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NGO Fund management Web Application

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Abstract: Fundraising is an essential element in the supporting causes for various activities of a non-governmental organization (NGO). The current project is with respect to developing a web-based donation application for an NGO called Kousika Neerkarangal, meant for better donation management and efficient donor engagement through donations. In actual sense, the application was developed with HTML, CSS, and JavaScript as the frontend technology, thereby allowing easy user navigation and Node.js with Express.js for the backend, thereby helping the application in server-side functioning, whereby MongoDB was also used to store the user's details regarding their donations and campaign activities.

This is where the user can sign up, start his or her fundraising campaign, donate money, and track the progress of the fundraiser. There is an administrative panel where the authorized persons can administer the campaigns, view the donations being made, and maintain the user records. Real-time tracking of donations and alerts is also integrated into WebSockets. It also includes security in terms of authentication, that is, donor and admin.

The application provides an effective and highly reliable user-friendly solution for NGO-harnessing fundraising activities. The solution is very transparent and greatly impacts the performance of an individual.

I. INTRODUCTION

NGOs are dependent on fundraising for their daily sustenance as well as the support of various social causes. Conventional fundraising methods are perceived to be inefficient, opaque, and inaccessible, which inhibit the ability of donors to track contributions or for NGOs to manage their campaigns effectively. The project, therefore, seeks to build a web-based fundraising application for Kousika Neerkarangal in finding ways to simplify donation processes and engage donors.

It provides a slick interface design to the application using HTML, CSS, and JS for easy navigation by the donor and administrator.The backend is built using Node.js and Express.js to provide a reliable and scalable framework for transaction execution and user data management. All Donor information, campaign information, and donor record transactions are stored securely in MongoDB.

The defining system features include real-time donation tracking via WebSockets, ensuring transparency by pushing updates to every user instantly. Authentication shows role differences in the level of access between donors and administrators. This security enhancement ensures that NGOs can seamlessly create fundraising campaigns and manage them, keeping donors updated via notifications and progress tracking.

In marrying modern web technology with this project, an attempt is made to create a pathway for NGOs to meet with potential donors, which should promote trust, transparency, and efficiency in any fundraising effort.

II. PROBLEM STATEMENT

Non-Governmental Organizations (NGOs) experience problems in gaining funding support for their operation and projects. Resource draining methods of traditional fundraising may often be ineffective in making donor outreach which, in turn, limits the likelihood of raising money. Furthermore, fund raising actions are often scattered and lack centralization in management and coordination.

To circumvent these obstacles, the proposal advocates a specific NGO fundraising web application intended for NGOs to use for the process of fundraising, providing them with the tools for creating campaigns, addressing the broad audience, and allowing online donation methods. The application intends to improve donor engagement and make it more transparent, thereby improving the financial sustainability of NGOs through technology.

The proposed solution tackles user-friendly interfaces for NGOs and donors; links up with other social media to improve visibility; and has a strong analytic feature to monitor campaign performance. Resource consumption within a single platform will minimize overhead costs for NGOs and direct their attention to their core missions.

Simply put, the application intends to modernize and transform the way NGOs raise money so that they can secure the funds to enable their activities in communities.

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III. PROPOSED SYSTEM

The web application is intended for the fundraising activities of the selected NGO organizations with various capabilities. It will bring in a user-friendly interface which can help the NGOs create and run different fundraising events from the platform while providing an easy donation experience to the users. Payment towards these donations would have been made secure via third parties integrated payment gateways, thus supporting other interested payment modes from different parts of the globe. The other benefit comprises an in-built donor management system where the NGOs can keep track of their donor details, history of donations made, and associated donor engagement metrics for future communications and relationship development. In addition, real-time analytics would help measure the performance of campaigns, such as monitoring donor demographics and trends in fundraising. Connecting social media will escalate the reach of these campaigns while motivating the public to participate. The mobile application responding dimension will include mobile control devices such as smart devices and tablets. Another is the feature that helps the NGO keep track of compliance with respective legal and financial regulations, as well as the generation of required reports on transparency and accountability. All of these functionalities though are consolidated to enable proper resource optimization, cut down on overhead costs, and allow the NGOs to concentrate more on their core missions-and with that, greatly increase their capacity to carry out their objectives.

