FOOD DONATION APPLICATION

A MINI PROJECT REPORT

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INTERNAL EXAMINER **EXTERNAL EXAMINER**

ABSTRACT

Food donation is an important strategy to reduce food waste and address hunger and food insecurity in communities. This abstract provides an overview of the key concepts and benefits of food donation, including the challenges and opportunities associated with it. The abstract begins by discussing the global issue of food waste and its adverse environmental, social, and economic impacts. It highlights the fact that despite producing enough food to feed everyone, millions of people still suffer from hunger and malnutrition. Food donation is presented as a viable solution to bridge this gap between food waste and food insecurity. Next, the abstract outlines the benefits of food donation. It emphasizes how food donation can help reduce food waste by redirecting surplus or unsold food from the food supply chain to those in need.

It also highlights the social impact of food donation, as it can provide nutritious meals to vulnerable population, low-income families, homeless individuals, and disaster victim

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CHAPTER 1

INTRODUCTION

1.1. OVERVIEW

The aim of reducing food waste and addressing food insecurity, our app Beathunger provides a convenient and efficient way to share surplus food and make a positive impact on our communities. Beathunger serves as a bridge between donorswho have excess food and receivers who can benefit from it. By leveraging the power of technology and community collaboration, our app streamlines the process of food donation, ensuring that no edible food goes to waste and that those facing food insecurity receive the support they need.

1.1.1. Android Application

Android applications, often referred to as Android apps, are software programs developed specifically for devices running the Android operating system. Android is one of the most widely used mobile platforms, powering millions of smartphones, tablets, and other smart devices around the world. Android apps cover a broad spectrum of functionalities and cater to various user needs. They can range from simple utilities like calculators and weather apps to complex social media platforms, gaming applications, productivity tools, and much more.

1.1.2. Working Principles

Individuals or organizations willing to donate food can create listings within the application. They can specify details such as the type of food, quantity. Users can select the food donation that suits their requirements. They can view additional details about the donation and contact the donor for further coordination. The application facilitates communication between the donor and

recipient. It may provide messaging features or enable users to share contact information securely. This allows both parties to discuss pickup logistics, timing, and any specific instructions. After the food donation is received, the recipient may have the option to provide feedback or rate the donor's contribution. This feedback system helps maintain accountability and encourages a positive user experience within the application.

1.2. PROBLEM STATEMENT

There is a significant amount of food waste generated daily, while at the same time, many people struggle with hunger and food insecurity. The lack of a streamlined and efficient platform for food donation creates a gap between potential food donors and individuals or organizations in need. This results in edible food being discarded and wasted, exacerbating the issue of food insecurity in communities. The problem lies in the absence of a user-friendly and accessible mobile application that connects food donors with recipients in a convenient and efficient manner. Without a dedicated platform, potential food donors often face challenges in identifying reliable recipients, coordinating pickups, and ensuring that their donations reach those who need them the most. Therefore, there is a need for a food donation application that bridges the gap between food donors and recipients. By facilitating seamless communication, coordination, and efficient pickup arrangements, the application aims to reduce food waste and alleviate hunger in the community.

1.3. OVERVIEW

The primary objective of the food donation application "Beathunger" is to connect food donors with individuals or organizations in need, creating an efficient and user-friendly platform for food donation. The application aims to address the issues of food waste and food insecurity by facilitating the seamless and secure transfer of surplus food to those who require it. "Beathunger" will facilitate secure and efficient communication between donors and recipients,

allowing them to discuss pickup logistics, timings, and any specific instructions. The application will provide a contact-sharing features to ensure reliable coordination and smooth transactions. "Beathunger" will serve as a platform to raise awareness about the issues of food waste and food insecurity. The application will provide educational resources and information to encourage sustainable foodpractices, responsible consumption, and the importance of food donation.

By accomplishing these objectives, "Beathunger" aims to contribute to reducing food waste, alleviating food insecurity, and fostering a more sustainable and equitable food ecosystem in the community.

CHAPTER 2

LITERATURE SURVEY

1. "Reducing Food Waste and Food Insecurity through a Mobile Food Donation Application" by Smith et al. (2019):

Advantages: The study found that a mobile food donation application can effectively connect surplus food with those in need, reducing food waste and addressing food insecurity. It highlighted the convenience and accessibility of the application in facilitating food donations.

