Donate Bite:Food Donation Application

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Abstract:- One of a person's essential needs is food. Every year, an estimated 1.3 billion meals are created globally. However, one-third of all food produced for humans is wasted. The majority of food is lost every day in countless restaurants, gatherings, weddings, and other events. This paper focuses on creating a mobile application called DonateBite. This will help to address food insecurity and reduce food waste. There are lots of people who want to contribute food, but they are unsure about how to go about doing so. So, using our app, users can easily donate surplus food by posting information about the food items, their location, and their availability. Charities and individuals can then browse the listings and request donations that match their needs. The application may reduce food waste and provide food to those who cannot afford it, among other possible benefits. It can also promote community involvement and social impact by encouraging people to get involved in helping others and reducing food waste.

Keywords:- *Reducing Waste, Mobile Application, Donation, Social Impact.*

I. INTRODUCTION

Food that is not consumed due to being surplus, spoiled, or discarded is known as uneaten food. Improper food handling in various settings, such as restaurants, weddings, events, factories, and homes, It frequently adds to food waste. Over a third of the food produced for human consumption is thought to be wasted globally. There are lots of people who want to contribute food, but they are unsure about how to go about doing so. So, using our program titled "DonateBite: Food Donation App". Some food donation apps have the potential to divert excess food from landfills and provide reliable sources of food to those who need it, but it is not yet clear whether these apps are actually effective in achieving these goals. Overall, the objective of our app is to reduce food waste by allowing individuals and other food establishments to donate excess food to those who are hungry. A food donation app is a type of mobile application that is created to link food donors. with people or organizations in need of food. The app operates by enabling food donors to effortlessly and speedily upload details regarding the food they intend to donate, such as the kind of food, the amount, and its expiration date. The recipient has to select a donor from a list of suggestions as needed, after which the request is made to the donor. We would tie up with some NGOs who might give us insights concerning these individuals, and afterward first, they would gather this food, and then they would deliver it to the individuals in need. The front-end of our application has been built on Flutter. The backend is built on a Firebase database. By using the app, food donors can help address food insecurity in their community and make a positive impact on the environment by reducing waste. In this paper, Section II comprises a literature review that aims to gain an understanding of the different systems presently utilized for donating food through mobile apps to those in need. Section III focuses on the proposed system for this application and describes the various components that are used in the system. Section IV is the implementation section, which includes screenshots of the application pages and an explanation of how each page functions. Section V presents the result and the discussion part. Finally, in Section VI, the paper concludes the work and highlights the potential future scope for the proposed DonateBite mobile app system. With its Android users increasing day by day, with this Android application, we try to help people by reducing food waste and donating wasted food to those in need. Titled "DonateBite: Food Donation Application", the basic concept of the project is to collect surplus or leftover food from donors such as hotels, restaurants, wedding halls, etc. and distribute it to people in need through NGOs. Finding ways to gather extra food from different events and distribute it to different charities like orphanages and nursing homes is crucial for reducing food waste and feeding the hungry. Our application has two roles, donor and receiver, and the app has different functions accordingly. Providers must provide information about the food they serve. The recipient must provide details such as location, quantity of food available, and delivery time. The recipient has to select a donor from a list of suggestions as needed, after which the request is made to the donor. The front-end of our application has been built on Android Studio. The backend is built on a Firebase database.

II. LITERATURE REVIEW

In 2021, Mrigank Mathur et al. [1], proposed Aahar: Food Donation App, an internet-based system that was suitable for providing a framework for hotels, restaurants, charities, and individuals to communicate with eateries that had food left over and provide reports. The proposed application aimed to eliminate food waste and fulfill prerequisites for impoverished associations, eliminating junk food waste and providing food for the destitute environment. The paper also mentioned the evaluation of the app through user surveys and listed some open issues for future work.