IV. MODULE DESCRIPTION

Here we can see that this is the proposed NGO fundraising website application that aims to facilitate and improve the financial mobilization activity for several purposes as there are several features incorporated within it. For instance, an end-to-end seamless experience is given to the NGOs with the user-friendly interface that enables them to create and manage their fundraising campaigns themselves and a comfortable option for the donors to contribute money. Secured payment processing will be achieved by integrating reliable payment gateways and accommodating different forms of payment to diversify the donor base. Most NGOs adopt an in-house donor management system where information about the donors, their donation history, and metrics of their engagement are recorded, which would, in turn, help them tailor personalized communications to maintain a longer relationship. Providing real-time analytics that give insight into campaign performance, the demographics of donors, and trends in fundraising will enable making informed choices. Campaigns will also now be related to social networking, thus widening the door for more community participation. The whole application will be responsive and accessible on almost all devices, particularly mobile phones and tablets. There will also be features put in place to help the NGOs in fulfilling the compliance requirements as regards both legal and financial regulations and thereafter generating reports that will guarantee transparency and accountability. We're bringing together all these capabilities into one platform, to convey greater utilization of resources and lower overhead costs, thus allowing NGOs to focus on their core activities, while further increasing their capacity to meet mission goals.

IV. DATA FLOW DIAGRAM

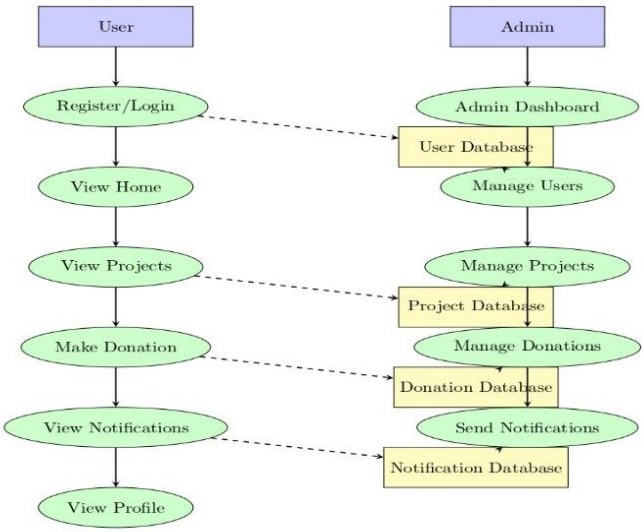

Fig. 1 User and Admin

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A Data Flow Diagram is a graphical representation through which one can understand what happens when data flows through a particular system: how processes, data stores, and external entities are organized around it. For example, in the case of the NGO fundraiser web application, the DFD details the flow of information in the application user-system functionality-data repository model.

Context Level DFD (Level 0): At the highest level, it has a contextual diagram depicting the whole system as one process and relating it to the primary external entities. In this case, the primary external entities are:

· Donors: persons or companies that would like to give funds.
· Administrators of NGOs: staff that are responsible for campaigns, monitoring donations, and all activities involving the platform.
· Payment Gateway: External service to handle monetary transactions securely.

Through this entire process, it is interacting with these entities as defined in the system:

Donor interaction:

- Donors come to the site for viewing campaigns being raised for funds.
- Select the campaign to contribute.
- The application contacts the payment gateway for processing the donation.
- Upon confirmation of successful transaction, donation records will be updated and the donor receives a confirmation too.

Administrator Interaction:

Regular log-in by the administrator helps manage campaigns and view donation figures. They can add, modify, or deactivate fundraising campaigns depending on the needs of an organization. It generates analytics and insights in real-time for making decisions.

