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Android Based Food Donation App - Grub Give

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Abstract: *Grub Give emerges as a pivotal initiative, confronting the intertwined dilemmas of food waste and hunger through its innovative Android-based platform. This system adeptly streamlines the collection of surplus food from diverse sources and redistributes it efficiently to disadvantaged individuals via NGOs, thereby making significant strides towards realizing the Sustainable Development Goal of Zero Hunger. Nevertheless, the project encounters obstacles such as inefficient food distribution channels and a lack of awareness regarding donation opportunities, impeding its efficacy. To surmount these hurdles, Grub Give proposes the development of a user-friendly mobile application and the forging of partnerships with NGOs and food- related enterprises to establish a sustainable supply chain. Initial observations reveal heightened engagement from donors and improved accessibility for beneficiaries, culminating in diminished food waste and fortified food security. Ultimately, Grub Give emerges as a beacon of social responsibility, advocating for streamlined food sustainability practices while combatting the urgent issue of hunger within communities.*

Keywords: *Food Donation, Mobile Application, Donors, Android Tool, Electric Eel..*

1. INTRODUCTION:

The Grub Give application facilitates the collection of surplus food from various sources, such as social, political, and religious events, and redistributes it to individuals in need. NGOs dedicated to fighting hunger and malnutrition can utilize this app to request excess/left-over food from eateries, which they can then collect for distribution once the request is approved. This app-based tool for food waste management enables donors to reduce food waste while aiding in feeding the poor and needy.

The system's goals includes: Collection of leftovers from Marriage halls/home food/restaurant chains, Assistance to users, including social welfare organizations and individual users (with a focus on individual users in the system) Catering to individual users such as foreigners, travelers, or bachelors in search of food. It also facilitates the authentication by Implementing authentication mechanisms, such as OAuth or Firebase Authentication, to ensure secure access to user data and maintaining data integrity. It also Employs the workflow analysis to understand the flow of information and tasks within the app, identifying potential bottlenecks and areas for improvement.

The scope includes enhancing Grub Give's effectiveness in combating food waste and promoting sustainable food systems.

Food wastage management in alignment with the Sustainable Development Goal: Zero Hunger.

2. FOOD DONATION USING GRUB GIVE APPLICATION:

Our paper, **"ANDROID BASED FOOD DONATION APP – GRUB GIVE"** mainly focuses on reducing food wastage and hunger. Despite the advent of food donation apps like Grub Give, several shortcomings persist within existing systems, necessitating further investigation and improvement. Firstly, there is a pressing need for enhanced efficiency in surplus food collection mechanisms. Challenges such as scheduling pickups, ensuring timely collections, and maintaining food quality during transportation pose ongoing hurdles. Additionally, there is a notable gap in user engagement and adoption rates. Strategies aimed at increasing awareness about food donation apps among potential donors, educating them about the consequences of food waste, and incentivizing participation are warranted.

3. ARCHITECTURE:

At first, the user can create an account using login form. If the user wants to login to our application, they must verified their email id through the generated passcode in their registered mail. Once they should verified their account mail id they are allowed to use that application. But if they already registered with this application by using the same email-id, it shows like account already exists. The strong password setup can also been enabled in our application. Once they created an account, they can post any food donation notifications and acceptance etc. Once they accepted the notification, their location can automatically shared to the other recipients. And the feature of out of stock is also enabled to identified that the notification is already accepted by some other people. The user can also use the Chat AI built-in questions for the guidance of how to use that application. By using the Leader Board, Rewards should be provided to the people who donate many foods. The Architecture of our project is depicted below.

