"HELPING HAND DONATION SYSTEM"

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Abstract— Facilitating charitable contributions has always been a challenge, but the Helping Hand Donation System Application offers an efficient answer. This innovative mobile software makes it simple and convenient for people to practice generosity. The application's user-centric design allows contributors to securely make provides with a few clicks while also exploring a variety of charity causes, organizations, and campaigns. A revolutionary project, the Helping Hand Donation System aims to improve and simplify the act of making charitable contributions. With an emphasis on effect, simplicity, and openness, our system offers contributors a smooth way to make contributions to different organizations and causes. Donors can simply make one-time or ongoing contributions with ease through user-friendly interfaces and safe payment choices, all while knowing that their contributions are actually improving the lives of others. Because actual time accounting and monitoring systems allow contributors to see the immediate results of their contributions, they promote openness and responsibility. Furthermore, social media sharing features empower contributors to motivate others and magnify their influence, establishing a community of empathy and solidarity. The Helping Hand Donation System utilizes technology to enable significant relationships between donors and beneficiaries, with an aim of enabling people to make an impact on the world.

Keywords—Donation, Charitable Organization, Donors, Beneficiary, Android.

I. INTRODUCTION

In today's interconnected world, the act of giving back and supporting charitable causes has become more important than ever. But even while helping is widely desired, the complexity and uncertainty associated with traditional donation procedures sometimes discourage many potential donors. Seeing this difficulty, we've developed the new Helping Hand Donation System Application, a mobile platform that enables anyone to easily and transparently make a beneficial effect.[5] The goal of the Helping Hand Donation System Application is to close the gap between individuals in need and contributors by combining compassion and technology.

The application aims to make donating easier with its intuitive features and user-friendly UI, making it available to people of various ages and backgrounds. Users are able to discover and contribute to a variety of charitable activities through the program, which offers a central center for supporting local community initiatives, disaster relief operations, and worldwide humanitarian causes.[3] The Helping Hand Donation System Application's dedication to accountability and openness is at its core. Donors can ensure trust and confidence in the impact of their giving by seeing how their donations are used through real-time tracking and reporting tasks. The Helping Hand Donation System Application enables people to become change agents in their communities and beyond by utilizing the power of mobile technology. Let's join in embracing the spirit of kindness and generosity to make the world a better and more just place for everyone. The app works as an agent for good social change by offering assistance to victims of natural disasters, funding educational programs, or supplying necessities to those without opportunity. In today's world, charity is vital.[4] A charitable organization enables people to see that, even in this chaotic and unpredictable world, it is possible to help others. Donating to charities helps us understand our mission in life and the people in our society. Giving to others and seeing their beauty is made possible by donations. It helps us to acknowledge how fortunate we still are in spite of our lack of some things Together, let's adopt the spirit of caring and giving to create a more equitable and better world for all. [2] The Helping Hand Donation System is fundamentally based on the idea that every donation, regardless of size, has the potential to significantly impact someone's life. Every donation acts as a lifeline of compassion and hope, whether it is given to communities in need, families who are having difficulty making ends meet, or individuals who are suffering disease.[1] Donors may explore different causes, navigate the platform with ease, and securely make contributions with confidence, because of to the user-friendly interface. Donations, no matter how small, can have a major influence because those who give to charities are contributing to something greater and more important than themselves. Giving back doesn't need volunteers to engage in voluntary work. Contributing to a charitable cause is another important method to support an organization that helps the underprivileged and makes a difference. Additional research has demonstrated that people who donate to charities report feeling happier overall They can also do so with assurance knowing that their gift will directly benefit those in need.[8] Donors can connect with kind people who are willing to help at the same time as they can tell their experiences.

II. PROPOSED METHOD

The visitor can explore a variety of topics on our website, such as events for the underprivileged and campaigns organized by other NGOs or individuals.

For the process to proceed, the user needs to log in. Give them access if they are a valid user. If not, reenter your credentials. The way the webpage loads depends on the type of user.[10] The user is also given unique credentials to verify their identity if they are an NGO. The NGO must register themselves first if they haven't already done so. NGO can browse the home page after logging in. Examine several events and the funds they have allocated.