In 2019, Mafishan Ali et al. [2], presented an Android application that had three modules: admin, user, and rider. The application was designed only for restaurants that could donate leftover food to the NGOs so they could avoid food waste. It was difficult for people to access food and donors to reach out to them. The goal was to make it easier for both those in need and donors to access surplus food.

In 2020, Theenosha Sivagurunathan et al. [3] developed a food donation and receiving system through individual login and incorporated features such as the ability to view history and cancel requests. The system was user-friendly and accessible to a wider range of people, promoting community engagement and reducing the gap between social classes. The government was also involved in raising awareness to make the initiative successful.

In 2022, Ms. R. Uma et al. [4] developed a website that helped collect leftovers from donors and distributed them to those in need. The web application worked as expected and responded to the user with a valid search from the database. There was also a help menu available on every user login, and the admin responded. Accordingly, the website provided various functions so that people who needed food waste could use it efficiently.

In 2018, R.Adline Freeda et al. [5] proposed the "Mobile Application for Excess Food Donation and Analysis" paper, in which they emphasized that leftovers made up a third of the 1.3 billion metric tons of food that were wasted every day. Data analysis was performed to show the impact of the proposed program and provided information on the amount of food waste. When they learned that there were people going hungry, they immediately set out to eliminate food waste. They notified nearby NGOs, orphanages, and volunteers to gather the food.

In 2021, Mihir Jadeja et al. [6] developed an Android application named YWaste to streamline the process of food donation. The application makes the process so easy that the users have to just enter the food details, such as the quantity of the leftover food, the address of the donor, time, date, etc. Moreover, the administrator of the application will have the details of the customers to whom the food is being donated. The main aim was to avoid as much food wastage as possible that happens daily, which in turn will provide food to the homeless and help people suffering from hunger and malnutrition during a pandemic.

In 2018, Nivea Melo et al. [7] proposed a Combating Waste mobile application such that Redistribution of the tons of food that are wasted each year to the ones in need. The application enables volunteers to join as food donors and helps them connect with organizations and transporters that distribute food. The application has various functionalities, such as providing results for compatible donations and demands, helping the transporters by generating rides, and providing them the option of choosing the ride according to their convenient location. The final goal was to not only provide food to the hungry but also to connect people having surplus food to those deprived of it.

In 2022, Apurva Bansode et al. [8] created an Android application that helps in reutilizing the available food resources within a local area and acts as a meeting point for those looking to contribute food and the nonprofit organizations who deliver it. The basic working of this application was that the donor connects with the head of the NGO and provides information regarding the food, i.e., food type, location where the food is available, expiration date of the food, etc. Consequently, this will eliminate food waste and feed many poor and needy people.

In 2021, Christina Varghese et al. [9] created an Android application named SeVa. It uses the available food sources in local communities in an effort to reduce food waste. The application offers users a platform to get food and visualize the food resources that are available in their neighborhood. The implementation of AI and HCI principles in app design and evaluation is also included in the report.

In 2021, Pritom Kumar Rajvor et al. [10] created it to highlight the problem of food waste and hunger and proposed a practical solution in the form of a web-based portal called "Surplus Food for Orphanage" that facilitates communication between donors and food seekers. Another potential benefit of this system was that it could reduce food waste and help disadvantaged people.

In 2019, Grace Phiri et al. [11] Foodtrek, a mobile program, contributed to a decrease in food waste. The app informed users of the expiration dates of the food products they had at home, enabling them to consume the items before they went bad. The research also emphasized the misinterpretation of food date labels as a contributing factor to food waste and made the case for the used of technology to clear up confusion and simplify date labels. The research had limitations that could limit how broadly the results could been applied, such as a small sample size and the use of self-reported data.

In 2022, Aman Kumar Srivastav et al. [12] the objective is to aid in the creation of a successful system based on the lessons learned by European nations. The article places a strong emphasis on the importance of public support, NGOs, and public participation in promoting food donation. A key step in decreasing food waste and alleviating hunger is the creation of food banks and the prohibition of the disposal of unsold food. In order to ensure the appropriate distribution of

donated food, the essay emphasizes the significance of efficient organizational structures and logistics.