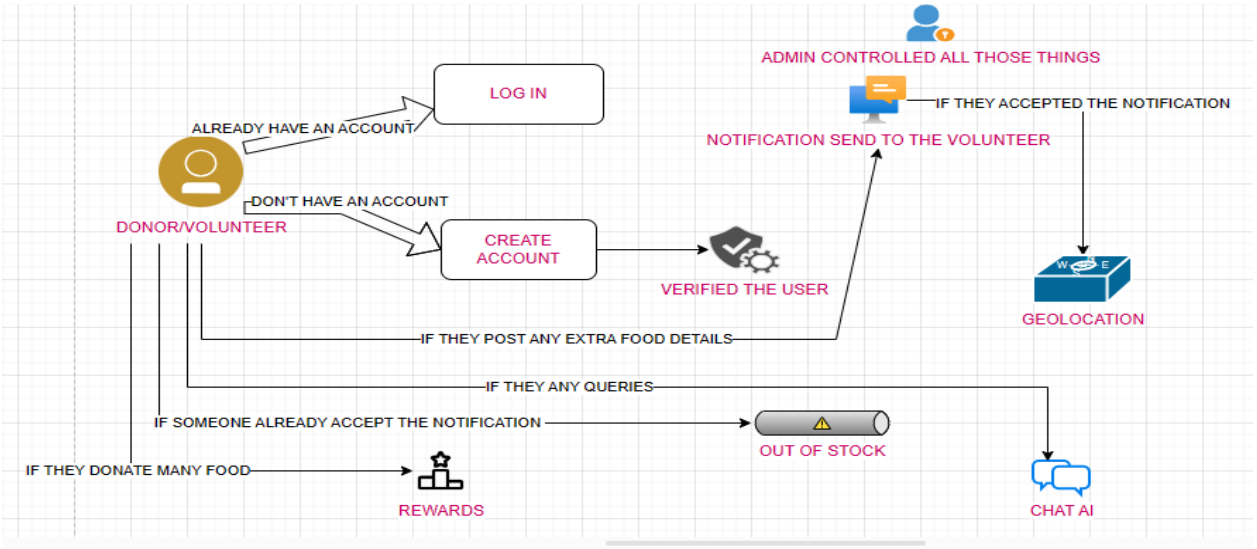

Fig. 1. Architecture diagram for Food Donation App – Grub Give

4. FLOWCHART:

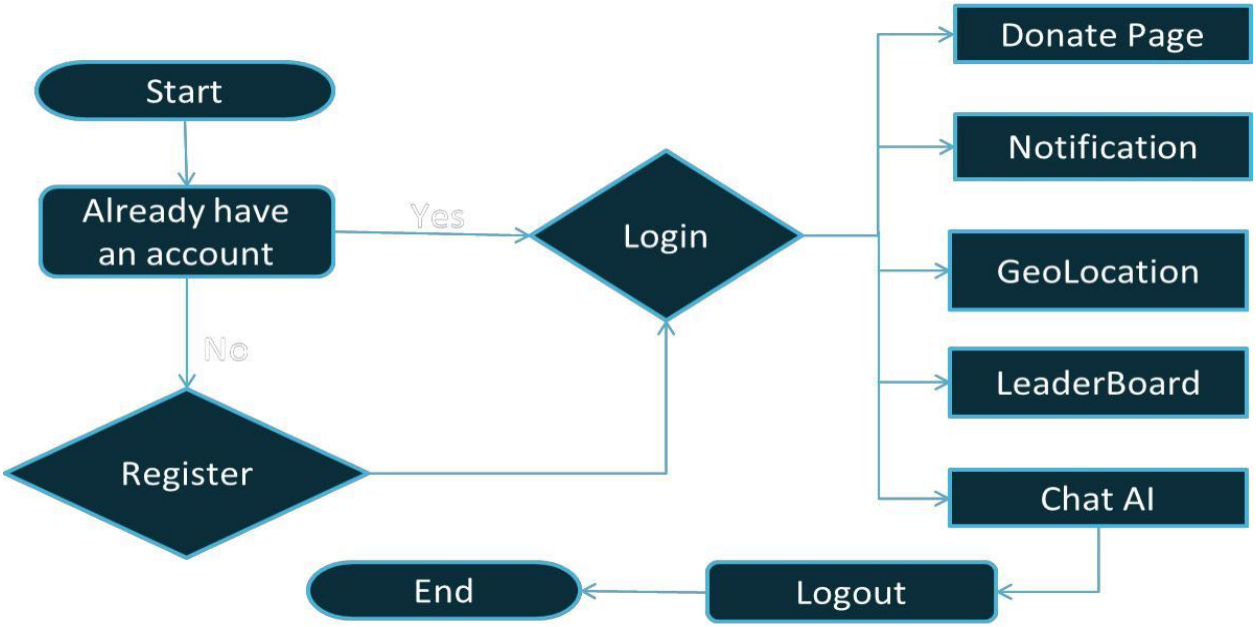

Fig. 2. Flowchart diagram for Food Donation App – Grub Give

1) First, the user should create an account by registering in our application, But if they already have an account use the login button to make donations and acceptance.
2) The user make donation by using the donation page, If they make donations, their notification sholud be send to all other recipients. If someone accepted that notification, their location should be automatically shared to the notification accepted people.
3) For notification purpose, we use the **Firebase Cloud Messaging** Service.
4) Geolocation is used to identify the donors and recipients location. It helps to get their food at correct time before the food spoiled. For tracking user's geolocation and routing, we use the tools like **Geocoding(latitude and longitude)**.
5) The user can also use the Chat AI built-in queries to use that application.
6) At last, the rewards should be provided to the people who donates more food by using the application.