Additionally, they can use the application map to find the NGO in their area and create a notice alert for those establishments. Therefore, these NGOs will be informed anytime, uploads information about their events. In addition, they can approve requests for donations and see if any other users has uploaded anything.[14] If the user is regular, they can review several events or donation for various non-governmental organizations and make contributions in line with their needs. Additionally, consider the work that the various NGOs that are featured on our application do and consider making a donation of food, cash, toys, clothes, utensils, etc.

[13] These are the specifications that the end user expressly requests the system provide as a minimum. All these functionalities need to be necessarily incorporated into the system as a part of the contract.
1. For Donor/Receiver
a. Donate item.
b. Receiver see the list of donate items.

2. For admins
a. Admins shall enter the hospital details.

3. For User
   a. Search NGO
   b. Select NGO.
   c. Enter details of item to donate.

4. NGO
   a. Add nearby events
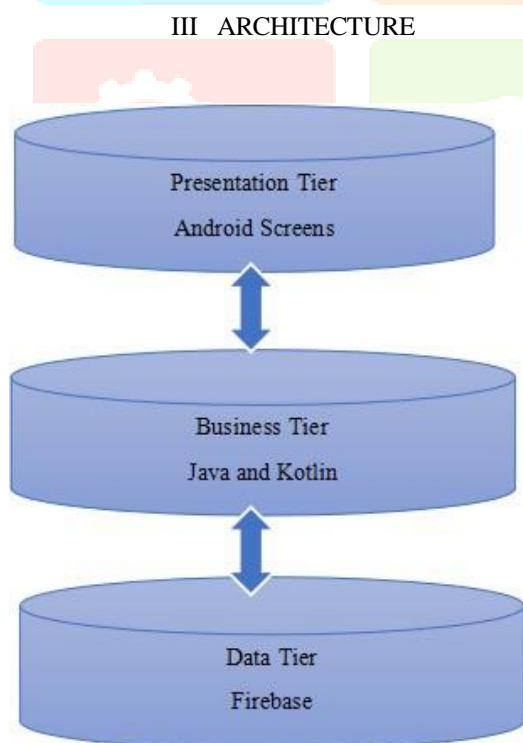   b. Track location

III ARCHITECTURE

Fig. 1 Architecture Diagram

I Presentation Layer (UI):

Pages like aspx or windows forms, which display data to the user or request input from them, are part of the presentation layer.

II Business Access Layer (BAL) or Business Logic Layer:

When necessary, business logic, data validations, and calculations are included in BAL.

III Data Access Layer (DAL):

DAL includes methods that assist the business layer in connecting the data and carrying out necessary actions, such as retrieving data or performing data manipulation (insert, update, delete, etc.).[6] Because the three crucial modules the database, logic, and user interface are distinct from one another and work independently of one another, we decided on a three-tier architecture. Additionally, changing one tier won't have an impact on the others.

Using 3-tier design also has the following advantages:
a. Scalability: There is horizontal scaling for each tier. One way to handle more Web requests is to load-balance the Presentation layer among three servers, without expanding the Application and Data tiers with more servers.

b. Performance: Due to the Presentation tier's ability to cache requests, the Application and Data tiers experience less load and network usage. Any tier can be load-balanced if needed.
c. Availability: The Presentation tier can use the cache to handle Web requests in the event that the Application tier server is unavailable and caching is enough.

IV ALGORITHM

A.   Define User Roles:
Add NGO as another user role alongside Admin, Donor, and Receiver.

B.   User Authentication:
Ensure secure authentication for all user types, including NGO representatives.

C.   Admin Functionality:
Manage Users: Admins can manage NGO accounts, including approval, modification, or removal.
Manage Donors and Receivers: Admins oversee donor and receiver registrations and donation processes.
Manage NGO Activities: Admins can monitor NGO activities, including outreach efforts, events, and activities.

D.   NGO Functionality:
Register: NGOs can create accounts with details such as name, contact information.
Outreach and Education: NGOs can use the app to raise awareness about donation, educate the public, and promote donation events.
Events: NGOs can collect donations through the app to support their events and activities.
Coordination: NGOs can collaborate with donors, receivers,

and other stakeholders to hand donation activities

E. Donor and Receiver Functionality:
Register: Donor and Receiver can create accounts with relevant details such as name, email id, contact information, address and mission statement [7].
Login: Donor and Receiver can login using email-id and password.
Donor: Donor can add details about themselves.
Receiver: Receiver can see the list.