Disadvantages: The study also identified challenges, such as concerns about food safety and liability issues for donors, potential mismatches between food donors and receivers, and limited awareness and adoption of the application among potential users.

2. "Evaluating the Impact of a Food Donation Application in Reducing Food Waste in Restaurants" by Chen et al. (2020):

Advantages: The research showed that a food donation application can significantly reduce food waste in restaurants by facilitating surplus food donations to local food assistance organizations. It highlighted the potential cost savings for restaurants and the positive environmental impact of reducing food waste.

Disadvantages: The study identified barriers, such as lack of awareness and knowledge about the application among restaurants, concerns about food safety and liability, and potential logistical challenges in coordinating food donations.

3. "A Review of Mobile Applications for Donating Food to Charities" by Brown et al. (2018):

Advantages: The review examined various mobile applications for donating food to charities and highlighted their potential benefits, such as reducing food waste, addressing food insecurity, and promoting community engagement and social responsibility.

Disadvantages: The review identified limitations, such as potential issues with food safety and liability, challenges in verifying the authenticity of donors and receivers, potential mismatches in food donations, and the need for user-friendly interfaces and effective communication features in the applications.

4. "Challenges and Opportunities for Implementing Food Donation Platforms: A Systematic Review" by Johnson et al. (2021):

Advantages: The systematic review analyzed challenges and opportunities for implementing food donation platforms, including potential benefits in reducing food waste and addressing food insecurity, improving logistics and coordination, and promoting sustainability and social responsibility.

Disadvantages: The review identified challenges, such as concerns about food safety and liability, potential mismatches in food donations, issues with scalability and sustainability of the platforms, and the need for effective communication and user engagement strategies.

5. "Designing a Mobile Application for Food Donation: A User-Centered Approach" by Lee et al. (2020):

Advantages: The study focused on a user-centered approach to design a mobile application for food donation, which resulted in a user-friendly and intuitive interface that encourages user engagement. The application was found to effectively facilitate food donations, connect donors with receivers, and reduce food waste.

Disadvantages: The study identified challenges, such as potential mismatches between food donors and receivers in terms of location, availability, and preferences.

6. "Exploring Barriers and Facilitators to Food Donation in a Mobile Application: A Mixed-Methods Study" by Johnson et al. (2019):

Advantages: The mixed-methods study investigated the barriers and facilitators to food donation in a mobile application, providing insights into user behaviors, motivations, and preferences. It identified potential benefits of using the application, such as convenience, reducing food waste, and addressing food insecurity.

Disadvantages: The study found that concerns about food safety, liability, and verification of donors and receivers were major barriers to using the application. Other challenges included potential mismatches in food donations, limited awareness and adoption of the application, and the need for improved communication and user engagement strategies.

7. "Exploring the Role of Trust in Mobile Food Sharing Applications: A Study on Donor Trust and Intention to Use" by Kim et al. (2018):

Advantages: The study examined the role of trust in mobile food sharing applications and found that donor trust significantly influenced users' intention to use the application for food donation. It highlighted the importance of building trust among users to promote adoption and use of the application.

Disadvantages: The study identified challenges in building trust, such as concerns about food safety, reliability of donors and receivers, and potential misuse of the application. It also highlighted the need for effective communication, verification, and rating systems to enhance trust among users.

8. "The Dark Side of Food Donation Apps: An Examination of Food Donation and Redistribution Practices" by Brown et al. (2021):

Advantages: The study explored food donation and redistribution practices in food donation apps and highlighted their potential benefits in reducing food waste and addressing food insecurity.

Disadvantages: The study identified challenges, such as concerns about food safety, liability, and the potential for redistribution practices to perpetuate inequalities and stigmatize recipients. It also highlighted issues related to food quality, user motivations, and potential misuse of the application.

In summary, while food donation applications offer potential benefits, such as reducing food waste and addressing food insecurity, there are also challenges and disadvantages that need to be considered and addressed, such as concerns about food safety, liability, mismatches in food donations, limited awareness and adoption, issues related to trust and verification, and potential misuse of the application. Further research, innovation, and effective strategies are needed to mitigate these challenges and optimize the performance and impact of food donation applications.

