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Food Wastage Management Application using Android Studio

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***Abstract*— Society struggles with food waste on a regular basis. As a result, proper food waste management can improve the environment as well as the economic situation. Poverty will be alleviated if people reduce food waste, and the environment will be conserved. This research study intends to create a mobile app that will efficiently collect food and other items and delivers donated ones. Donors and recipients can register their details, as well as post availability or requirement of food, via the mobile application. This app accepts both cooked food as well as raw food. Donors can use the app to upload photos of their food, which serves as proof that there is food available and also motivate others to donate.**

Keywords*— *Food Waste Reduction, Donate, Android Application, Non-governmental organization, Smartphones, Interfaces, Donate.

I. INTRODUCTION

As food waste continues to grow, food donations become more and more important. There are major problems associated with food wastage in a country with a high population density like India. It is evident that many people are throwing eatable food into dustbins, even if it is in an edible condition. The issue isn't just about food waste; it's also about money waste. It will cause many environmental problems, like pollution, causing global warming, and also changes climate conditions. Food waste isn't just an obvious sign of pollution but also an indicator of economic problems as well. Because of lifestyle evolution, an increased living standard has concluded in wastage. Instead of throwing away food, it could be distributed to numerous organizations or individuals in need. People want to contribute surplus food stuffs; several charities want to collect them. Individuals can provide food according to the capacity available with the help of this proposed system. Food waste is reduced as a result of this. Instead of squandering food, clothing, and other items, we should donate them to NGOs or other groups working on similar issues. The majority of the individual world has access to this Android application, which will serve as a central location and platform for the food drive. Weddings, large parties, and other gatherings provide the majority of the food that is wasted. NGOs could have this information to get this large amount of leftover food to a large number of people. This application will not only focus on bulk food waste but will also address the issue at the household level. Each registered user on this app will be able to donate one or more plates that are left over and unfinished.

II. LITERATURE SURVEY

Title: Mobile Application for Excess Food Donation and Analysis
Year: 2020
Author: Adline Freeda1 R, Sahlin Ahamed M.S

The article describes an app that reduces food waste in diners, functions, as well as messes. This app provides registered users with two options. They must decide whether to make a donation or take the food. The donor should provide information about the surplus food (name and quantity), the area (address), and phone numbers. The user claiming the food must provide the organization's name and of the organization as well as the number of people involved. The donor ranks the claims and chooses the recipient. It visualizes the impact of food donations through data analysis.

Title: Food for You (F4U) Mobile Charity Application
Year: 2019
Author:: Suraya Masrom, Abdulla Sani Abd. Rahman, Farah Norliyana Azahar, Nasiroh Omar

Food for You is a smartphone charitable organization app designed to alleviate the burden on homeless people who require food to survive. This android application helps in reducing the problem of waste food. This app allows the user to sign up as a donor, or supplier. This application includes an extra map feature that displays the location of users using different colored indicators according to the user type. This allows the donor and supplier to help those in need by donating food or money. The needy could, in fact, use the map to contact food or pick up free food.

Title: A New Approach to Reduce Food Wastage using Ubiquitous Technique
Year: 2018
Author: Nandhini H Jadhav, Narendrababu C.R, Banu Prakash G.C

The app connects NGOs and Donors with the final goal of distributing food to those in need. Restaurants inform NGOs, and NGOs can search for restaurants that donate leftover food. They then gather and dispense the food to those in need. The Corporation would offer feedback to the eatery where the dish was purchased. To find out more about food waste that could be avoided, NGOs can get in touch with hotels. For

increased accountability, Reports on how the food is used can be uploaded by NGOs. It shows their location and route to make it easier for drivers to find NGOs and motels.