In 2022, Vinayak Bharadi et al. [13] the researched focuses on the application of technology, such as machine learning, addresses the issue of restaurant food waste. The system could helped restaurants increase or decrease the amount of food they prepare by forecasting daily consumption based on historical data, which would help reduce food waste. Some crucial information, such as the precise machine learning algorithms employed in the food waste management system, is missing from this application. The study presents no details about how daily food consumption predictions were created or how accurate they were.

III. PROPOSED SYSTEM

The motivation for developing this application was to limit food wastage as much as possible while still providing meals for people in need. People need to find food every day in order to support their families and themselves, and it is difficult for contributors to get in touch with them. The app operates by enabling food donors to upload details regarding the food they intend to donate, such as the kind of food, the amount, type, and time duration. The receiver has to select a donor from a list of suggestions as needed, after which the request is made to the donor. Then the donor accepts the receiver's request, and then the receiver takes delivery. The proposed application is android-based, designed using Flutter on Android Studio.
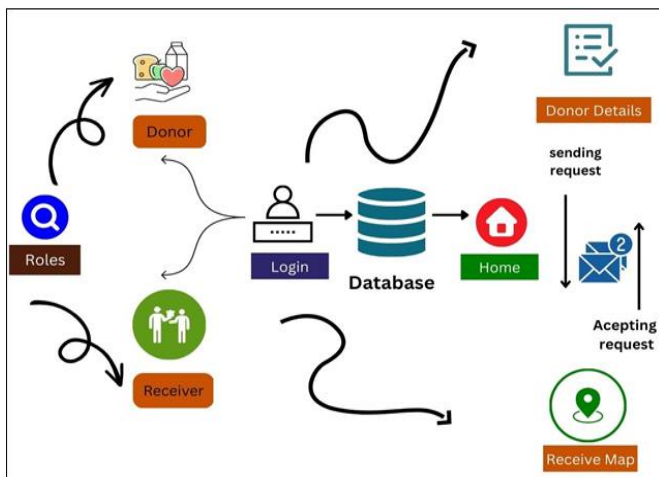

Fig 1 Block Diagram

➢ *Donors:*
The donor must provide information such as the date, the quantity of food, the time it was prepared, the edibility date, the preferred location, the food's image, and the type of food. Request acceptance and denial are dependent on the donor. If the donor accepts the receiver's request, then the OTP will be generated, which is verified at the delivery.

➢ *Receiver:*
The receiver has to submit details like location, amount of food required, and delivery time. The receiver has to select the donor according to his needs from the list of suggestions.

➢ *Map:*
In the map, it shows the donor posts that were posted at that particular location.

➢ *Feeds:*
In feeds, it shows the list of posts about excess food that have been posted by the donors.
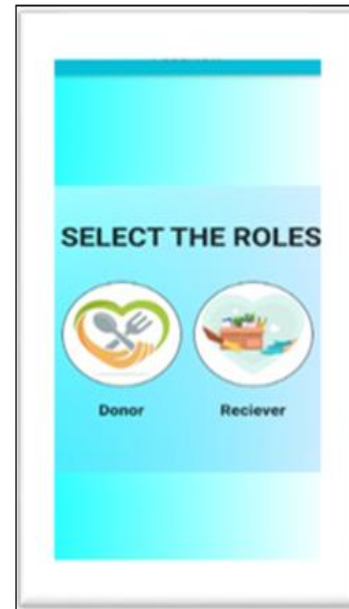
IV. IMPLEMENTATION

Fig 2 Role Page

There are two roles available in this section: "donor" and "receiver" If you click on the "donor" button, you will be directed to a Donor screen specifically designed for the donors, where you can post excess food for donation and also accept requests from the receiver. If you click on the "receiver" button, you will be directed to a Receiver screen specifically designed for receivers, where you can select the donor's post according to his necessity, and then a request is raised to the donor.

