Empowering Communities Sharing Unconsumed/Uneaten Food Through the Web Application

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Abstract-In response to the critical issues of food waste and societal hunger, this project introduces a novel web application with a mission to empower communities by facilitating the sharing of unconsumed and uneaten food. The proposed model establishes a digital platform connecting food donors, including Hotel In-charges, Event Managers, and Function Halls, with beneficiaries such as NGOs, Old-age Managers, and Orphanage authorities, all facilitated by dedicated volunteers.

The user-friendly interface of the web application allows donors to seamlessly list surplus food, specifying details such as type, quantity, and availability. Simultaneously, recipient organizations gain access to these listings, enabling them to select suitable food resources tailored to the specific needs of individuals facing food insecurity. The platform incorporates essential features including food listing, user profiles, and communication details, fostering a transparent and efficient exchange process.

Furthermore, the web application provides continuous tracking support, allowing both donors and beneficiaries to monitor the impact of their contributions. By leveraging technology to streamline surplus food distribution, this initiative aims to reduce waste while fostering collaboration, social responsibility, and community engagement. The project envisions a harmonized ecosystem where diverse stakeholders come together to address societal challenges, illustrating the transformative power of digital platforms in creating positive and sustainable impacts within communities.

1. INTRODUCTION

In the face of the escalating challenges of food waste and scarcity, a transformative solution emerges in the form of a pioneering web application. As the global discourse on sustainable living intensifies, this application stands out as a beacon, strategically positioned to address the twin problems of surplus food going to waste and the persistent issue of food scarcity within communities.

At the heart of this innovative solution is the commitment to leveraging technology for social good, acting as a digital bridge that connects those with surplus food to those facing food insecurity. Timely and relevant, this web application unfolds its potential at a juncture when the concerns of food waste and scarcity have become major focal points of societal attention.

1.1 Aim and Scope: The primary objective of this application is to empower communities by facilitating the seamless sharing of unconsumed and uneaten food resources. By adopting a holistic approach, the web application transcends traditional boundaries, catering to a diverse user base that includes businesses and individuals alike. Its design emphasizes user-friendliness and operational efficiency, ensuring accessibility for all contributors and beneficiaries involved.

1.2 The Digital Connection: Functioning as a digital intermediary, the proposed model draws inspiration from the abstract's vision. It establishes a dynamic platform connecting various food donors, ranging from Hotel In-charges to Event Managers and Function Halls, with essential beneficiaries such as NGOs, Old-age Managers, and Orphanage authorities. At the core of this connectivity are dedicated volunteers who facilitate the smooth exchange of surplus food, aligning it with the needs of those who require it the most.

1.3 User-Centric Design: The user-friendly interface of the web application provides a seamless experience for contributors and beneficiaries alike. Donors can effortlessly list surplus food items, specifying crucial details such as type, quantity, and availability. Simultaneously, recipient organizations navigate these listings, empowered to select food resources tailored to the specific needs of individuals facing food insecurity.

1.4 Efficiency and Transparency: Key features, including comprehensive food listing, user profiles, and robust communication tools, ensure transparency and efficiency in the exchange process. Continuous tracking support enables both donors and beneficiaries to monitor the impact of their contributions in real-time, fostering a sense of accountability and shared responsibility.

1.5 A Vision for Community Empowerment: More than a technological solution, this web application envisions a harmonized ecosystem where diverse stakeholders collaboratively address societal challenges. Beyond mitigating food waste and scarcity, the project aspires to illustrate the transformative power of digital platforms, creating positive and sustainable impacts within communities. As we embark on this journey, the web application stands as a testament to the potential of technology to nurture collaboration, social responsibility, and community engagement.

2. EXISTING SYSTEM

In the current landscape, numerous platforms have emerged as intermediaries between food donors and organizations dedicated to redistributing excess food to communities in need. This existing system recognizes the pressing issues of food waste and scarcity, establishing digital connections that echo the essence of the proposed web application.

2.1 Diverse Stakeholders: These platforms employ location-based search functionalities, allowing donors to connect with nearby organizations and optimize the distribution process based on geographical proximity.

2.2 Connectivity Features:

- Location-based Searches: These platforms employ location-based search functionalities, allowing donors to connect with nearby organizations and optimize the distribution process based on geographical proximity.
- Real-time Notifications: Real-time notifications keep all involved parties informed, ensuring timely responses to food availability, minimizing waste, and maximizing the impact of donations.

