

Sankalp Setu A bridge of commitment for Social Change

Devendra Hase¹, Tanvi Surve², Neil Gupta³, Suresh Kapare⁴

^{1,2,3}Department of Computer Science Engineering MIT ADT University Pune 412201, India

⁴Professor, Department of Computer Science and Engineering MIT Art, Design and Technology University Pune, India

Abstract—This paper proposes the development of SANKALP SETU, a unified digital platform aimed at improving societal welfare through the integration of real-time resource management and community support systems. Social issues such as food wastage, lack of medical assistance, and support gaps for orphans and the elderly present critical challenges in underserved areas. Traditional donation systems and social initiatives often lack coordination, transparency, and real-time monitoring, leading to inefficiencies and unmet needs. The proposed solution leverages web technologies to establish a seamless, centralized ecosystem that connects donors, NGOs, and beneficiaries. Core components include real-time dashboards, role-specific interfaces, secure data handling, and modules for posting and tracking resources. By enabling stakeholders with actionable insights and transparent data flows, SANKALP SETU empowers communities to act proactively, minimizing resource wastage and enhancing the impact of charitable efforts. This paper details the system architecture, the technology stack employed, and the modular design that ensures scalability and a transparent solution to bridge the gap between available resources and societal needs.

Index Terms—Social Welfare, Donation Management, Resource Management, NGO, Real-time Systems, Community Support, Web Platform, Node.js, MySQL

I. INTRODUCTION

In a country as diverse and populous as India, a wide gap exists between resources and those in need. While there are countless individuals, communities, and organizations eager to help, their efforts often remain fragmented due to the absence of a unified, real-time, and transparent system. The need of the hour is a digital solution that empowers donors, Non-Governmental Organizations (NGOs), and volunteers

to work in sync for social causes.

SANKALP SETU is a socio-technical platform developed to bridge this gap. The name itself—SANKALP (vow) and SETU (bridge)—symbolizes the platform's core mission: to build a digital bridge between those who want to serve and those in need. By leveraging modern web technologies, cloud computing, and data visualization, SANKALP SETU aims to modernize the way help is offered, coordinated, and received.

The platform allows users (donors) to post resources such as food, clothing, medicines, or utilities. NGOs can then view, claim, and schedule pickups for these resources based on their specific needs. Dashboards provide transparency into the impact of donations, while role-based access ensures that each user interacts only with relevant features.

Traditional donation systems are plagued by several issues:

- **Manual Processes:** Most social service efforts are still handled via calls, emails, or offline visits, which are slow and unreliable.
- **Resource Wastage:** Donors often discard food, clothes, and medicines due to the inability to find beneficiaries in time.
- **Duplication of Efforts:** Multiple NGOs may unknowingly serve the same area while others go unattended.
- **Lack of Transparency:** Beneficiaries and donors have limited visibility into the supply chain after a donation is made.

The absence of a centralized, scalable, and secure system means that real impact is often lost. SANKALP SETU directly addresses these issues

through a tech-driven approach that brings structure, accountability, and automation to social efforts.

A review of existing donation platforms, such as 'Feeding India' and 'Goonj', reveals a fragmented ecosystem. While effective in their specific domains (e.g., food or clothing), they often lack real-time, multi-resource coordination and transparent, database-driven workflows. This analysis confirmed the need for a unified platform that supports diverse donations and provides live, auditable tracking from donor to NGO.

II.OBJECTIVES

To address the challenges outlined, the primary goals of this project are defined as follows:

- **Implement Real-Time Resource Management:** Build and deploy a digital platform to allow the immediate posting and claiming of resources like food, clothes, and medicines. Provide real-time updates and notifications to stakeholders.
- **Ensure Transparent Social Service Coordination:** Offer dashboards that show donation history, resource utilization, and impact statistics to ensure visibility and trust. Create structured donation flows from verified donors to validated NGOs.
- **Develop Personalized NGO and Donor Portals:** Provide tailored interfaces for users based on their role (NGO, donor, admin). Enable users to track contributions, set availability, and receive feedback.
- **Establish a Secure and Scalable Architecture:** Utilize a reliable technology stack to ensure data security, user privacy, and the ability to scale the platform as the user base grows.

III. TOOLS AND LANGUAGES

The development of the SANKALP SETU platform was based on a specific stack of development tools chosen for their robustness, scalability, and wide-ranging industry support.