Title: Food Wastage Reduction Through Donation
Year: 2018
Author: Donation published by Divyesh Jethwa, Ayushi Agrawal, Rohan Kulkarni, and Leena Raut
The app will allow you to donate the remaining food to the people who need it or to the organizations. The setup has shown to be a successful technique of food donation via the Internet. It demonstrates the possibility of reducing food waste. This system will establish a common entry point for lodgings, cafes, and non-profit organizations. Restaurants with leftover food will be able to get in touch with charities directly, and reports detailing the number of meals the restaurants provided will be generated. A food donor is a business, institution of higher learning, or other group that wants to make a new free food request and provide food. Food recipients can be any charity that requires food. The platform will display a new food donation request. When a message is approved, a message is sent to the party seller in charge of transporting food between them. On a daily basis, premium users will give donations.

Title: A Food Wastage Reduction Mobile Application
Year: 2018
Author: Ayesha Anzer, Hadeel A. Tabaza, and Wedad Ahmed

Waste food management will be critical because that will enhance our environment and economic development. The article outlines an application that will be useful by Android user, that enables restaurant owners to make donations and end up sharing uneaten with people in need. By the use of this application, people can do registration, login, view possible availability of food items, add new products, increase the number of items in the cart, remove an item from the cart, and finally sign out of the account. For storage, firebase databases are used. NGOs can check the total food donated by different users. They mainly aim to conserve food.

III. EXISTING SYSTEM

Currently, websites that are slow to load and don't indicate the people about the service are used to fulfill system requirements. No feedback from the donor or recipient. When there is a problem with the food's quality. A few technical hiccups happen when loading pages. The user was unable to identify the area where there was food nearby. Donors can only give freshly prepared meals using this application. To inform the volunteers about the availability of food items, there is no notification function. The consumer should contact websites or friends for information about foodstuff.
The contributor should conduct a manual search for the NGO and social organization. The existing system is complicated and takes extra time.

TABLE I . Details About the Existing System and Its Consequences

AUTHOR	DESCRIPTION	CONS
Ayesha Anzer, Hadeel A. Tabaza, and Wedad Ahmed	An Android mobile app that allows diners to make a donation of the leftover food with individuals in need.	No Admin page to monitor the food exchange happened.
Suraya Masrom, Abdulla Sani Abd. Rahman, Farah Norliyana	A charity application is being developed to reduce the strain on homeless people who require food to survive.	No notification option is available to know the updates.
Nandhini H Jadhav, Narendrababu C.R, Banu Prakash G.C	A Novel Method for Reducing Food Waste Using a Commonplace Technique.	Only NGOs can take the excess food available.
Divyesh Jethwa, Ayushi Agrawal, Rohan Kulkarni, and Leena Raut	This framework provides a new network application that acts as a base.	Only the premium members can donate the food daily.

IV. PROPOSED SYSTEM METHODOLOGY

Food donations to the hungry and needy can be made through the proposed mobile application. People waste a lot of food at weddings, canteens, restaurants, social gatherings, and family events. This proposed work addresses food waste and food poverty through food redistribution, a social innovation that has had tremendous success. The suggested Android-based application, which was created using Android Studio and Java, and XML and needs a net connection, will allow contributors and seekers a platform once they have successfully registered with the system. The real-time database is updated each time a user contributes food. Extensible Markup Language is used here to design interactive slides, and customize them as per the requirements needed.
Operations like registration and system login are carried out by the Donor. Those who donate food can upload images of the food they've given away. Users can donate cooked food, leftovers, and raw food, and there's another option called Others where users can distribute other than food like clothes, and books. etc. Search option is available in the home page to search items as per the user's need. Personal data can be

modified by users by update the profile option. The admin page option is available where the admin can check the number of people registered to the system, the number of orders and also the total donation items. Reviews and queries are able to be submitted to the email address provided.

Presently, the method is aiming to reduce food waste, which accounts for a significant portion of waste in India. So, there is a plan to update and improve the application, which will increase its effectiveness and usefulness for items like books, stationery, clothing, and other items. However, only Android smartphones can use the app. Additionally, it will benefit the application if donors and seekers are close to one another.