F. Communication:
Enable secure communication channels between NGOs, donors, and receivers to facilitate coordination, information exchange, and support.

G. Notifications:
Ensure NGOs receive notifications about new donation items, information and other updates.

H. Privacy and Security:
Maintain strict privacy and security measures to protect user data, including NGO information and donor/recipient details.

V MATHEMATICAL MODEL

Let S is the System
S= {I, O, F, DD, NDD, Success, Failure}
Where,
I=Input
I={Username, Password, user, details, add product, category}
O=Output
O={ Registration details, Donation item, Track Donation }
F=Function
F={login, register, add donation item, show list, show user}
Success: All process executed successfully.
Failure: Internet connection Problem.

VI METHODOLOGY

Project teams can start and oversee specific projects with the help of a methodology, which gives them a set of guidelines. [12] Definitions, instructions, and templates for the different project management tasks required to complete projects successfully are contained in a methodology. The methodology creates a baseline for all projects carried out by an organization.

A. Android Studio:
Android Studio is the official Integrated Development Environment (IDE) for Google's Android operating system. It is built on top of JetBrain's IntelliJ IDEA software and designed specifically for Android development. In 2020, it will be offered as a subscription service or for download on operating systems such as Windows, MacOS, and Linux.[21] At the Google I/O conference the announcement of Android Studio was made. It began as an early access preview version 0.1 in May 2013 and went into beta testing with version 0.8, which was made available in June 2014. Version 1.0 of the first stable build was made available in December 2014.

B. XML:
The file format and markup language known as Extensible Markup Language (XML) can be used to store, send, and reconstruct any kind of data. It specifies a set of guidelines for document encoding in a machine- and human-readable format. XML is defined by the 1998 XML 1.0 Specification published by the World Wide Web Consortium, along with a number of additional related specifications that are all free open standards. Simplicity, generality, and Internet-wide usability are prioritized in XML design goals. [9] Because of Unicode, this text data format is compatible with a large number of human languages. Despite having been designed with documents in mind, XML is now frequently used to express arbitrary data structures, like those found in web services.

C. Kotlin:
Programming in Kotlin, which is object-oriented and statically typed, is compatible with Java Virtual Machine (JVM), Android, and Java Class Libraries. The Kotlin programming language was initially designed to be an addition to Java, however it is often used in conjunction with Java. While Kotlin is the language of choice for Android developers, it can also be used for a variety of other application types because of its Java compatibility. The two general-purpose programming languages having static typing are Kotlin and Java.[11] In many respects, Kotlin is considered Java's replacement. It is incompatible with syntax but compatible with Java code and libraries. Additionally, Kotlin features libraries of its own that were developed via an Android application programming interface.

D. Firebase Database:
The cloud-hosted Firebase Realtime Database stores data in JSON format. All linked clients receive real-time synchronization of the data. All of our clients utilise a single Realtime Database instance and are updated instantly with the most recent data when we develop cross-platform applications using our JavaScript and iOS SDKs. This service's goal is to make it simpler for users to sign up and log in. Facebook, GitHub, Google, Twitter, and cell phone numbers can all be used with Firebase Authentication.[19] The solution that will be developed employs mobile number authentication. The decision to employ a cell phone number was made since it will be used for informational purposes when the user asks for donation, allowing him to be contacted right away in the event that another user donates his item allows users worldwide to manage and sync data without the need for a structured query language. As a result, any information or details that are changed in the database are frequently updated by the user.