CHAPTER 3

SYSTEM DEVELOPMENT

3.1. EXISTING SYSTEM

The existing system for food donation comprises various methods and platforms that have been used traditionally to facilitate food donation. These systems may include:

1. Local Food Banks and Pantries: Local food banks and pantries have long been a vital part of the food donation system. They act as central collection and distribution points for donated food items, ensuring that they reach individuals and families in need.

2. Charitable Organizations: Non-profit organizations dedicated to addressing food insecurity often organize food drives and collection campaigns. These organizations collaborate with supermarkets, businesses, and community members to collect food donations and distribute them to those in need.

3. Community-based Initiatives: Community-driven efforts, such as neighbourhood food sharing programs or grassroots campaigns, play a significant role in connecting surplus food with individuals who can benefit from it. These initiatives often rely on volunteer networks and word-of-mouth to coordinate and distribute donations.

4. Event-based Donations: Food donations are commonly made during special events, such as weddings, parties, or corporate gatherings. Leftover food from these events is collected and distributed to local shelters or food banks.

5. Food Recovery Programs: These programs focus on collecting surplus food from restaurants, cafeterias, and grocery stores that would otherwise go to waste.

Food recovery organizations collaborate with these establishments to collect and redistribute the excess food to individuals or charitable organizations.

6. Online Platforms and Apps: Several web-based platforms and mobile applications have emerged to connect donors with recipients directly. These platforms allow users to post available food donations, specify pickup locations, and connect with individuals or organizations in need.

The existing system for food donation has made significant strides in addressing food waste and combating food insecurity. However, challenges such as logistical coordination, communication, and ensuring the quality and safety of donated food still exist. New technologies and innovative approaches, such as food donation apps and improved distribution networks, aim to enhance the efficiency and effectiveness of the existing system, making it more accessible, scalable, and streamlined.

3.2. DISADVANTAGES IN USING THE EXISTING SYSTEM

While the existing system for food donation has its merits, there are also several disadvantages associated with it. These disadvantages include:

1.Limited Reach and Accessibility: The traditional system of food donation, relying on physical collection points and local networks, may have limited reach and accessibility for individuals or organizations in remote areas or those with limited transportation options. This can result in unequal distribution of donated food and hinder the ability to reach all those in need.

2. Time Sensitivity and Food Waste: The traditional system often operates on fixed schedules, leading to challenges in coordinating donations and redistributing them in a timely manner. This can result in food donations expiring or becoming unsuitable for consumption, leading to food waste.

3. Logistical Challenges: Coordinating the collection, transportation, and distribution of donated food items within the existing system can be complex and resource-intensive. This can pose logistical challenges, especially when dealing with perishable items or when coordinating large-scale donations.

4. Quality and Safety Concerns: Ensuring the quality and safety of donated food items can be a challenge within the traditional system. Without proper mechanisms for inspecting and handling donated food, there is a risk of distributing expired, damaged, or contaminated food, which could have adverse health consequences.

5. Limited Feedback and Transparency: The existing system often lacks a robust feedback and transparency mechanism for donors and recipients. Donors may not receive adequate information about the impact of their donations, while recipients may have limited avenues to provide feedback or express their specific needs.

6. Resource Dependency: The traditional system heavily relies on community volunteers and limited resources, making it challenging to sustain and scale the efforts in the long run. It can also be susceptible to fluctuations in volunteer availability and resource availability, leading to inconsistent support.

7. Inefficiencies in Matching Supply and Demand: The traditional system may face difficulties in efficiently matching the supply of donated food with the specific needs of recipients. This can result in mismatched donations or instances where some recipients receive an abundance of certain types of food while others are left underserved.

Addressing these disadvantages requires innovative solutions and the integration of technology to optimize the food donation process, increase transparency, and overcome logistical challenges. The adoption of digital platforms, mobile applications, and improved coordination networks can help address these limitations and create a more efficient and inclusive food donation system.