V. HARDWARE AND SOFTWARE REQUIREMENTS

The software requirements used in this system are mentioned below. For the front end we have used XML, and Material Design and for the back end, JAVA and for the storage, firebase is used. The adapted Android tools are IDE: android studio, android emulator, and Firebase.

The hardware requirements are a processor is Intel 3, RAM is 4 GB, a hard disk of 500 GB, with an operating system of windows7,8,10-64 bit.

VI. RESULTS

Fig. 1. First Screen Interface

The first interface is where the logo is shown as shown in the above diagram which is developed with XML, it is shown for few seconds then the further pages are displayed in the order.

Fig. 2. Register page Interface

The next page is the Register page, shown in the above diagram where users can register themselves with the details asked and also sets a password to log into the application for the next time.

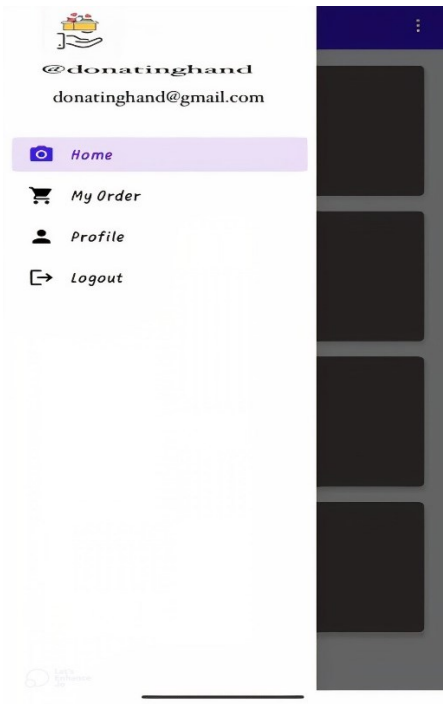

Fig. 3. Main Menu interface

When users log into their respective accounts using mail id and password the main interface appears on the top left

corner. Users can view orders and profile here, as well as log out of their account.

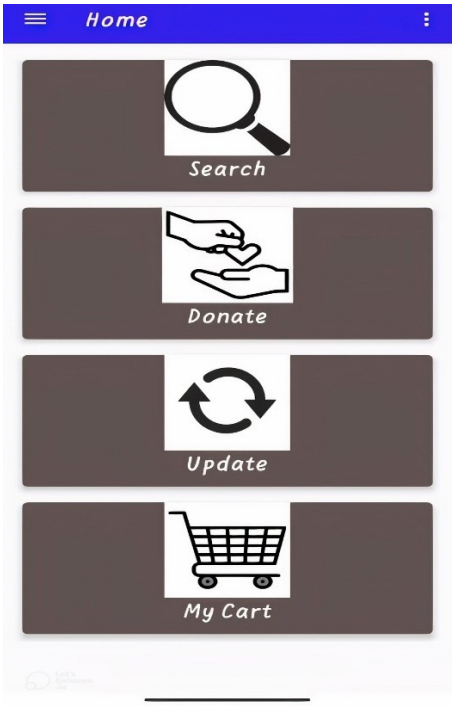

Fig. 4. Home Screen Interface

On the home screen page, search, donate, update, and my cart options are available. Any user can select an option based on the requirement. Of whether to donate or search for food.

