BiteCycle: A study on food waste management websites in diminishing food scarcity

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ABSTRACT- Food scarcity is defined as the lack of access to food. In today's world, it is a global issue that needs strict actions to overcome, however, the government has been carefree in this regard. The food supply is being hampered due to multiple factors like degradation due to industrial pollution, drought, and even technologies made by humans. This study serves as an outset on a website – BiteCycle, focusing on how to narrow food wastage and contribute enough food for the needy. Through this invention, the problem of food scarcity can be overcome by making donations to the poor from the donors and through rigorous tracking and updating. Findings indicate that more than 60 % of urban cities can not avail food while the statistics run over 70% for rural areas. These findings call for the development of this website as a conqueror of these issues.

Keywords - food waste management, diminishing food scarcity.

I. INTRODUCTION

The global challenges the world today faces are food scarcity and food insecurity. They are similar concepts but have different meanings. Food scarcity refers to a situation where there is inadequate food supply within a particular region. This happens when there is a natural disaster, economic crisis, and many more reasons. Food scarcity results in hunger, malnutrition, and other unfavorable consequences for the population. Food insecurity is a broad concept. It not only means a lack of access to food but also a lack of access to nutritious and safe food that is needed to meet the dietary requirements. This stems from factors like poverty, unemployment, social inequality, etc. it is seen in different forms such as chronic hunger, obesity, unequal distribution of resources etc. This considers both individual and household–level experiences. The complexity and inefficiency of the food waste management app business today frequently discourage people who would otherwise be willing to donate to charity causes. [1] Even though government websites exist providing legal guidelines and information on food donation options, their usefulness, and accessibility are limited by technological issues and poor user interfaces. Users who try to use these materials frequently become frustrated and distracted due to this technological failure. Recognizing these challenges underscores the drive behind developing our intuitive platform, "BiteCycle." BiteCycle serves as a straightforward and effective food donation platform, providing users with swift access to pertinent information while minimizing time investment. Emphasizing efficiency and simplicity, BiteCycle fosters ongoing user engagement, empowering individuals to make impactful contributions in combating food waste. India is home to a significant portion of the world's hungry population. The Global Hunger Index (GHI) 2021 ranks India 101st out of 116 countries, indicating a serious level of hunger. According to the FAO's State of Food Security and Nutrition in the World 2021 report, an estimated 189.2 million people in India were undernourished in the period from 2019 to 2021 [2]. Even though India is among the largest producers of grains, fruits, and vegetables, such challenges persist. This paper contributes to the debate on food loss and food waste in India by amalgamating existing literature, analyzing verifiable data, and offering insights into the challenges and opportunities for addressing this critical issue. Through a multisectoral lens, we aim to inform policy and practice and prompt collective action toward constructing irrepressible and equitable food systems in India. This paper consists of five parts. In this part, we introduce our research idea about the product and goal and provide grounds for it. Abstraction is an eagle's point of view in this research paper. Part three talks about the research with similar concepts, and a comparison between BiteCycle & the others. Part four explains our methodology and conclusion.

II. LITERATURE REVIEW

In the era of abundance that we live in today, preventing food waste has gained global attention. Food Dosti and No Food Waste are two innovative applications that are leading forces in this issue. In the battle against the incredible amounts of food that are thrown away every day, these platforms serve as lights of hope. By creating routes for redistribution, Food Dosti hopes to close the gap between excess food and hunger with its unique strategy. By using technology to link food givers with nonprofit organizations and those in need, it promotes a neighbourhood-based initiative to reduce waste

 DOI : 10.35291/2454-9150.2024.0108

and end hunger. In the same way, No Food Waste becomes a powerful force, promoting a long-term strategy for managing excess food. It coordinates the effective gathering and sharing of information through its user-friendly interface and strategic relationships. The world anticipated by both applications is one where every meal is valued rather than wasted and every hungry stomach is filled. Their combined efforts represent a step toward a future where technology serves not only convenience but also for the greater good of humanity, one that is more ethical and sustainable.

Food Dosti is a mobile-based application that was created by SamvadSocial Technologies in Pune. Sanjeev Neve who is the founder of SamvadSocial Technologies has innovated this application in focusing on reducing food wastage [3]. The user-friendly and simplified way of connecting customers to different nearby restaurants is a concept empowered by this application. How do they execute their plan of no food waste? The app provides or encourages users by rewarding them with points for every clean plate used by the user, it also provides interactive ideas and motivates customers who are eager to gain knowledge on food wastage. These points gathered can be later on redeemed and can provide discounts on restaurants linked with the app.

No Food Waste is a website-based application that focuses on crowd-sourcing data on hunger spots in India to provide and facilitate surplus food donations. It has identified 80 locations in Delhi and the capital region, allowing users to mark hunger spots, which the team verifies and enters into their database. "No Food Waste" is a revolutionary movement based in Coimbatore, India, with the primary goal of reducing hunger and food waste. In October 2014, the charity modestly started with just two shopping bags and one committed volunteer and set out to provide surplus food from weddings, parties, and other events to those in need. Their willingness to use public transportation to deliver food demonstrates their inventiveness and commitment to reducing waste. Since then, "No Food Waste" has grown to become a ray of hope for the neighbourhood, with a solemn pledge made on that day to eradicate food waste and reduce hunger. Beyond simple redistribution, their goal is to establish a world devoid of hunger in which all people have access to food. Their goal is to create social advantages that help people from all social classes by filling the gap between those who have excess food and others who don't have the resources to obtain it. "No Food Waste" is a prime example of how grassroots efforts may effect significant change and create a society that is more just and caring.