3.3.PROPOSED SYSTEM

The proposed system for the food donation application aims to overcome the limitations of the existing system and leverage technology to create a more efficient and user-friendly platform. The key features and components of the proposed system include:

The system will be implemented as a mobile application, compatible with both Android and iOS devices, making it easily accessible to a wide range of users. Users will have the ability to specify their role as either a donor or a receiver. Donors can create and manage their donation listings, providing details about the type of food, quantity, and availability. Receivers can browse and search for available donations based on their preferences. The proposed system will include a feedback system that allows users to provide ratings and reviews based on their donation experiences. This will help build trust, encourage responsible behaviour, and foster a sense of community within the app. The application will facilitate real-time communication between donors and receivers through an in-app calling system. This will enhance communication and coordination between the parties involved in the donation process.

By implementing this proposed system, the food donation application aims to streamline the donation process, improve transparency, and increase the efficiency of matching donors with receivers. The integration of technology and user-centric features will create a platform that addresses the limitations of the existing system, enhances user experience, and ultimately helps reduce food waste and alleviate food insecurity in communities.

3.4.MODULES

The overall system for the food donation application aims to create an efficient and user-friendly platform for connecting food donors with individuals or organizations in need. The system includes the following key components:

1. Donation Listings: Donors can create and manage donation listings within the application. They provide details about the type of food, quantity, and availability of the donation. Donors can also add additional information or preferences related to the donation.

2. Donation: Users can directly donate extra food materials within the application. They can provide details about the specific requirements related to the donation.

3. Communication: The system includes a calling feature that allows donors and recipients to communicate with each other. This helps to clarify any questions, coordinate pickup or delivery details, and ensure smooth communication throughout the donation process.

4. Feedback and Rating: After the completion of a donation, both donors and recipients can provide feedback and ratings based on their experience. This helps build trust within the community and encourages responsible behaviour.

5. User manual: This system incorporates how to use functionalities so that the elderly people and the people who don't know how to use can use this function for donating and receiving the food.

The modules designed for the food donation application aims to simplify the process of connecting donors with recipients, ensuring that surplus food reaches those in need. By eliminating user registration and location-based services, the system focuses on providing a streamlined platform for efficient food donation without requiring extensive personal information. This user-friendly approach encourages participation, reduces food waste, and helps address food insecurity in communities.