- **Frontend (Client-Side):**
 - **HTML (HyperText Markup Language):** Used to structure the content of the web application, including registration forms, resource posting forms, and dashboards.
 - **CSS (Cascading Style Sheets):** Employed for styling the application, ensuring a responsive design for mobile and desktop, and creating an intuitive user interface.
- **Backend (Server-Side):**
 - **Node.js:** A JavaScript runtime environment used to build the scalable, event-driven backend. It handles all API requests, manages user authentication, and coordinates communication between the frontend and the database.
- **Database:**
 - **MySQL:** A relational database management system (RDBMS) used for all structured data storage. This includes storing user details (Donors, NGOs, Admins), managing resource listings, tracking claim records, and ensuring data consistency.
- **Core Language:**
 - **JavaScript:** Used across the entire stack (Node.js for backend and vanilla JavaScript for frontend interactivity), enabling seamless data flow and unified development. This includes functionalities like form validation, dynamic updates of resource listings, and live search.

IV. PROCESS AND ARCHITECTURE

The system's architecture is designed to logically separate the roles and actions of the primary actors: the User (Donor), the NGO, and the System itself. The process flow is governed by secure authentication and role-based access control.

The project development followed an Agile model, allowing for iterative development of modules such as user registration, resource posting, and NGO claims. This ensured continuous testing and stakeholder collaboration.

The overall data flow, as illustrated in the Use Case Diagram (Fig. 1), defines the interactions.

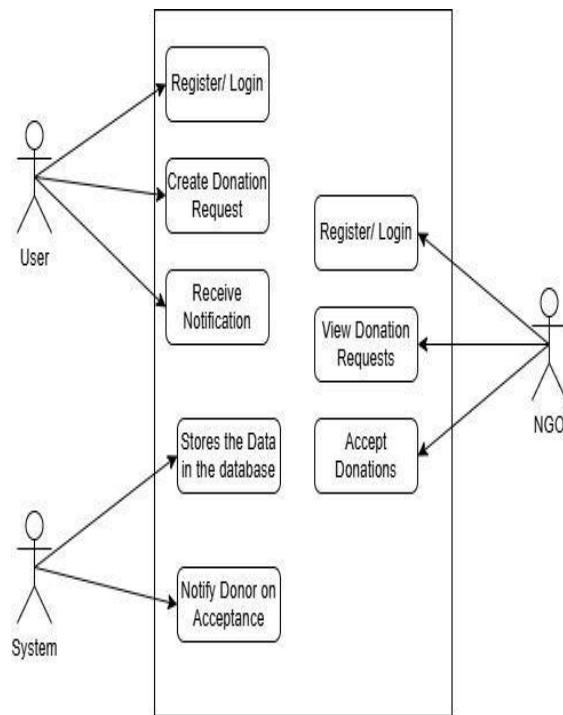


Fig. 1. Use Case Diagram for Sankalp Setu

As shown in Fig. 1, the system is comprised of three main actors:

- User (Donor): Can Register/Login, create a Donation Request, and Receive Notifications.
- NGO: Can Register/Login, view all Donation Requests, and Accept Donations.
- System: Handles backend processes, such as "Stores the Data in the database" and "Notify Donor on Acceptance."

This separation of concerns is critical. The user's request is not sent directly to the NGO. Instead, it is logged in a central database. This allows all registered NGOs to view the pool of available donations and claim them as needed, which prevents a single NGO from being overwhelmed and ensures resources are distributed efficiently.

The data and process flow (Fig. 2) details this database-centric approach.

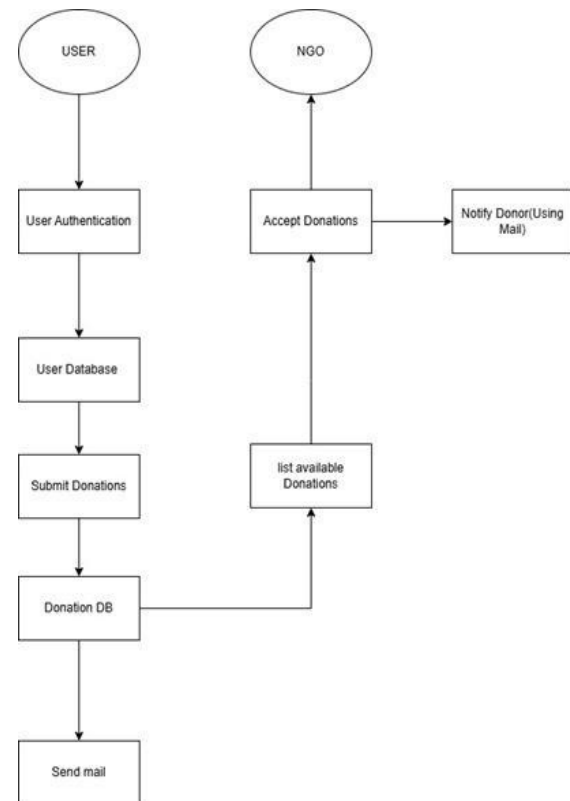


Fig. 2. System Data Flowchart

The workflow is as follows:

1. A User (Donor) initiates the process, undergoes User Authentication, and submits a donation.
2. The donation details are stored in the "Donation DB" (MySQL database).
3. The system lists all available donations from the database.
4. An NGO views this list and "Accepts Donations."
5. Upon acceptance, the system performs two actions: it notifies the NGO (to coordinate pickup) and sends an email notification to the User, confirming their donation has been accepted.