5. PICTORIAL REPRESENTATION:

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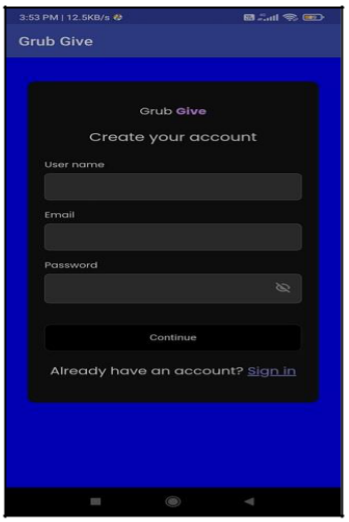
</td><td> 
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<tr><td>Login</td><td>user can create an account</td></tr>
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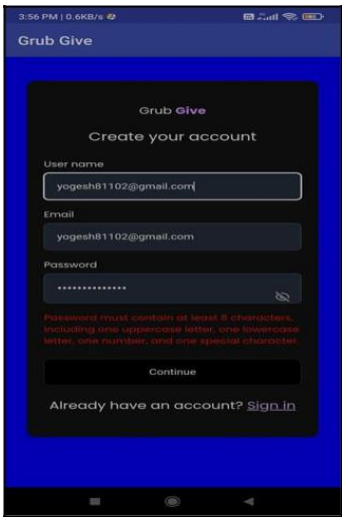
</td><td> 
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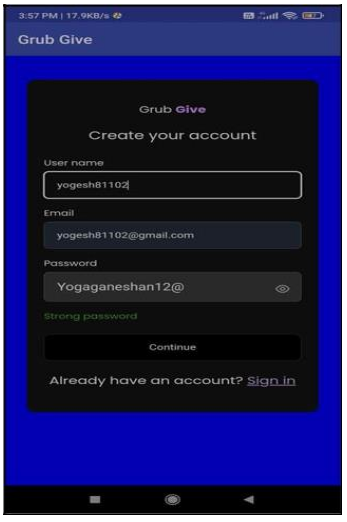
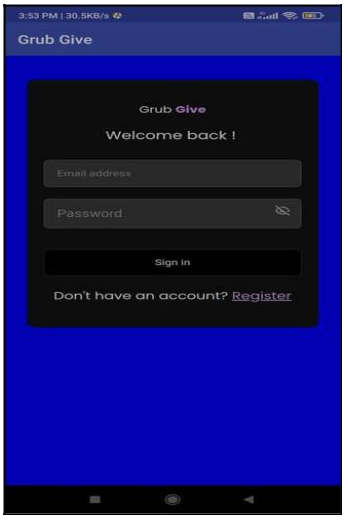
<tr><td>Already Registered Account</td><td>Strong Password Suggestion</td></tr>
<tr><td> 
</td><td> 
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<tr><td>Strong Password Setup</td><td>Sign in</td></tr>
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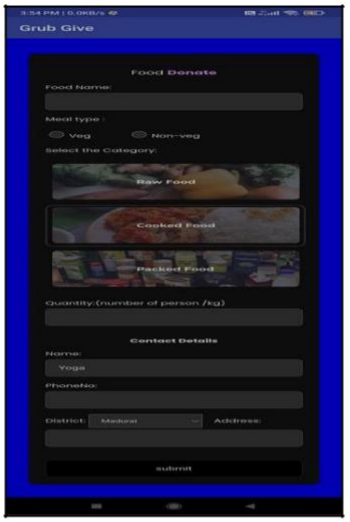
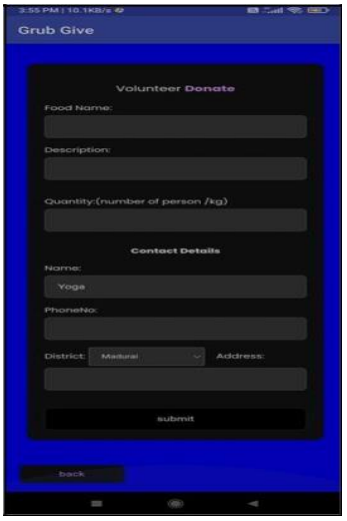
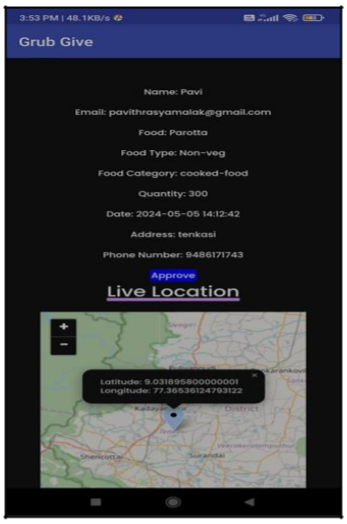
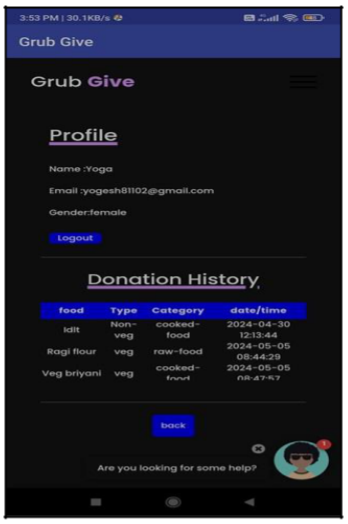
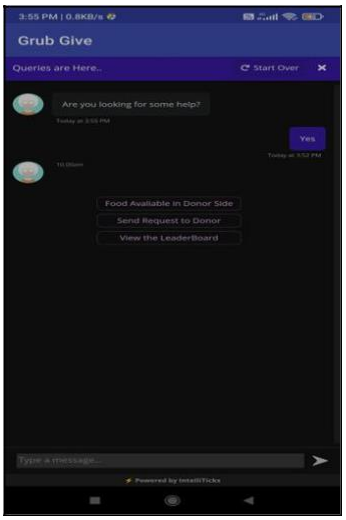
	