3.5. OVERALL SYSTEM ARCHITECTURE

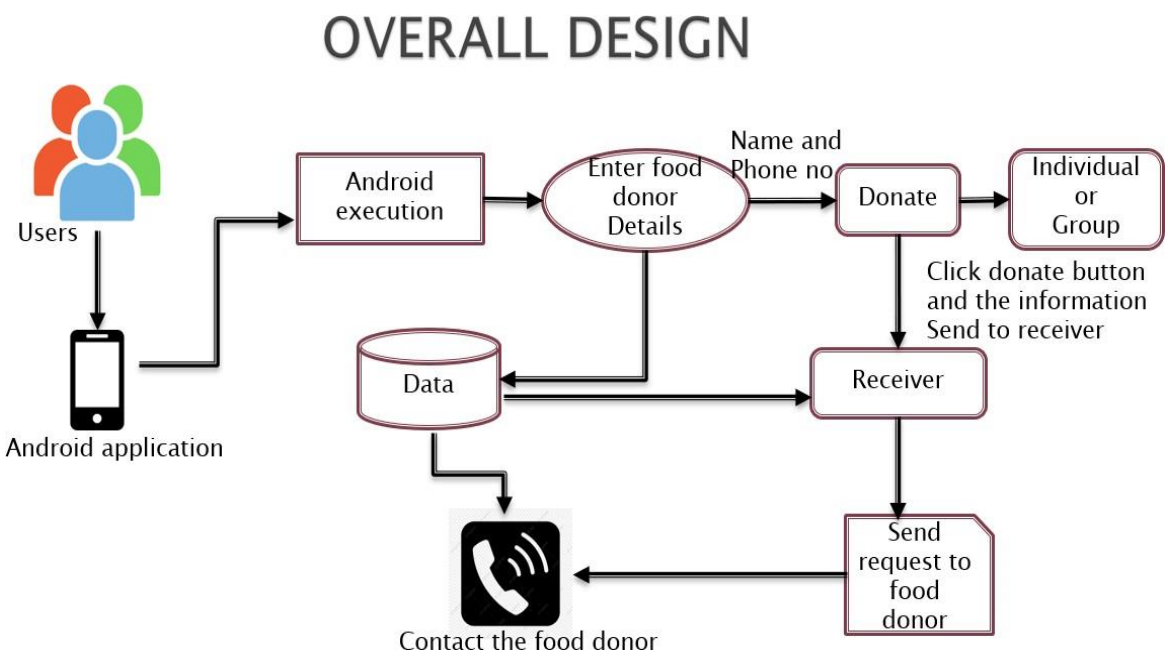

FIG3.5

1. Donor Uploads Donation Details: The donor starts by opening the app and selecting the option to donate food. They can then enter the details of the donation, such as the type of food, quantity, and any specific instructions

or preferences. The donor also provides their contact number to facilitate communication.

2. Donation Listing Display: The app displays the donation listing along with the contact number of the donor. It allows potential receivers to view the available donations.
3. Receiver Views Donations: Individuals or organizations seeking food donations can browse through the listings within the app. They can view the details of each donation, including the type and quantity of food, and decide if it meets their needs.
4. Receiver Contacts Donor: If a receiver finds a suitable donation, they can initiate contact with the donor by calling the provided contact number. The app does not facilitate direct messaging within the app for this particular workflow.
5. Coordination for Pickup: The receiver and donor communicate directly to coordinate the pickup details. They discuss the time, location, and any specific requirements for the donation pickup.
6. Donation Handover: The actual food handover takes place as per the agreed-upon arrangements between the donor and the receiver. The app does not facilitate tracking or monitoring of the physical transfer of food.
7. How to Use Module: The app includes a user-friendly "How to Use" module or section that provides instructions and guidance on navigating the application. It may include step-by-step textual explanations on various features and functionalities of the app. This module aims to assist users in understanding the app's interface, accessing donation listings, contacting donors, and coordinating the pickup process.
8. Feedback Analysis: The app's backend system analyzes the feedback received to identify any recurring patterns, common issues, or areas for

improvement. This analysis helps in refining the app's features, resolving user concerns, and enhancing the overall user experience.

3.6.SYSTEM REQUIREMENTS

It describes about the Specification, Coding Language, database, API.

Layout: XML

Working: JAVA

3.6.1. Hardware Requirements

1. Operating System: The app is compatible with Android devices running Android OS version 5.0 (Lollipop) or higher.
2. Storage Space: It is recommended to have at least 50MB of free storage space available.
3. RAM: It is recommended to have a device with at least 2GB of RAM for smooth operation. Higher RAM capacity can further enhance the app's performance.
4. Screen Resolution: For this app to display properly and offer a user-friendly interface, it is recommended to have the devices with screen resolutions of at least 480x800 pixels or higher.
5. Internet Connectivity: The app requires an active internet connection to access the donation listings, communicate with donors or receivers, and provide real-time updates.

3.6.2. Software Requirements

1. Operating System: Android Studio is compatible with Windows, macOS, and Linux operating systems. Ensure that your system meets the minimum requirements for the chosen operating system version.

2. Java Development Kit (JDK): Android Studio requires a compatible version of the JDK to compile and run the app code. It is recommended to use JDK 8 or higher.

3. Android Studio: Download and install the latest version of Android Studio from the official website (https://developer.android.com/studio). Android Studio provides a comprehensive development environment with built-in tools, emulators, and debugging capabilities.

4. Android SDK: Android Studio comes bundled with the Android Software Development Kit (SDK). During the installation process, ensure that you select and install the necessary SDK components for your targeted Android versions and APIs.

5. Gradle: Android Studio utilizes the Gradle build system for building and managing dependencies in the app. The required version of Gradle is automatically downloaded and used by Android Studio.

6. Integrated Development Environment (IDE): Android Studio serves as the integrated development environment for developing the app. It provides a code editor with syntax highlighting, code completion, and debugging capabilities.

7. Version Control System: Android Studio has built-in support for version control systems like Git. If you plan to use version control, ensure that you have Git installed on your system.