VII WORKING OF SYSTEM
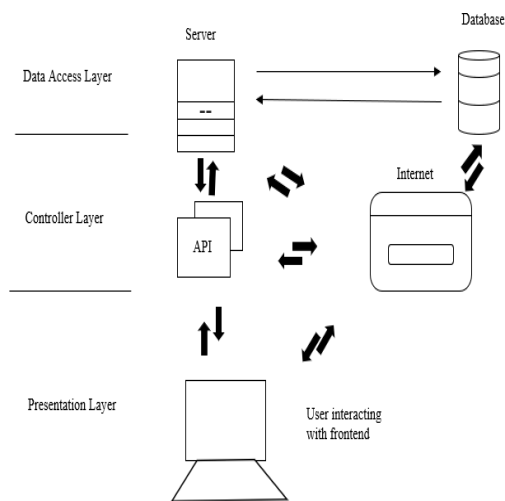

Fig. 2 System Workings

[A] Data Access Layer (Data Handling):
Manages data retrieval, storage, and manipulation. Components: Repositories, Data Sources, Data Models. Interfaces with local and remote data sources (e.g., local database, APIs, cloud storage).
Performs CRUD operations on entities and manages data caching. Implements data synchronization and consistency mechanisms.

[B] Controller Layer (Entities and Use Cases):
Defines the domain model and encapsulates the business logic.
Components: Entities, Use Cases, Validators.
Represents entities such as User, Donation, Donation Request, Message, etc.
Contains use cases representing high-level actions or operations in the system (e.g., Donate Item, Request Assistance).
Encapsulates domain-specific rules and validations.

[C] Presentation Layer (UI/UX):
Accountable for all aspects of the user interface, including as layouts, interfaces, and interactions.
Components: Activities, Fragments, Views, Recycler Views, and UI frameworks like Material Design.
To guarantee a user-friendly experience, prioritize responsiveness, accessibility, and simple layout.

VIII RESULT AND DISCUSSION

The donation system Android application yielded positive outcomes, meeting its objectives of
providing a user- friendly platform and increasing donation participation. User feedback highlighted its intuitive design, encouraging engagement. Performance metrics showcased a notable increase in donations processed.

Technical challenges, such as compatibility issues, were effectively addressed. Future enhancements include implementing additional features based on user feedback.[17] The application's impact on facilitating donations and fostering community support is significant, despite some limitations in resources and technology. In conclusion, the project successfully delivered a valuable tool for facilitating donations while laying the groundwork for future improvements and expansion. Following are snapshots our application:
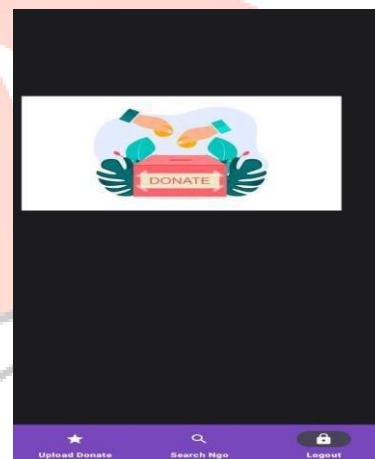

Fig. 3 Home page
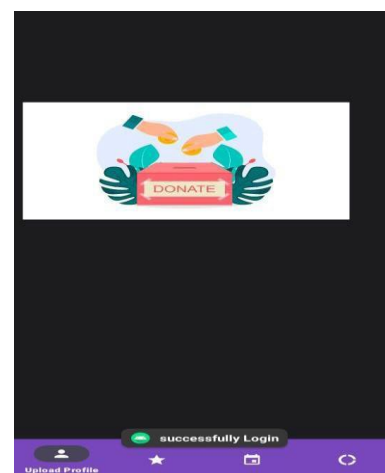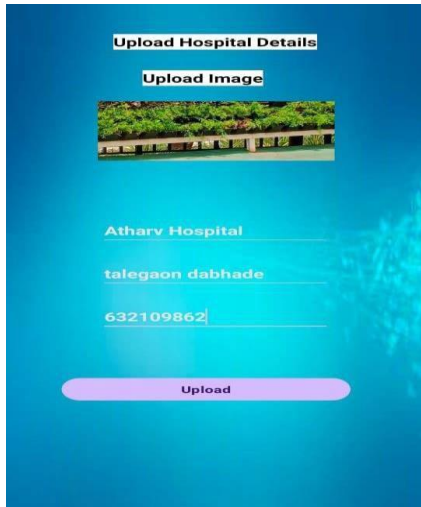

