Donate at Your Fingertips

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ABSTRACT

Food, clothing, and books are among the most essential and critical provisions for human well- being. Unfortunately, the issue of food insecurity, characterized by the absence of safe, nutritious, and sufficient food, persists as a significant problem in our society, especially in low-income communities. The three essentials such as food, cloth and book represent the most basic requirements of humanity, and it is imperative that they are met as swiftly as possible. Regrettably, in today's society, a significant number of individuals struggle to afford or access these fundamental necessities for survival. This Android application offers a solution to these challenges, enabling users to contribute food, clothing, and books free of charge, while allowing those in need to collect these donations when required. A noteworthy feature of this application is its ability to connect donors with recipients who seek the same type of donation. Unlike other donation platforms that often focus on one specific need, such as food, cloth and book.

Key Words: donation platform, secondhand market, wastage reduction, donation catalog, affluent society, Smart donation, Smartphone application.

1.INTRODUCTION

In 2020, hunger statistics in India were reported at 16.30%, marking a 1.7% increase from 2019. Additionally, it is disheartening to note that approximately 25% of donated clothing items are discarded in landfills, while an additional 40 to 50% A distinctive feature of our application is its ability to connect donors with recipients who are shipped overseas to the second-hand market. Only 25% to 35% of these donations find their way to stores, further highlighting the wastage. Access to books, a vital source of knowledge and enlightenment, is often taken for granted, yet not everyone enjoys this privilege. Food, clothing, and education are undeniably the three most fundamental and critical necessities for human beings. Ensuring access to these essentials is of paramount importance and should be addressed urgently. Regrettably, contemporary society witnesses many individuals who are unable to afford or access these fundamental requisites for survival, while, conversely, we observe a considerable wastage of resources, including food, clothing, and literature, by affluent and educated individuals.

Our generation's heavy dependence on smartphones for managing our daily activities is evident. These devices have transitioned from their initial role as basic communication tools to becoming indispensable personal assistants in our lives. With this transformation in mind, we've developed an innovative Android application that taps into the smartphone's potential as a personal assistant, offering users a comprehensive solution for a variety of tasks, including donating and borrowing items. This platform caters to a wide audience, providing the means to facilitate exchanges, borrowing, and sales of pre-owned items, thereby promoting a more connected and sustainable community. This application serves as a solution to this issue by allowing users to donate food, cloth, and books for free, and enabling other users to collect these donations when the need arises. require the same type of donation. In contrast to existing donation platforms that often focus on a specific need, be it food, clothing, or books, our application is uniquely designed to provide all three essential needs within a single platform.

2. Existing System

Existing systems of food, Clothes and Books donation encompass a diverse range of organizations and initiatives aimed at addressing societal needs. Non-profit organizations, community groups and governmental agencies play pivotal roles in orchestrating these efforts.

The research paper titled "An Examination on Food, Clothes and Books Donation Based Android Application" [1] highlights the fundamental goal of the application is to associate those with surplus assets and liabilities who are anxious to reward the local area with other people who are out of luck and able to acknowledge. With the assistance of our program, clients can uninhibitedly give things like food, attire, and books, and different clients can openly gather the merchandise on a case-by-case basis. The research paper "Virtualizing Food Donation Distribution through Mobile Application and Cloud-Based Supply Chain Management" [2] introduces an infrastructure, DOVIR, which enables precise food donation through a virtualization infrastructure implemented via a smartphone application and cloud-based services. DOVIR incorporates analytics and smart sensors to automate the prediction of

donation requirements, representing a groundbreaking food donation system that virtualizes the entire supply chain and maintains donor engagement throughout the process. "FoodX, a System to Reduce Food Waste"

[3] aims to create an application model that connects food donors, humanitarian communities, and individuals experiencing food scarcity in Jakarta. The paper discusses existing social community business processes, the application's design, and offers further research recommendations. "SeVa: A Food Donation App for Smart Living" [4] focuses on the design, implementation, and evaluation of the SeVa food donation app. The paper highlights the app's integration with other useful apps, its impact on AI for Smart Cities, its deployment on the