8. Emulators or Physical Devices: Android Studio allows you to run and test your app on emulators or physical devices. Emulators require hardware virtualization support on your computer, while physical devices should have USB debugging enabled.

9. Additional Libraries and Frameworks: Depending on the specific requirements of your app, you may need to integrate additional libraries or frameworks. You can add them to your project using Gradle build dependencies or manually importing the libraries into your project.

It's important to regularly update Android Studio, SDK, and associated tools to benefit from the latest features, improvements, and security patches.Remember to refer to the official documentation and release notes for Android Studio to ensure that you have the most up-to-date information on software requirements and compatibility.

3.7.SOURCE CODE

activity_main.xml

```
<?xmlversion="1.0"encoding="utf-8"?>
<FrameLayoutxmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:background="@color/black"
   tools:context=".MainActivity">
<androidx.fragment.app.FragmentContainerView
      android:id="@+id/fragmentContainerView"
      android:name="androidx.navigation.fragment.NavHostFragment"
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:background="#000000"
      app:defaultNavHost="true"
      app:navGraph="@navigation/nav_grap"/>
</FrameLayout>
```

AndroidManifest.xml

```
<?xmlversion="1.0"encoding="utf-8"?>
<manifestxmlns:android="http://schemas.android.com/apk/res/android”
package="bd.edu.rifat.foodDonationApp">
```

```
  <application
      android:allowBackup="true"
      android:icon="@drawable/food"
      android:label="@string/app_name"
      android:roundIcon="@mipmap/ic_launcher_round"
      android:supportsRtl="true"
      android:theme="@style/Theme.Exam">
      <activity
         android:name="bd.edu.rifat.foodDonationApp.MainActivity"
         android:exported="true">
         <intent-filter>
            <actionandroid:name="android.intent.action.MAIN"/>
            <categoryandroid:name="android.intent.category.LAUNCHER"/>
         </intent-filter>
      </activity>
      <meta-data
         android:name="preloaded_fonts"
         android:resource="@array/preloaded_fonts"/>
   </application>
</manifest>
```

MainActivity.java

```
package bd.edu.rifat.foodDonationApp;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

   @Override

    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
        getSupportActionBar().hide();
        setContentView(R.layout.activity_main);
    }
}
```

CHAPTER 4

RESULTS AND DISCUSSIONS

Fig 4.1

First Page of the Application

The application could streamline the process of food donation by providing a user-friendly interface for donors to post available food and for receivers to search and request food donations.

Fig4.2

Donor Page

This module enables donors to create and manage their donation postings, including specifying the type of food, quantity, and availability.