Fig. 4 User Profile Page

Fig. 5 NGO profile page
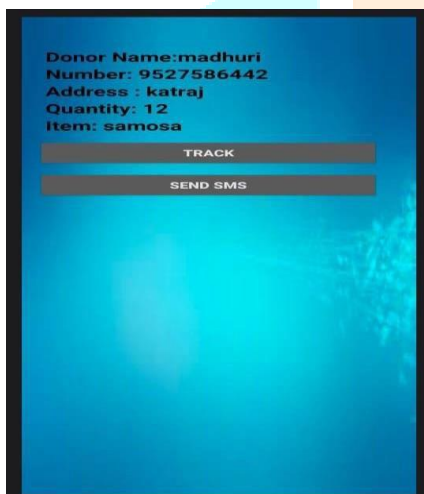
Fig. 6 Add Hospital

Fig. 7 Show User

Fig. 8 Add Donation

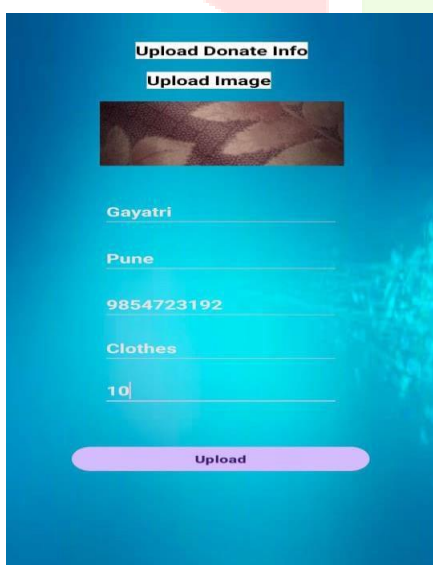## IX ADVANTAGE

A. *Efficiency:* By centralizing donation processes and streamlining administrative tasks, the Helping Hand Donation System ensures that resources are allocated efficiently and effectively. This maximizes the impact of donations, allowing charitable organizations to focus more on their core mission of serving those in need.

B. *Transparency:* Transparency is a cornerstone of the Helping Hand Donation System, providing donors with clear visibility into how their contributions are being utilized. Donors may monitor the status of initiatives they have provided and feel more confident about the impact of their present with the help of thorough reports and updates.

C. *Flexibility:* The Helping Hand Donation System offers flexibility in donation options, allowing individuals to support a wide range of causes and initiatives that align with their personal values and interests. Donors are strengthened by this liberty to choose the areas where their contributions will have the biggest influence.

D. *Empowerment:* Through the Helping Hand Donation System, individuals are empowered to make a tangible difference in the lives of others. By providing a platform for altruism and generosity, the system enables individuals to contribute to positive change and create a brighter future for those in need.

E. *Scalability:* The Helping Hand Donation System is designed to scale and adapt to evolving needs and challenges, ensuring its sustainability over time. As the platform grows, it can accommodate an increasing number of donors and recipients, expanding its reach and impact within communities worldwide.

X FUTURE WORK

The Helping Hand Donation System aims to enhance accessibility, security, and impact measurement while fostering innovative fundraising strategies and forging partnerships. Efforts will focus on optimizing the user experience and promoting education and awareness initiatives to drive greater engagement and effectiveness in facilitating charitable giving. Helping Hand Donation System holds immense potential for expansion and innovation in the realm of charitable giving. [20] As technology continues to evolve, the system can harness advancements such as blockchain and artificial intelligence to enhance transparency, security, and efficiency in donation processes. Moreover, there is a growing opportunity to diversify the services offered by the system beyond monetary donations, including in-kind contributions, volunteer matching, and skills-based support.[18]

XI CONCLUSION

The Helping Hand Donation System provides a vital platform for individuals to extend their generosity and support to those in need.[16] While it offers numerous advantages, such as accessibility and transparency, there are also challenges, including the digital divide and security concerns. By addressing these issues and fostering a culture

of compassion and collaboration, the system can continue to make a meaningful difference in the lives of others, leaving a lasting legacy of kindness and solidarity. Ultimately, the success of the Helping Hand Donation System lies in its ability to harness the collective strength of compassion, empathy, and solidarity to uplift communities, alleviate suffering, and create a brighter future for all.[15] Through ongoing innovation, collaboration, and commitment to social responsibility, the system can continue to inspire hope, empower lives, and leave a lasting legacy of kindness and generosity for generations to come.

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