Android platform, and positive user feedback. "Predicting Farms' Donations to Food Banks using the Analytic Hierarchical Process and Dempster Shafer Theory" [5] analyzes factors contributing to annual sweet potato donations to Feeding the "

Carolinas from 2010 to 2016. "Forecast and Analysis of Food Donations Using Support Vector Regression" [6] explores the use of Support Vector Regression for predicting monthly food donation quantities, showcasing its potential in addressing food donation supply uncertainty.
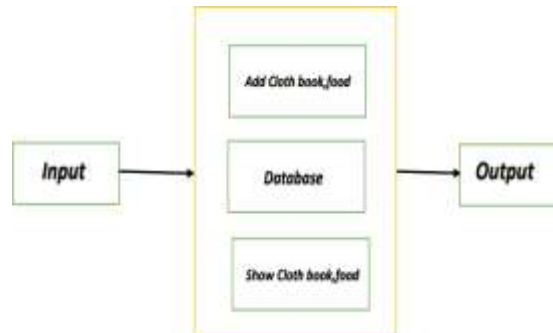

Fig.1 System Design

"Implement Android Application For Book Donation"

[7] discusses the revolutionary potential of a book donation application, acting as a bridge between donors and those in need, particularly in countries like India. "Developing a Reliable Service System of Charity Donation during the Covid-19 Outbreak" [8] aims to create a blockchain-supported solution that integrates traditional web services and blockchain technology, ensuring a swift response to users' needs during the Covid-19 outbreak. "An Android Application Development for Food Donation: A Geographical Location Based Approach" [9] highlights the truth is that every year, close to one third of the world's food is wasted. Due to the support it provides to both consumers and developers, Android are one of the most popular mobile operating systems in the world. "Donatify" is the name of the app, which aims to link the community of hungry people with food donors. "A Blockchain-based Material Donation Platform"

[10] This paper highlights the propose a blockchain- based material donation platform designed and implemented through the Ethereum platform. We solve the difficulty of demand acquisition and improve the transparency of the donation process through blockchain.

In summary, these referenced papers offer valuable insights and methodologies that contribute to this 'Donation' project.

2. Methodology

1) User Registration / Login:

Users can create accounts or log in to the system. User profiles store preferences and settings for a personalized experience.

2) Donation Listings :

Donors can create listings for food , books or clothes donations , specifying details such as quantity , item name , address. Donors have the option to upload images of the donated items to provide visual context and attract potential recipients.

3) Recipient Search and Request:

Recipients can search for donation listings based on their location, preferences and needs. The system utilizes geolocation services to determine the recipient's current location and identify nearby donation listings. Recipients can view detailed information about available donations and submit requests for items they require.

4) Pickup / Delivery Logistics:

The system facilitates communication between donors and recipients to coordinate pickup or delivery logistics.

Data Flow Diagram(DFD) :