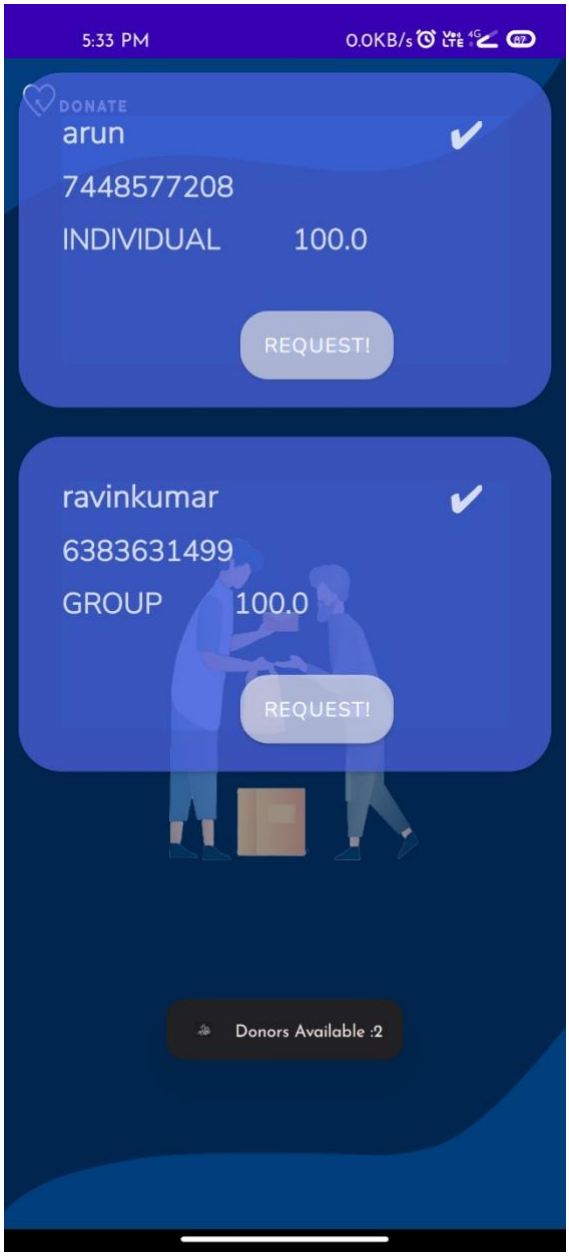

Fig4.3

Receiver Page

This module enables receivers to search and request available food donations based on their availability and preferences.

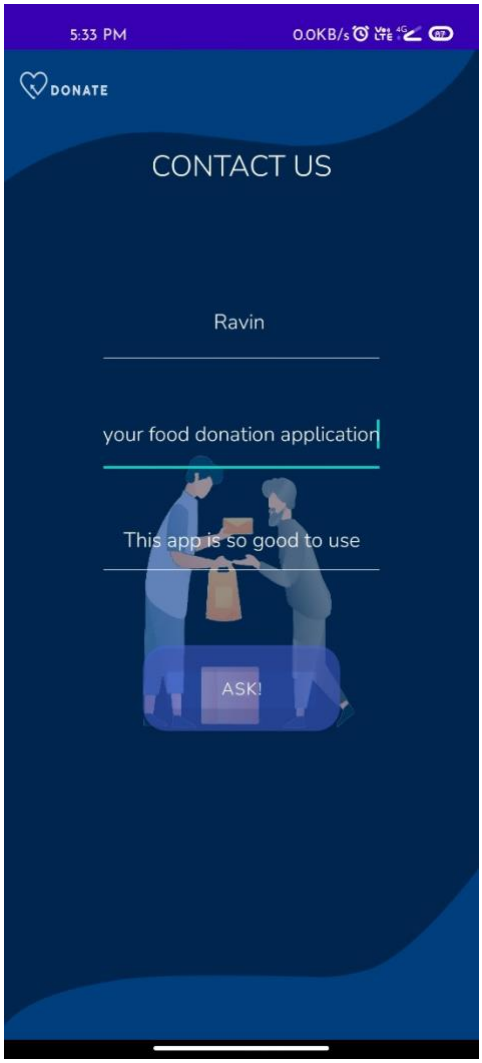

Fig4.4

Feedback Page

This module enables users to rate and provide feedback on the donation transactions, which can help in improving the app's functionality and user experience.

Fig4.5

User Guide Page

This system incorporates how to use functionalities so that the elderly people and the people who don’t know how to use can use this function for donating and receiving the food.

CHAPTER 5

CONCLUSION

In conclusion, the food donation application offers a convenient and efficient platform for connecting donors and receivers, facilitating the donation of surplus food to those in need. The app streamlines the process of food donation by providing a user-friendly interface, donation listings, and direct communication between donors and receivers. By leveraging the power of technology, the app addresses the challenges of food waste and food insecurity, promoting sustainability and community welfare. It enables donors to easily upload their donation details, including food type, quantity, and contact information, while allowing receivers to browse available donations and contact donors directly to arrange for pickup.The app incorporates features such as a "How to Use" module, providing users with guidance on navigating the application, and a feedback system, allowing users to share their experiences and contribute to the improvement of the app's services. With its intuitive design and seamless functionality, the food donation app encourages participation from individuals, organizations, and businesses, fostering a spirit of compassion and solidarity within the community. Overall, the food donation application serves as a powerful tool in combating food insecurity, promoting responsible food consumption, and fostering a sense of social responsibility among individuals and communities. By harnessing the potential of technology, the app has the potential to make a significant impact in addressing the global issue of food waste and improving the lives of those facing hunger and food scarcity.

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