Level 1 DFD: It goes one step into the internal workings of a system, giving the different functional capabilities and data being carried on different fields flowing through the system:

User Authentication: Log-in facility for donors and administrators to access specific features.
The system then verifies the credentials of the user from the stored data.
Campaign Management- fundraising campaigns created and managed by administrators, which includes goals, descriptions, and timeframes.
The database Campagne holds campaign data.
List of campaign specifics shared with donors to help them decide on donations.
Donation Processing: Crowdsourcing through donor branch choosing a campaign and an amount.
Send all transaction details via the payment gateway.
Once that transaction is confirmed by the payment gateway, updates are made to the donations record, and receipts generated.
Reporting-and-Analytics: Dashboards on trends of donations, performances of campaigns, and donor demographics are opened to the administrator.
Integrated reporting will consolidate all this information into corresponding reports during strategic planning.
Notification System: Automated triggering of the notifications to donate to the donor about their contribution and progress in the campaign.
Triggered alerts to the administrator on campaign milestones and system activities.

Shukla' but senseless Phrases are not how a data flow diagram is meant to look. A Data Flow Diagram not simply's graphical representation of data flow through a particular system: how processes, data stores and external entities are organized around it. For example, for the NGO fundraiser web application, the DFD helps in understanding the information flow in the application user-system functionality-data repository model.

Context Level DFD (Level 0): In its highest form, it has a contextual diagram displaying the whole system. above all, as a single process and showing it to the major external entities. A few among those major external entities might include:

Donors- individuals or corporations that may wish to provide funds. Administrators of NGOs- staff managing campaigns, monitoring donations, and all activities concerning the platform. Payment Gateway- an external service to conduct monetary transactions in a secure manner.

It has been interacting with these entities through the system defined for it as a whole process:

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Donor interaction:

- Donors came to the site for viewing campaigns for fundraising.

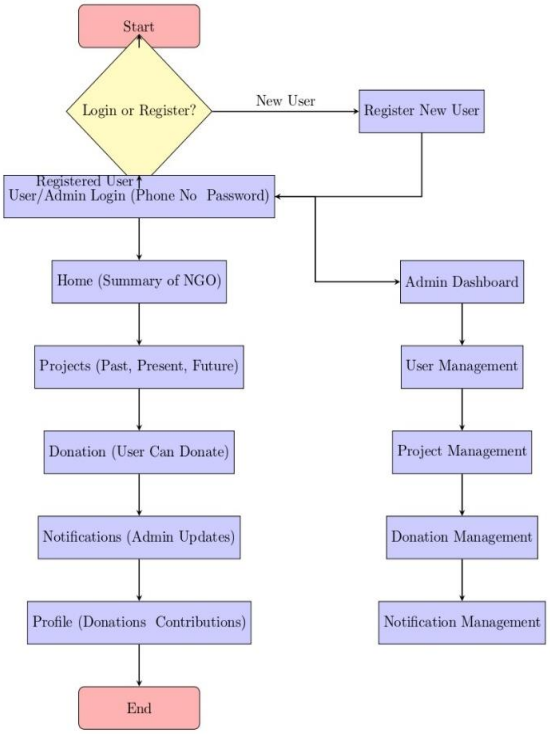

Fig. 2 User and Admin

- Select a campaign from which to contribute.
- The application contacts the payment gateway for processing the donation.
- Upon confirmation of successful transaction, donation records will be updated and the donor receives a confirmation too.

Administrator Interaction:

Regular log-in of the administrator typically allows them to manage campaigns and view figures on donations. They can add, modify, or deactivate fundraising campaigns depending on the needs of the organisation. The system constructs analytics and insights in real-time for decision-making.