Below is a simplified Data Flow Diagram illustrating the flow of data and processes for the mentioned system functions:
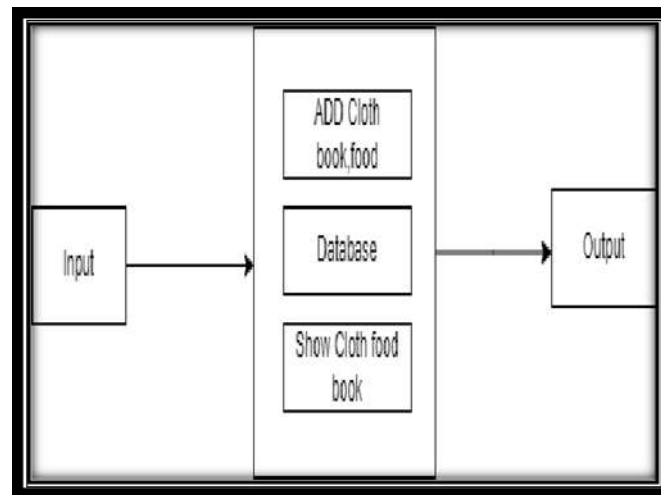
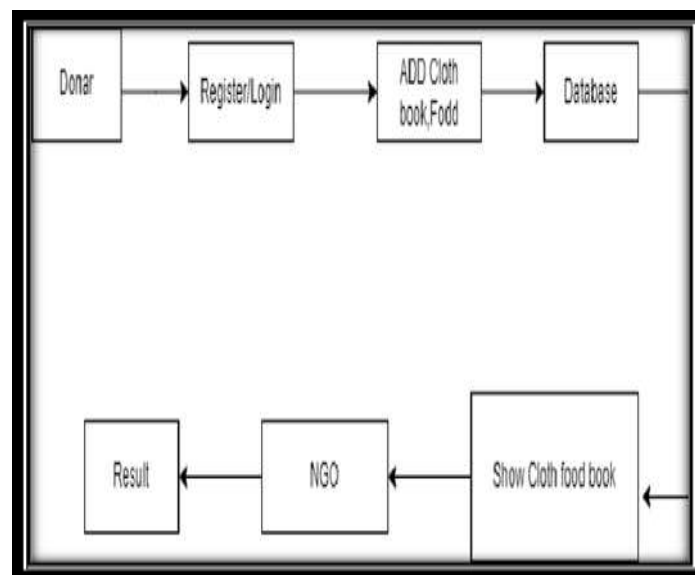Figure : Data Flow diagram 1 level

Figure : Data Flow diagram 2 level

This DFD illustrates the sequential flow of user interactions within the Food Book and Clothes Donation system, from initial login to receiving notifications. It emphasizes the system's ability to provide a tailored experience based on user preferences and location.

Tool Used:

The tools used in this system include:

1) Firebase Realtime Database :This tool is utilized for storing and managing real-time data related to user accounts, donation listings, recipient requests,and communication between donors and recipients.

2) Google Maps API: For integrating maps functionality into the application to display the user's current location, nearby shops, and directions.

3) Android Studio: Integrated Development Environment (IDE) used for Android app development, including coding, debugging, and testing.

4) Kotlin Programming Language: Used for developing the Android application due to its concise syntax, null safety, and interoperability with Java.

Algorithm Explanation :

1) K- Nearest Neighbour Algorithm :

The K Nearest Neighbors (KNN) algorithm can be applied to the Food Book and Cloth Donation system to identify the nearest donation points (shops, drop-off centers, etc.) to a user's current location.

2) Geospetial Algorithm :

This algorithm enhances the efficiency of locating nearby donation points by utilizing geospatial data structures and algorithms. It involves indexing donation points based on their geographical coordinates using techniques like R-trees or quad-trees for efficient spatial querying. The geospatial algorithm ensures optimal utilization of resources and provides accurate results, contributing to an enhanced user experience.

3) Push Notification Algorithm :

The push notification algorithm facilitates real- time communication with users by sending notifications about new donation listings, matched donation requests, and other relevant updates.

4) Encryption Algorithm :

The encryption algorithm ensures the security and privacy of sensitive data exchanged within the app, such as user credentials, personal information, and communication between users.

These algorithms collectively contribute to the functionality, efficiency, and security of the Food Book and Cloth Donation App, providing users with a seamless and secure donation experience.

