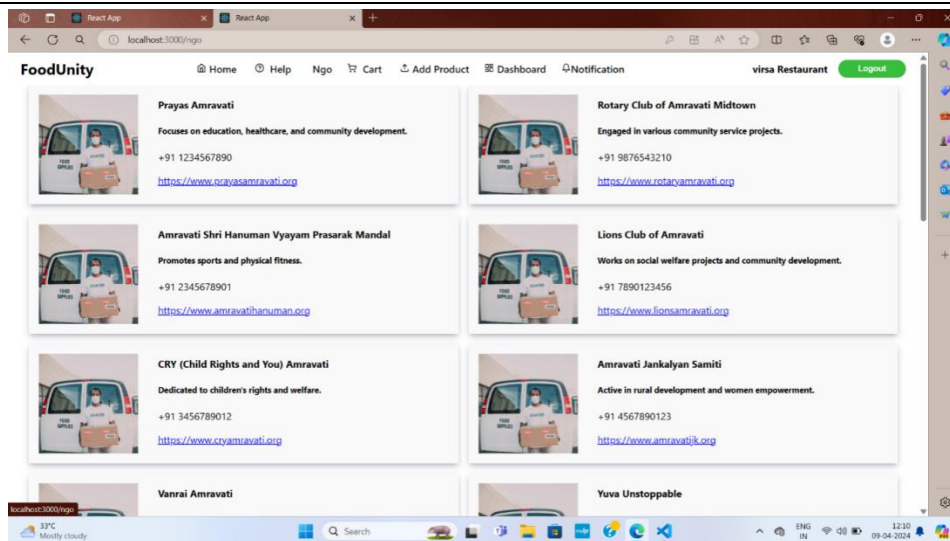


Fig 5: Available Hotels

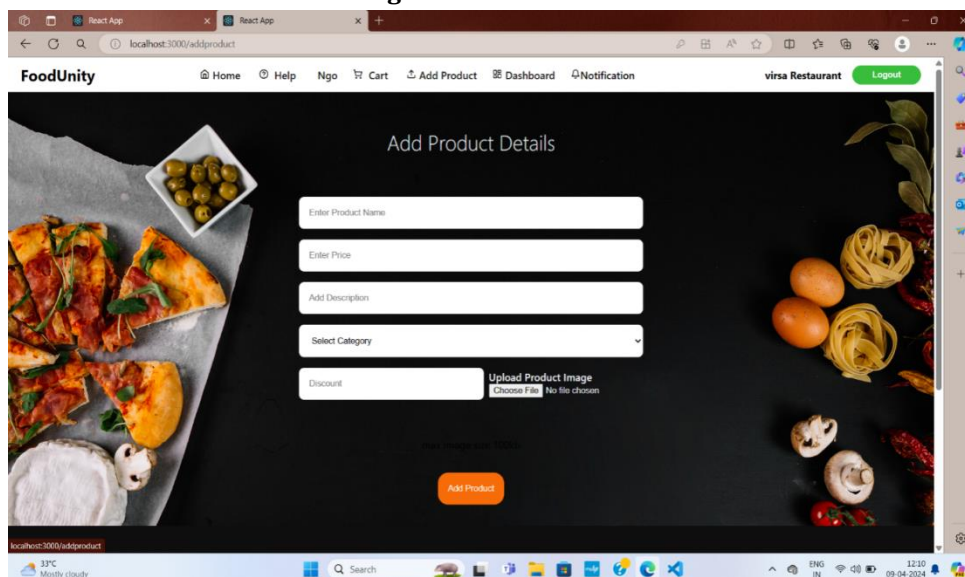


Fig 6: Page to Add Product Details

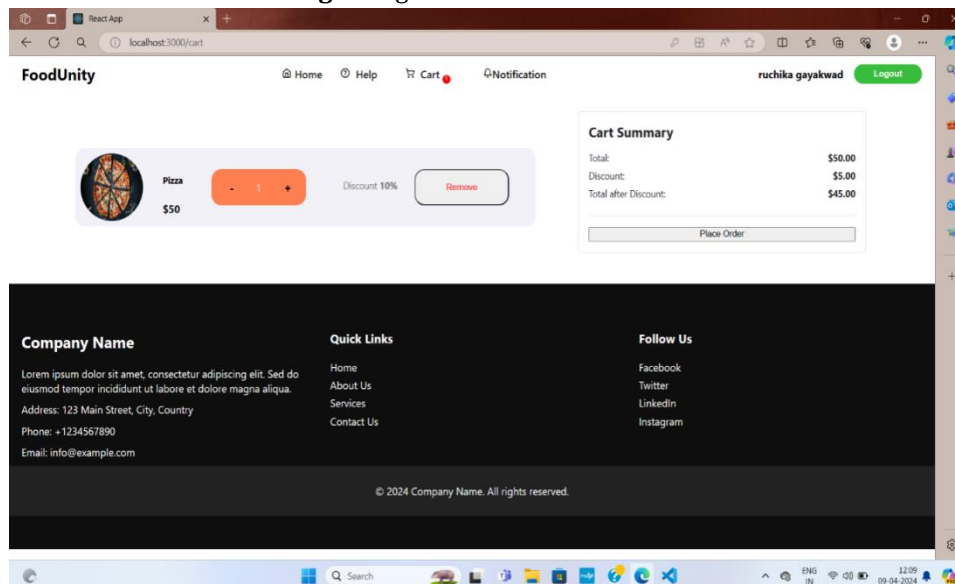


Fig 7: Add To Cart

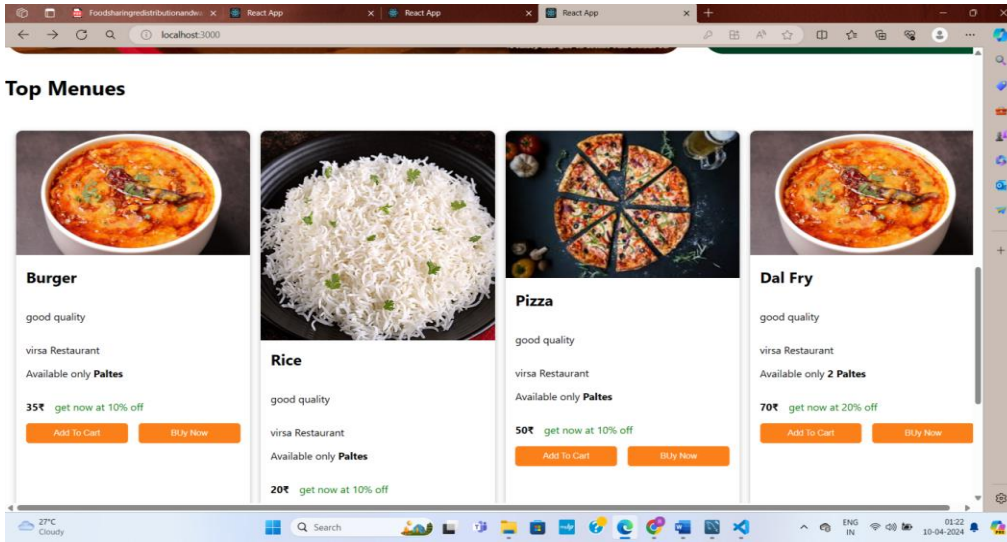


Fig 8: Shows top Available Menus

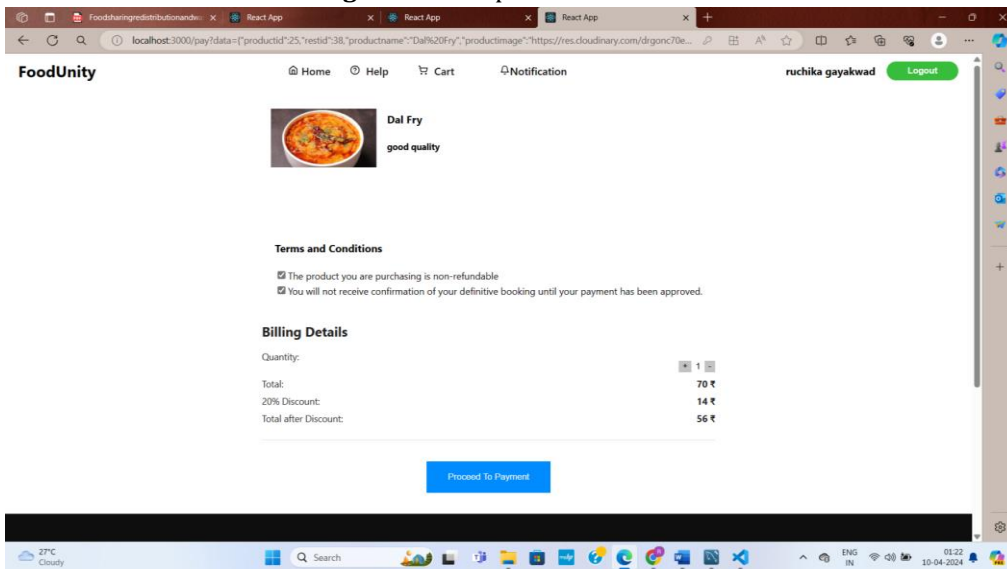


Fig 9: Billing Details

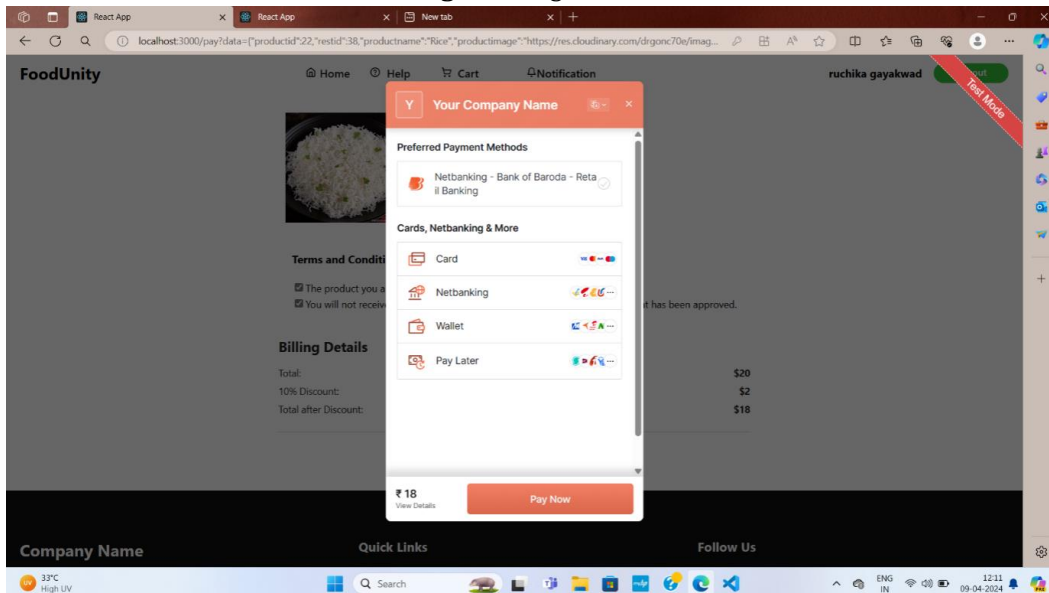


Fig 10: Payment Gateway

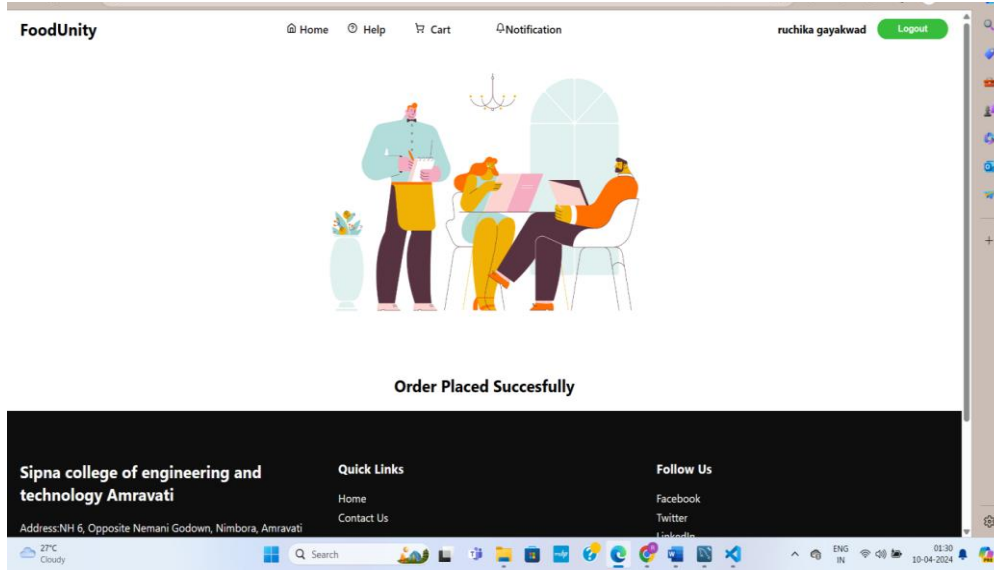


Fig 11: Order Placed Message Display Window

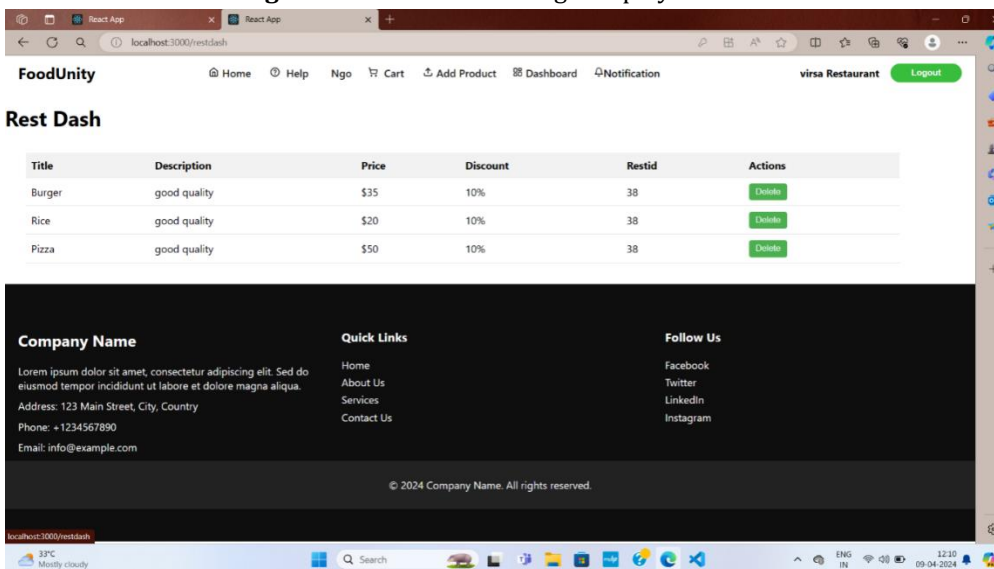