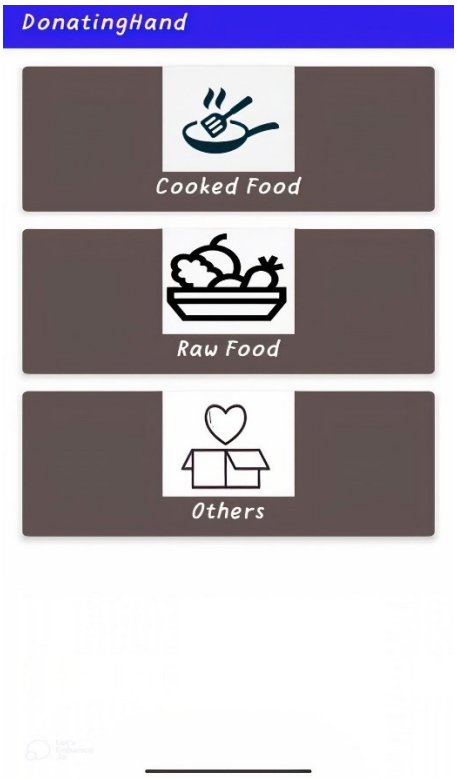

Fig. 5. Search Page Interface

The next page is designed on three different types of options based on the type of food to be donated, cooked food, and raw food, and there is also option of donating any other type of items other than food. Users can select the option based on availability.

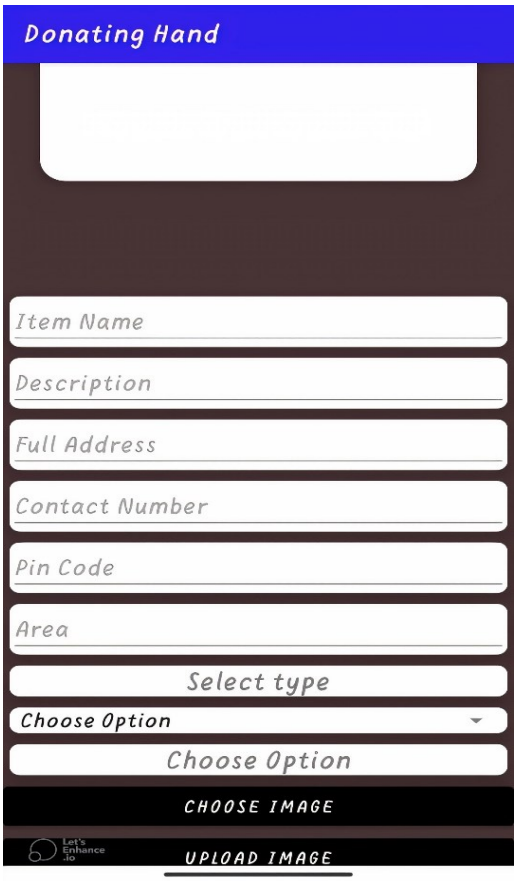

Fig. 6. Donation Interface

In the donation page, Users have to fill the details of the food, select the type, and also should upload the picture for confirmation.

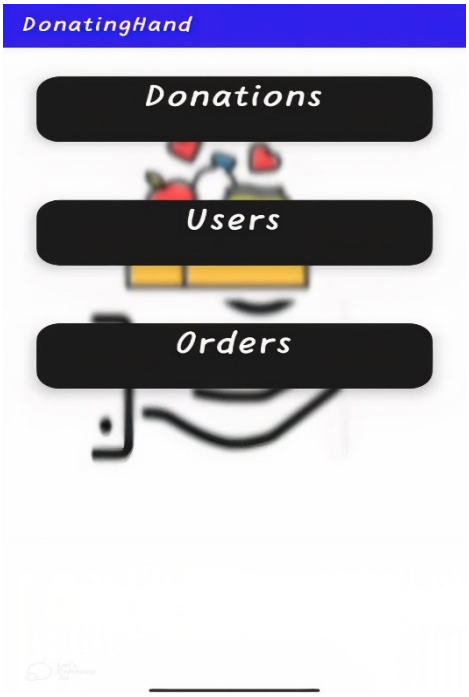

Fig. 7. Admin Page Interface

The admin page is designed exceptionally for the admin to check all the orders, Donations, and all the users logged in.

VII. CONCLUSION

The food wastage management app developed using the Android studio displays the login page for the visitor. Once the visitor logins to the app, the visitor can donate food by adding the food item, quantity, address, phone number, photo, etc. And visitors or acceptors search for food at nearby locations and can order the food item available.