3. System Architecture :

The framework of an Android application for book, food, and cloth donation is a multifaceted structure that combines the front-end UI, back-end server, user management, geolocation, and various other components to create a platform that facilitates charitable donations and connects donors with recipients. It must prioritize user experience, security, and scalability to fulfill its mission effectively.
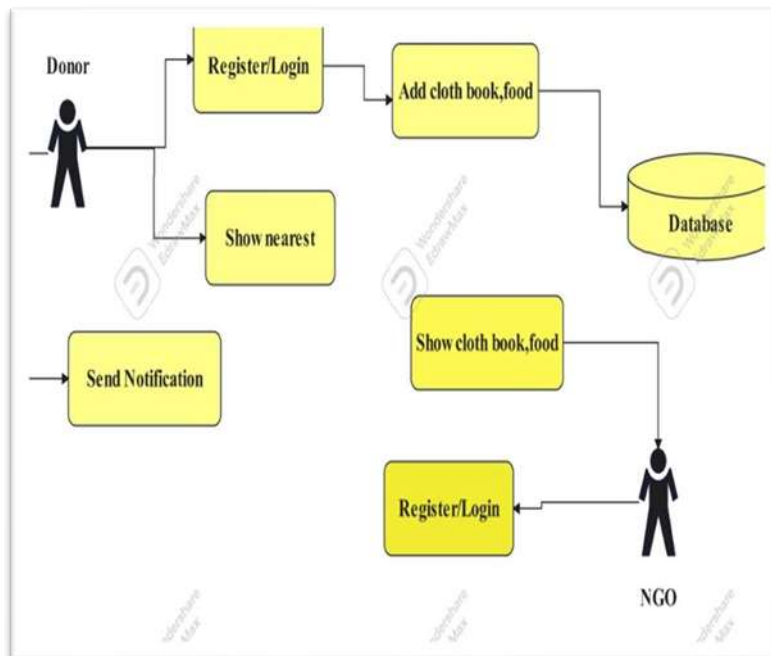
4. Implementation :

Donar Section : -

1) Donor Login :

Donors log in using their credentials (email/password) or register for a new account if they're new to the platform.

2) Donating Items:

Donors can create listings for food, books, or clothes donations, specifying item details (quantity, condition, description), and upload images if necessary.

Donors can also view a list of nearby donation points/shops, select a suitable one, and schedule drop-offs or pickups.

3) Donation History:

Donors can access their donation history to track past contributions, including details like items donated, donation dates, and recipient information.

Receiver Section:-

1) Recipient Login :

Receivers (individuals or organizations in need) log in using their credentials or register if they're new users.

2) Requesting Donation:

Receivers can search for donation listings based on their needs (food, books, clothes), view available items, and submit requests for specific donations.

Once a donation request is approved by the donor, receivers receive notifications and can arrange pickup or delivery.

3) Donation History:

Receivers can also access their donation history to keep track of received items, dates, and donor information.

5. Result:-

Below is the snapshot of the application:-
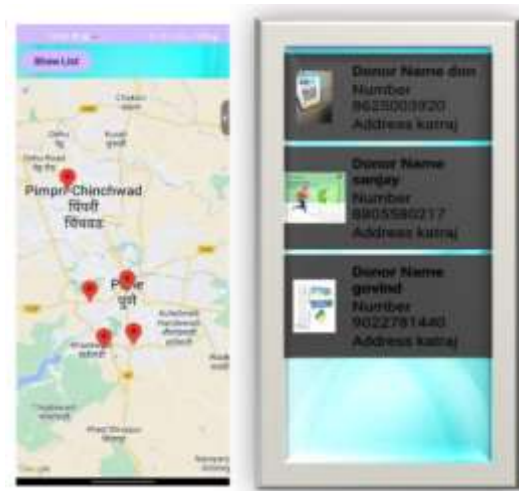
Registration / Login:

Donar Section:

1. Donar Login :

2. Donating items and Donation History

Receiver Section:-

3.Booking the items

4. Tracking and Location.

5. Realtime Database:

6. CONCLUSION AND FUTURE SCOPE

In conclusion, the Android application for food, clothing, and book donations provides a vital solution to addressing the immediate needs of underprivileged communities, reducing wastage, and fostering a culture of giving. Its future scope includes potential expansion to cover a wider range of essential items, partnerships with local entities, user engagement strategies, data-driven optimization, and a focus on sustainability and inclusivity. This

application has the potential to make a lasting, positive impact on society by connecting donors with recipients and addressing fundamental necessities while adapting to evolving community needs and priorities.

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