Fig 12: Ordered Items List

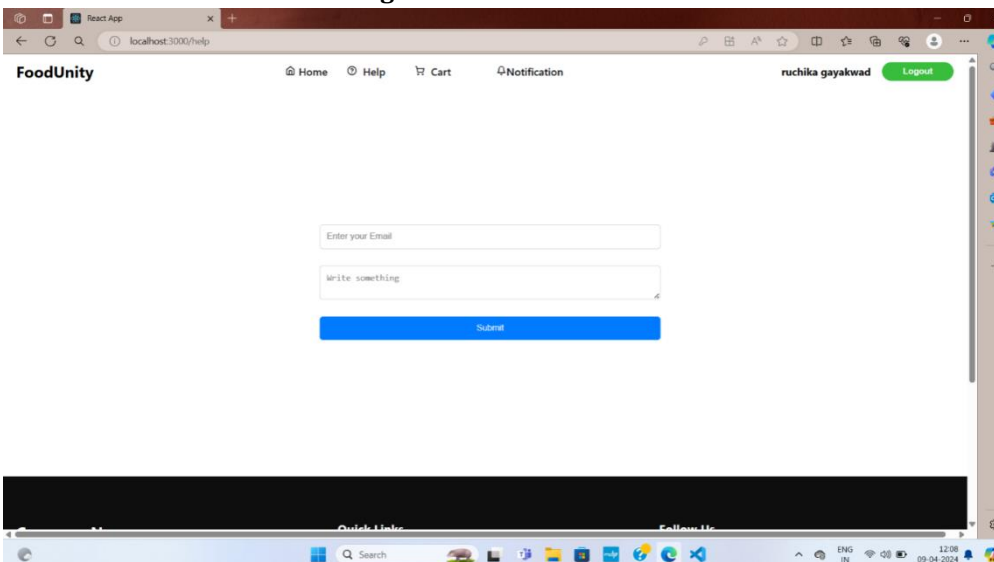


Fig 13: Suggestion Page

VI. CONCLUSION

The food sharing platform operates as a dynamic marketplace where hotels and individuals collaborate to reduce food waste and foster sustainability. Upon registration, hotels can upload details of surplus food items they wish to sell, such as excess inventory, leftovers, or items nearing expiry. Similarly, users can also list any surplus food they possess, contributing to the pool of available resources. Users and hotels alike then engage in a streamlined process of searching for and matching their respective needs and offerings. Hotels can peruse listings to find buyers for their surplus food, whether it be other users or fellow hotels facing shortages of specific items. Negotiations take place regarding pricing, quantity, and delivery arrangements, facilitated by the platform's user-friendly interface. Ensuring adherence to safety regulations, the platform guarantees that all transactions meet stringent food safety standards. Upon completion of transactions, participants can leave feedback, fostering trust and transparency within the community. Additionally, the platform nurtures a sense of camaraderie through its community space, where users can exchange recipes, tips, and stories, fostering a culture of shared learning and collaboration. In essence, the platform harnesses technology to facilitate the efficient redistribution of surplus food, benefiting both sellers and buyers, while simultaneously contributing to the broader goal of reducing food waste and promoting environmental sustainability.

VII. REFERENCES

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