Two excellent apps that work to reduce food waste and give excess food to those in need are Food Dosti and No Food Waste. They all have a unique set of disadvantages, though. Despite its creative approach, Food Dosti might not be as well-liked by users as it could be. Widespread involvement from food donors, NGOs, and those in need is crucial to its success. Inaction on the part of these parties could jeopardize the platform's ability to redistribute food efficiently. Its effectiveness may however be hampered by logistical issues like scheduling on-time pickups and deliveries, particularly in places with poor transportation infrastructure. Food Dosti is also limited to a single region as of now which is Pune.

However, No Food Waste might have problems growing because of its grassroots roots and emphasis on using public transit to deliver food. Its strategy is admirable for being economical and environmentally sustainable, but depending only on volunteers and public transit can restrict its impact, particularly in crowded cities where there is a significant need for food aid. Furthermore, given the absence of adequate infrastructure and resources, guaranteeing food safety during storage and transit may prove difficult.

All things considered, both programs are beneficial in their attempts to combat poverty and food waste, but to have the greatest possible influence and efficacy in their particular communities, they must overcome these challenges. In the battle against hunger, cooperative efforts to address these issues could result in more effective and long-lasting solutions.

III. METHODOLOGY

SOURCE OF FOOD

As mentioned before BiteCycle is developed to prioritise efficiency and simplicity. Our app is also designed to strategically gather excess fresh food from homes, restaurants, and events to reduce food scarcity in areas that are already struggling, like refugee camps, areas affected by natural disasters, and areas with severe food shortages. To close significant cracks in food distribution networks and direct these resources toward the most vulnerable, we are concentrating on the effective aggregation of neglected but perfectly viable food supplies. Through our website, we enable the quick and comprehensive gathering of excess food while its rapid transportation to marginalized areas, thereby cultivating resilience and sustainability in food distribution strategies and meeting essential humanitarian requirements.

TRANSPORTATION AND DELIVERY

As stated previously, our application enables timely transportation services to underprivileged areas. To put it another way, our website uses modern facilities and geolocation technology to identify places that are facing a shortage of food in real time. By utilizing this capacity, we effectively assign a specific delivery partner who is responsible for safely delivering large quantities of food to designated locations. Once transportation arrangements are confirmed, autonomous email notifications are sent to the chosen point of contact in charge of handling food pickup. Important information like the delivery partner's name and the approximate time of arrival are included in these alerts. Furthermore, this data is safely stored on our website for reference and record-keeping needs, guaranteeing

 DOI : 10.35291/2454-9150.2024.0108

accountability and traceability throughout the delivery process.

ORDERING SYSTEM

Our application follows a friendly and simple design which allows the users to thoroughly understand the idea behind our application. When a user registers themselves into our website there are many ways to order products and save them into our cart system. The first way is by going through the menu page and adding products based on the user's choice of quantity. The menu page is located on the home page itself so that it is faster and easier for the user to interact with. Inside the menu page, there is pieces of information about each product along with their description and pricing, we also provide a discount feature to attract users to buy those products. Once the user is ready to add certain products they can simply hit the "plus" button and the item is directly added to the cart. The other way of adding items to the cart is by scrolling down the home page where there are a few products already featured each of them has an add button therefore if you add these items they get directly stored in the cart. Moving onto our cart system, as mentioned before the cart system has the purpose of storing, adding, and removing items. Therefore, inside the cart, we can add more products along with their quantity and we can remove products that may be unnecessary based on the user's choice. All this comes under the "Summary" page of the cart system. Moving forward, the next page is the payment page, here we provide two modes of payment. The first is the cash on the deli every payment mode and the other is the card payment. The card payment supports any type of card as long as the card is not expired. The user is required to enter the card details which include the card number, name on the card, etc. The cash-on-delivery payment mode as the name suggests is the old-fashioned way of buying products this is where the delivery person who is responsible for transporting the food is required to collect cash from the receiver after the time of arrival and food is delivered. Finally, the cart system has a delivery page this is where the final status of the order is shown. It is where the user can view the name of the delivery person, the estimated time of arrival of the food, and the live location of the destination. Along with these features, one of the unique features is the email notification where an email is sent to the user that states the confirmation of the delivery and estimated time of arrival. This is how our application brings about the changes and simplicity of donating food to places that are in need.

IV. CONCLUSION

Food waste has a tremendous impact on this world. The negative impact on the environment can be decreased if the amount of food waste can be reduced. It is not possible to fully eradicate food wastage but through new procedures and innovative ideas, we can reduce the same. Food waste management should be an integral part of human life. The BiteCycle project has successfully developed a user-friendly and accessible food donation website that enables the needy to easily avail food anywhere and anytime.

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 DOI : 10.35291/2454-9150.2024.0108