This architecture creates a transparent, auditable, and efficient system that decouples the donor from the NGO, using the platform as a trusted intermediary.

V. RESULTS

The primary outcome of the project is a fully functional, secure, and user-friendly web platform. The system successfully enables real-time resource management, streamlined coordination between donors and NGOs, and transparent impact

visualization.

Secure authentication mechanisms ensure that only authorized users can access specific data, with role-based access (Donor, NGO, Admin) preventing data misuse.

The user interface (UI) was designed to be intuitive and task-oriented. Fig. 3 shows the homepage, which clearly communicates the platform's mission and provides clear calls to action.



Fig. 3. Sankalp Setu Homepage Interface

The core functionality of the platform is the "Donate Leftover Food" form, shown in Fig. 4. This form is designed to capture all necessary information, such as food type, pickup time, and location, in a structured manner. This data directly populates the MySQL database, making it immediately available for NGOs to claim.

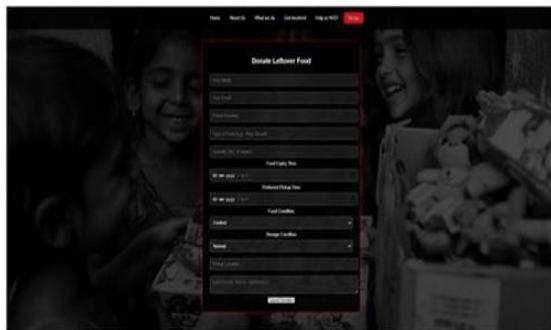


Fig. 4. Donation Posting Form Interface

A comprehensive testing plan was executed to validate the platform's reliability. This included Unit Testing for individual modules (e.g., user login, donation posting), Integration Testing to ensure the seamless flow of data from the frontend to the Node.js backend and into the MySQL database, and Functional Testing of the end-to-end workflow. Key

test cases, such as an NGO accepting a donation and the subsequent automatic email notification to the donor, passed successfully, confirming the system functions as designed.

VI. CONCLUSION

The SANKALP SETU system successfully addresses the crucial need for a centralized, transparent, and efficient resource distribution platform. By streamlining the donation process, reducing resource wastage, and fostering accountability, the platform effectively bridges the gap between those willing to help and those requiring assistance. Through features like real-time donation tracking and role-based dashboards, SANKALP SETU enhances operational efficiency for NGOs while providing donors with clear visibility into their contributions' impact.

Future enhancements for SANKALP SETU will focus on scaling and deepening its impact. Key areas for future work include:

1. **Mobile Application Development:** Extending platform accessibility with dedicated mobile apps (iOS and Android) for donors and NGOs to manage activities on the go.
2. **AI-Powered Resource Matching:** Implementing machine learning algorithms to suggest optimal NGO-donor matches based on location, urgency, and resource type.
3. **Integration with Logistics Partners:** Collaborating with delivery services to automate the pickup and distribution logistics for donations.
4. **Volunteer Coordination Module:** Adding functionality for volunteer registrations, event management, and task tracking to further community involvement.
5. **Blockchain for Transparency:** Exploring blockchain technology to create an immutable, auditable record of all donations, further enhancing trust and accountability.

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REFERENCES

- [1] V. Kumar and R. Singh, "Smart Donation Management System using Cloud and Mobile Technologies," *International Journal of Advanced Computer Science and Applications*, 2021.
- [2] M. Patel and K. Joshi, "NGO Resource Management through Digital Platforms: A Case Study Approach," *Journal of Social Impact Technologies*, 2020.
- [3] A. Sharma and N. Gupta, "Blockchain for Transparent Donation Tracking: Opportunities and Challenges," *IEEE Access*, 2019.
- [4] P. Rao and S. Kulkarni, "Volunteer Engagement in Non-Profit Organizations through Digital Platforms," *International Journal of Management and Humanities*, 2022.
- [5] R. Mehta and P. Desai, "Designing Scalable NGO-Donor Platforms: A Cloud-Native Approach," *ACM Digital Library*, 2023.
- [6] World Bank Group, "Leveraging Technology for Effective Resource Distribution in Social Sectors," *World Bank Publications*, 2022.
- [7] Govt. of India, "Guidelines for Digital Volunteer and Donor Management Platforms," *Ministry of Social Justice and Empowerment*, 2023