- Level 1 DFD: It goes one step more into the internal workings of the system showing different functional capabilities and data being transferred through the flowing fields: User Authentication: Log-in for donors and administrators to see customized features.
- The system then verifies the credentials of the user using the stored data.
- Campaign Management- Fundraising campaigns created and managed by administrators, which include setting goals, descriptions, and timeframes.
- The data are then stored in the database campagne for campaign-related info.
- Donors may view information related to campaigns to help them make decisions about donations.
- Donation Processing: Crowdfunding through donor branch selecting a campaign and an amount.
- Send all transaction details through the payment gateway.
- Once the payment gateway confirms, donations records are updated and it generates receipts.
- Reporting and Analytics: Dashboards on trends of donations, performance of campaigns, and democratized donor criteria made available for viewing by the administrator.
- Collates all data into integrated reports upon strategic planning.

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- Notification System: Automated triggering of notifications to convey to the donor their contribution as well as updates on campaign progress.
- Triggered alerts to the administrator regarding milestones of campaigns and system activities.

V. SYSTEM FLOW DIAGRAM

The application features role based access so that users can raise and contribute for fundraisers. Admins would then oversee all platform activities.
It helps users see projects that have passed, are currently running, and will take place in the future. This allows them to make a wise decision about the donation.
Processing donation transactions with a secure payment gateway makes these completely safe and reliable. Transparency is created by having the system keep a near-accurate account of donations, activities of users, and campaign performance. All real-time notifications about the new campaigns, updates, and receipts for donations can be sent to users by the admin using this application.
The application is also scalable to hold limitless numbers of fundraisers as well as use.
All important data is kept in MongoDB which means the quick access and seamlessness of the web application. Validation of data and handling the error converts user smoothness.
It has a dashboard with analytic insight to help monitor the donations: user engagements and success in campaigning.

VI. SCOPE OF THE PROJECT

The AI suggestions for Donation Recommendations-This function is based on the Machine Learning algorithm which incorporates information history to recommend the fundraising campaign most likely to a donor based on past donation and cause interest.
Blockchain-Secured Donor Records-Authenticated donation records via Blockchain technology are secure, credible, and non-repudiation.
Mobile App Development: An app-based platform complemented by other dedicated mobile applications for the easy access of users and real-time engagement.
Multi-grain and Cross-border: Different currencies and international payment gateways should be made available for easy access to donations. All donations should be made global through such options.
Automated Reporting/Analytic systems: It includes automatic report generation with deduction on donation trends, those on the campaign performance, and user engagement, all thanks to the integration of AI.
Social Media Interconnection: This allows users to generate this share of their fundraises through social media thereby stabilizing the reach and engagement of the campaigns.
An AI-enabled app dedicated to handling donor queries- An AI-integrated chatbot that lives in the app will respond to user queries on donations, campaigns, and NGOs.
Gamified Engagement-Badges, leaderboards, and generous reward systems for frequent donors allow for further engagement.
Recurring Contributions Feature: So now it will allow a supporter to make recurring donations in an automated manner so he will always have his donation traveling towards an NGO.
Multilanguage: It should provide various language options keeping the platform fundamentally open to a wider audience.
Additional Security Features: User account will be secured with 2FA and advanced encryption methods.
Engagement through Corporate CSR Programs: Corporates can contribute via sponsorship for large scale funding by participating in the CSR activities.
The same will also incorporate these government schemes with NGOs to have all such welfare programs opened for grants with access to donations through an official NGO network..

VII. CONCLUSION

The NGO Fund Management Web Application is a comprehensive platform designed to streamline fundraising, donations, and campaign management for NGOs. By integrating secure payment processing, real-time updates, and an intuitive user interface, the system ensures transparency, efficiency, and ease of access for both donors and administrators. The role-based access system allows for seamless interaction between users and admins, enhancing operational efficiency.
With secure authentication, real-time notifications, and a well-structured database (MongoDB), the application ensures data integrity and smooth functionality. The inclusion of WebSockets for real-time updates further enhances transparency in donation tracking. This project not only facilitates efficient fund management but also encourages social impact by simplifying the donation process.
Looking ahead, future enhancements such as AI-based donation recommendations, blockchain integration, mobile app development, and global payment support will further expand the reach and effectiveness of the platform. This project serves as a strong foundation for digital transformation in NGO fundraising, enabling greater engagement, security, and scalability in the nonprofit sector.

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