Fig 3 Login Page

On the login page, the user must input their username and password. Additionally, this page includes links to create a new account for users who are new to the app or need to register for an account.
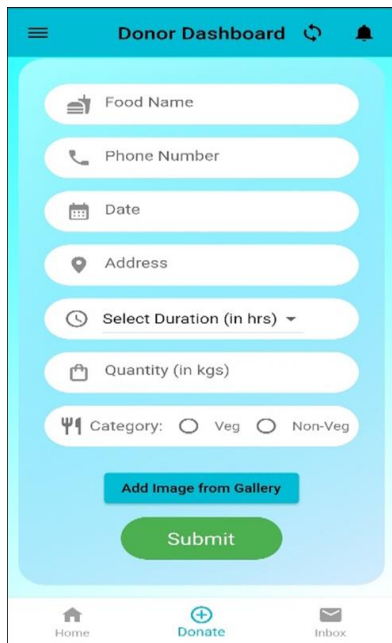

Fig 4 Donor form

The donor form includes fields for the donor to enter the name of the food they want to donate, the date when the food is prepared, the quantity of food, the category of food, and the photos of the food. This form also includes fields for the donor to enter their phone number and address
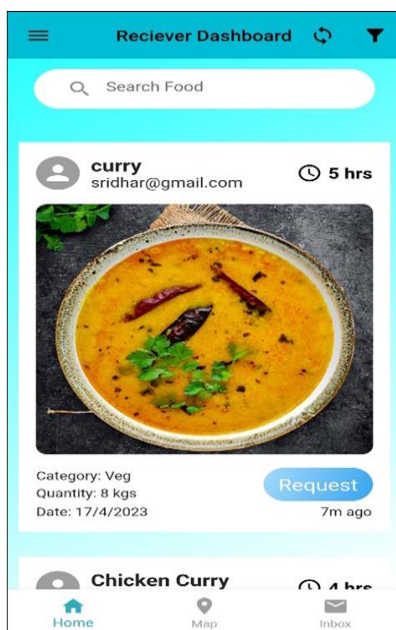

Fig 5 Feeds

The feed page typically contains details about the category of food, the quantity available, and the date when the food is prepared. So users can browse the feed to find donations that match their needs and filter the feed by relevant criteria.

V. RESULT AND DISCUSSION

We introduced a food donation app, which is a mobile application that was created with the perspective of providing a platform for food donors and NGOs that provide food to needy people. Our software enables food donors to easily input information about the food they wish to contribute, like quantity, type of food, expiration date, etc. By providing a platform for food donors and food distribution organizations to connect, the app makes it easier for people to donate their excess food and for organizations to distribute it to those who need it most. These apps provide a convenient platform for people to make a difference in their communities by donating food, and they can help build stronger relationships between donors and recipients. Overall, it has the potential to play a crucial role in fighting food shortages and promoting sustainability. Our app helps to automate the donation process and increase efficiency, resulting in less food waste. We also authenticate NGOs, whether they are authenticated or not, by verifying their unique ID. To avoid fake users or profiles. The key feature of our application is the disappearing feature of the post. which post disappears after its duration expires.

VI. CONCLUSION

The Food Donation App is an innovative digital platform that aims to reduce food waste. The app gives contributors a quick and easy way to communicate details about their food donations, such as the quantity, type, and expiration date. It also facilitates communication between donors and recipient organizations, enabling real-time tracking of food deliveries. As a result, the food donation app can contribute to building a food system that is both equitable and sustainable. Taking action to combat food waste and food insecurity, it can have a positive impact on both the environment and society. Therefore, the food donation app is an important solution that can help create a better future for everyone.

The future scope of this project Partner with other organizations, such as food banks, community centers, and non-profits, to increase the impact of the app and reach a wider audience.

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