Menu Bar	Donation Page
	
Volunteer Page	Notification Page

	
Location	Profile & Donation History
	
Chat AI	Leader Board

6. APPLICATIONS OF FOOD DONATION APP – GRUB GIVE:

6.1 Connecting Donors and Recipients:
It connects food donors with recipients through real-time listings, automated matching, and efficient communication tools, ensuring timely and effective food redistribution.

6.2 Reducing Food Wastage:
It helps in redistribution of leftover foods to the needed people which reduces the death of hunger, also reduces food wastage.

6.3 Evaluation of features and Usability:
A thorough assessment of Grub Give's functionalities, focusing on user- friendliness, responsiveness, and effectiveness in facilitating surplus food collection and distribution across donor, NGO, and physical delivery system modules.

6.4 Examination of User Engagement and Adoption:
Investigation into user engagement levels among donors, NGOs, and recipients, utilizing surveys, interviews, and usage statistics to understand adoption rates and user satisfaction factors.

6.5 Integration with Food businesses:
Assessment of Grub Give's integration with food businesses, identifying challenges and successes in partnering for surplus food donation.

6.6 Evaluation of Redistribution Efficiency:
Analysis of Grub Give's physical delivery system module efficiency, focusing on timeliness and effectiveness in redistributing surplus food to NGOs and individuals, identifying distribution process improvements.

6.7 Exploration of Cultural Sensitivity and Regional Adaptation:
Understanding cultural and regional influences on food waste and donation practices, and adapting Grub Give for diverse contexts.

6.8 Investigation of Data Privacy and Security Measures:
Examination of Grub Give's data privacy and security measures, with recommendations for enhancing user trust and compliance.

6.9 App's Impact on Sustainable Development Goals (SDGs):
Assessment of Grub Give's contribution to SDG 12 (Responsible Consumption and Production) and SDG 2 (Zero Hunger), examining alignment with sustainability principles and food security.

6.10 Identification of Policy Recommendations:
Proposal of policy recommendations to support food donation initiatives, including legal frameworks, incentives, and government support measures.

6.11 Recommendations for Future Development:
Suggestions for enhancing Grub Give, including feature improvements, user engagement strategies, and expanding partnerships with food businesses and NGOs.

7. SAMPLE OUTPUT:

Fig.9.Sample certificate

8. CONCLUSION:

In this article, the problems in food donation applications are reduced and the new features for donating food to the people are implemented. This application has effectively linked extra food from donors to people in need using creative technology and community involvement, highlighting the potential of digital solutions in addressing societal concerns. Our idea is to increase the user engagement and participation through eco-friendly mechanisms and incentives. Hence our application is useful to reduce the death of hunger.

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