2.3 Operational Efficiency:

- Scheduling Pickups: A key feature involves scheduling pickups, streamlining logistics for both donors and recipient organizations. This ensures a systematic and organized approach to food redistribution.

2.4 Comprehensive Food Listings: Borrowing from the user-friendly interface mentioned in the proposed model, existing systems often incorporate detailed food listings. Donors can efficiently list surplus food, providing essential details such as type, quantity, and availability.

2.5 Addressing Specific Needs: Building upon the abstract's emphasis on tailoring food resources to specific needs, these platforms strive to match the characteristics of surplus food items with the requirements of organizations and communities facing food insecurity.

2.6 Continuous Tracking: While not always as comprehensive as the proposed continuous tracking support, existing systems recognize the importance of tracking the impact of contributions. This may involve providing feedback or acknowledgment mechanisms for donors and beneficiaries.

2.7 Community Engagement: The existing systems contribute to community engagement by creating a digital space where individuals, businesses, and organizations can collectively address challenges related to food waste and scarcity.

2.8 Tech-Driven Collaborations: In alignment with the vision outlined in the abstract, these platforms illustrate the transformative power of technology to foster collaboration, social responsibility, and community engagement.

2.9 Challenges in the Existing System: Despite the positive impact of existing platforms, challenges persist. These may include the need for enhanced user-friendliness, more sophisticated tracking mechanisms, and increased awareness to encourage widespread participation.

3. PROBLEM IDENTIFIED AND PROPOSED SYSTEM

3.1 Imbalance in Donor-Volunteer Ratio:

Problem: Donor participation often outweighs the availability of volunteers, creating potential inefficiencies in the distribution process.

Proposed System: Introduce a system of incentives or rewards for active volunteer participation, encouraging a more balanced and engaged community. Recognition and rewards could include

badges, certificates, or public acknowledgment for consistent and significant contributions.

3.2 Trust and Safety Concerns:

Problem: The existing system may face challenges related to trust and safety, particularly regarding the secure exchange of food resources and personal information.

Proposed System:

- Implement a robust verification system for both food donors and recipients to build trust within the community. This could involve background checks, validation of organizational credentials, or other verification processes.
- Address data security concerns by incorporating encryption methods and secure storage practices. Prioritize user privacy and confidentiality, ensuring that sensitive information is protected from unauthorized access.

3.3 Lack of Volunteer Participation:

Problem: A potential lack of volunteer engagement may hinder the efficiency of the system, impacting the timely pickup and distribution of surplus food.

Proposed System:

- Develop a user-friendly interface that simplifies the volunteering process. Implement features such as easy sign-ups, intuitive task scheduling, and clear communication channels to encourage more individuals to participate actively.
- Integrate a notification system that alerts potential volunteers about new donation listings or urgent requests, fostering a responsive and dynamic community.

3.4 Inefficient Tracking Mechanisms:

Problem: Existing systems may lack comprehensive mechanisms for tracking the impact of contributions, making it challenging for donors and volunteers to monitor their collective efforts.

Proposed System: Implement an advanced tracking system that provides real-time analytics and reporting. This includes features to monitor the amount of food redistributed, the number of meals provided, and the overall impact on reducing food waste and addressing food insecurity.

3.5 Lack of Encouragement for Active Participation:

Problem: While donors may actively participate, there may be a need for increased engagement and encouragement for consistent contributions.

Proposed System: Introduce a gamification element within the platform, where users can earn points, badges, or other incentives for regular and impactful participation. This gamified approach fosters a sense of competition and community-building

3.6 Limited Awareness:

Problem: Lack of awareness may limit the reach and impact of the system, preventing its full potential in addressing food waste and scarcity.

Proposed System: Implement a comprehensive awareness campaign to educate potential donors, volunteers, and recipients about the benefits and functionalities of the web application. Utilize social media, community events, and partnerships to broaden the user base and increase participation.

4.REQUIREMENTS SPECIFICATIONS

4.1 Software Requirements:

- Operating System: Windows 10
- Platform/IDE: Visual Studio Code
- Frontend: html, css, javascript
- Backend: mySql, nodejs
- GPS Navigation for Location

4.2 Hardware Requirements:

- Processor: INTEL core i5
- RAM: 8 GB
- Speed: 2.1 GHz
- Hard Disk: 512 GB SSD

5. LITERATURE SURVEY

A literature survey, also known as a literature review, is a critical analysis of existing research and scholarly articles related to a specific topic. In the context of "Empowering Communities through a Food Redistribution Web Application," the literature survey aims to provide a comprehensive understanding of the current state of knowledge, identify gaps in research, and inform the development of the proposed system. Here is the information that we gained from the base papers for the literature survey of this project are…