Then Donor gets a call from the recipient. They Communicate about the food available if there is any problem faced then the donor can reject to donate. After the successful communication and the food is delivered to the acceptor the review can be given. There is also an admin login, where the admin can check the details of the food or items being donated and by whom they are being taken. Optimizing the size of the Application to enhance the performance. This application/ can be very helpful in the fight against issues like malnutrition, hunger, and starvation.

The admin page is only accessible to the admin where he or she can check the donations, orders and also the users' details for the smooth running of the application.

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REFERENCES

[1] S. Wang and J. Xu, "Design of Intelligent Household Food Waste Product Based on AHP-TRIZ Method," 2022 International Conference on Culture-Oriented Science and Technology (CoST), Lanzhou, China, 2022, pp. 95-98, doi: 10.1109/CoST57098.2022.00029.

[2] Bhardwaj, Sonali and Kumar, Utkarsh and Kumar, Dr. Yogesh, Food Waste Management Android App (July 14, 2022). Proceedings of the Advancement in Electronics & Communication Engineering 2022, Available at SSRN: https://ssrn.com/abstract=4157538 or http://dx.doi.org/10.2139/ssrn.4157538

[3] Sakthi P, Jagannath S, Suman N, Sakthivel A and Nandhini A, "Survey on Waste Food Management and Donating Web Application", International Journal of Research Publication and Reviews, Vol. 3, No. 5, pp 2416-2417, May 2022.

[4] R. R. Prova, A. Rayhan, R. S. Shilon and M. M. Khan, "A Web and Mobile Based Approach to Redistribute Consumable Food Waste," 2021 12th International Conference on Computing Communication and Networking Technologies (ICCCNT), Kharagpur, India, 2021,pp.1-6,doi:10.1109/ICCCNT51525.2021.9579645.

[5] Sardar Maran P , Reddy B.S, Saiharshavardhan C (2021) , " Air Quality Prediction (IoT) Using Machine Learning", Lecture Notes in Electrical Engineering, Vol.709, pp. 583–591.

[6] N. K. G N, J. R, S. S. Nukala, M. K. V, S. P. Shankar and S. Kandarp, "Development of Leftover food management system using efficient hunger search techniques," 2021 IEEE Mysore Sub Section International Conference (MysuruCon), Hassan, India, 2021, pp. 312-321.

[7] Apostolidis, C., Brown, D., Wijetunga, D.,Kathriarachchi, 2021. Sustainable Value CoCreation at the Bottom of the Pyramid: Using Mobile Applications to Reduce Food Waste and Improve Food Security. Journal of Marketing Management, Vol. 37 [9-10], 856-886

[8] Vidhi Panchal1, Kajal Kuchekar2, Snehal Tambe3, Availability of food for NGO through Mobile Application: Food For All International Research Journal of Engineering and Technology (IRJET) Mar 2020.

[9] Mary Posonia A, S. Vigneshwari, Albert Mayan J, D. Jamunarani, "Service Direct : Platform that Incorporates Service Providers and Consumers Directly", International Journal of Engineering and Advanced Technology (IJEAT) , Vol.8 ,No.6, 2019

[10] K.Anusha and R.Bhargavi," Food Wastage Reduction through Donation using New Approach: Helping Hands ", Volume VIII, Issue III, March 2019.

[11] Abdullah SaniAbd. Rahman, Farah NorliyanaAzahar, Nasiroh Omar, and Suraya Masrom, "Food for You (F4U) Mobile Charity Application", International Journal of Engineering & Technology, vol. 7, no 4.19, pp.520-523, 2018.

[12] AdlineFreeda R and Sahlin Ahamed M.S, "Mobile Application for Excess Food Donation and Analysis", International Journal of Innovative Research in Science, vol. 7, Special Issue 4, ISSN(Online): 2319-8753, ISSN (Print): 2347-6710, 2018.

[13] Jenil Shah, NamanTalati, Omkar Surve, and ShreyKyal, "Food Donation Portal", International Journal for Scientific Research & Development, vol. 4, Issue 11, ISSN (online): 2321-0613, 2017.