[1]"A Game Theoretic Framework for Surplus Food Distribution in Smart Cities and Beyond" (2021)

Authors: Surja Sanyal, Vikash Kumar Singh, Fatos Xhafa, Banhi Sanyal and Sajal Mukhopadhyay

Source: www.mdpi.com/journal/applsci

[2]"Food sharing, redistribution, and waste reduction via mobile applications: A social network analysis" (2019)
Authors: John Harvey, Andrew Smith, James Goulding, Ines Branco Illodo
Source: www.elsevier.com/locate/indmarmann
[3]"Smart Resource Management: Civic Engagement and Food Recovery" (2019)
Authors: Irini Spyridakis, Madison Holbrook, Brent Gruenke, Srinithi Sellakumaran Latha
Source: 5th IEEE International Smart Cities Conference (ISC2 2019)
[4]"Understanding Food Sharing Models to Tackle Sustainability Challenges"
(2017)
Authors: Laura Michelinia, Ludovica Principatob , Gennaro Iasevolia
Source: www.elsevier.com/locate/ecolecon
[5]"The evolution of food donation with respect to waste prevention" (2012)
Authors: Felicitas Schneider
Source: www.elsevier.com/locate/wasman
[6]"Food Sharing Platforms: Emerging Evidence from Italian and German Users" (2022)
Authors: Alessia Pisoni, Chiara Canavesi, Laura Michelini
Source: www.sciencedirect.com
[7]"Food-Sharing Models" (2018)
Authors: Adrian V. Jaeggi, Michael Gurven
Source: The International Encyclopedia of Anthropology
[8]"Uncovering the impact of food sharing platform business models: a theory of change approach" (2020)
Authors: Laura Michelini, Cecilia Grieco, Francesca Ciulli, Alessio Di Leo
Source: British Food Journal

7. FUTURE ENHANCEMENTS

In future, we are developing an android app which will help NGO to track every volunteer who is serving / delivering the food to consumers. It will also display, about how much time volunteer is serving to organization and according to the data, volunteer will get rewarded.

For future we can advance our system that will provide shortest delivery paths to volunteers using GPS so that they can fulfill each and every request of consumer in short amount of time. We will provide NGO, more detailed analysis report for better improvement in system.

8. CONCLUSION

Thus, this platform helps us to resolve the various problems of respective fields with the help of group members. Anyone may create a group, but the admin retains full control over the group content, along with administrative abilities such as endorsing good answers and viewing more detailed statistics on group activity.

In this system, user also can add the event within the field, so that group members are notified about that event. This platform can also be useful for advertising purpose.

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[1] Karnesh S, Pudota Rama Krishna, Jothi Sankar S, Aadil Ahmed Irshath and Anand Prem Rajan - "Review On Facilitation Of Surplus Food Redistribution Using Mobile Applications" - IJRAR May 2023, Volume 10, Issue 2. www.ijrar.o.rg (E-ISSN 2348-1269, P- ISSN 2349-5138)

[2] Surja Sanyal, Vikash Kumar Singh, Fatos Xhafa, Banhi Sanyal and Sajal Mukhopadhyay - "A Game Theoretic Framework for Surplus Food Distribution in Smart Cities and Beyond " - Application Science 2021, 11, 5058. https://doi.org/10.3390/app11115058 https://www.mdpi.com/journal/applic

[3] John Harveya, Andrew Smitha, James Gouldinga, Ines BrancoIllodo, "Food sharing, redistribution, and waste reduction via mobile applications : A social network analysis" - journal homepage: www.elsevier.com/locate/indmarman

[4] Irini Spyridakis, Madison Holbrook, Brent Gruenke, Srinithi Sellakumaran Latha – "Smart Resource Management: Civic Engagement and Food Recovery" - 5th IEEE International Smart Cities Conference (ISC2 2019)

[5] Laura Michelinia, Ludovica Principatob, Gennaro Iasevolia - "Understanding Food Sharing Models to Tackle Sustainability Challenges" 2017 - www.elsevier.com/locate/ecolecon

[6] Felicitas Schneider - "The evolution of food donation with respect to waste prevention" (2012) - www.elsevier.com/locate/wasman

[7] Alessia Pisoni, Chiara Canavesi, Laura Michelini - “Food Sharing Platforms: Emerging Evidence from Italian and German Users” (2022) - www.sciencedirect.com
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