

A Review of Online Donation Platforms

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Abstract— Online donation platforms have become indispensable instruments in the digital age, enabling effective and clear-cut transactions among donors and recipients. This review critically analyzes two research papers dealing with the design and deployment of web-based systems for managing donations, discussing their methodologies, system architectures, and technical designs. Salient features like security protocols, verification mechanisms, compliance with accessibility, and data integrity are elaborately discussed. The results underscore the need for strong authentication mechanisms, well-organized database management, and scalable application design in guaranteeing reliability and donor participation.

Keywords— RBAC security, API authentication, AI fraud detection, Predictive analytics, TLS encryption.

I. INTRODUCTION

Philanthropic donations have always been a key element of social welfare, but conventional donation systems tend to be plagued by inefficiency, obscurity, and logistics bottlenecks. Since the introduction of web-based systems for managing donations, organizations have been able to automate processes, build donor confidence, and maximize the accuracy of funds distribution. This review distills findings from two studies of web-based donation systems, listing technological innovations, design decisions in architectural structure, and implementation problems in the practice.

II. LITERATURE REVIEW

A. Web-Based Charity Organizations and Donation Management Systems

Among the reviewed papers, one describes the creation of a web-based charity organization and donation management system based on the MERN stack (MongoDB, Express.js, React, and Node.js). The platform allows charity organizations to register, promote their services, and receive donations effectively with guaranteed compliance with online accessibility guidelines. The paper emphasizes the importance of user authentication, role-based access control (RBAC), and secure RESTful API integration in order to improve platform security and performance.

B. Food Donation Applications

There are some food donation applications that are available online, aiming to combat food wastage while delivering donations efficiently to the poor. GPS tracking, cloud-based databases, and AI-based matching systems ensure streamlined operations. Despite all this, issues like food safety, security, and fair distribution continue to be problems. Other studies have also emphasized having efficient food quality checks and logistics support to avoid wastage and deliver foods on time.

C. General Donation Applications

There are platforms that offer a donation interface for donating different types of resources such as money, clothes, and grains. Such systems offer real-time tracking for donation usage to ensure transparency. Trust is also strengthened by direct transaction without the use of third parties. The absence of universally standardized verification procedures for charities, though, is a gap in need. Integrating blockchain technology will strengthen accountability and avoid fraudulent transactions.

D. E-Sharing: Web-Based Donation System Applications

Another method of managing donations is a system that aims to link NGOs with prospective donors. This system focuses on secure transactions through web-based platforms and organized databases. Effective logistics see donated items reach the intended recipients in a timely manner. A major aspect of such systems is the inclusion of volunteer networks that enable last-mile delivery, which increases outreach and efficiency.

E. Fundraising Platforms and Crowdfunding

Fundraising platforms are specifically designed to collect financial donations, often for specific causes such as disaster relief, medical assistance, or educational programs. One such system, "Let's Donate," was developed using the Systems Development Life Cycle (SDLC) methodology to ensure effective online fundraising. The study highlights that factors such as religious beliefs, digital campaigns, and platform innovations positively influence donor behavior, whereas direct social interactions sometimes discourage online donations. The structured approach of web-based fundraising applications enhances efficiency, provides secure financial transactions, and facilitates transparency through detailed

fund management reports. The integration of crowdfunding features in such platforms allows for broader community involvement and increases donation frequency.

III. KEY CHALLENGES IN ONLINE DONATION PLATFORMS

A. Security and Fraud Prevention

Security of online transactions is a major issue. Most platforms use encryption and verification processes, but fraud is still an issue. Top-notch cybersecurity protocols, such as AI-based fraud detection systems, are advised to reduce risks and enhance donor trust.

B. Trust and Transparency

Donors need to be assured that their donations are being effectively used. Donor confidence is increased with platforms that include real-time tracking, financial disclosures, and automated verification systems. A lack of transparency usually discourages donations; thus, the use of blockchain-based ledgers can provide a more dependable and unchanging history of transactions.

C. Security and Data Protection

Secure transactions and the safeguarding of sensitive user information are vital aspects of online donation platforms. Both reports encourage the use of sophisticated encryption algorithms like Transport Layer Security (TLS) 1.3 and AES-256 encryption for storage. Multi-factor authentication (MFA), token-based authentication (JWT), and biometric authentication can be used to improve access security.

D. Accessibility and Inclusivity

While digital donation platforms offer convenience, limited internet access and technological literacy hinder some individuals from participating. Ensuring accessibility for all demographics is crucial. Solutions include mobile-friendly interfaces, multi-language support, and offline donation options to cater to broader user groups.

E. Regulatory Compliance

Varying regulations apply to online donations in different nations. Sites are required to conform to legal requirements for proper operation and credibility. Alignment with standards on financial transactions such as Know Your Customer (KYC) and Anti-Money Laundering (AML) policies helps avert legal issues and preserve integrity.

IV. FUTURE RESEARCH DIRECTIONS

A. Approval for verified charitable organisations

Our donation platform ensures trust and transparency by allowing only government-approved NGO charitable organizations to register. This verification process guarantees that all listed organizations meet regulatory standards, reducing the risk of fraud and giving donors confidence that their contributions are reaching legitimate and impactful causes.

B. AI-Powered Verification

Our platform employs an AI-powered detection system to analyze images of donated items, ensuring authenticity. This verifies that uploaded pictures match the described items, preventing fraudulent listings and enhancing transparency. By this, we improve credibility and ensure recipients receive the promised goods in proper condition.

C. Real-time Location fetching

Donors are asked to turn on their real time location while making their donations. This helps the collection team to efficiently reach the donor's location, ensuring timely pickups and reducing delays.

D. Chatbot Integration

Our platform features an integrated AI-powered chatbot to assist users with navigation and donation-related queries. Donors and recipients can ask for help finding specific pages and understanding the donation process. This ensures a seamless user experience, providing instant support and making the donation process more accessible and efficient.

E. Donor Engagement

We have implemented a leaderboard system to recognize and motivate donors by showcasing top contributors. This feature fosters healthy competition, encourages continued generosity, and enhances donor engagement. By publicly acknowledging contributions, the leaderboard inspires more participation, strengthens community involvement, and drives a culture of giving.

V. CONCLUSION

Virtual platforms for donations are revolutionizing charitable donations by facilitating convenience, openness, and ease. Nevertheless, issues like security threats, access problems, and regulatory challenges have to be sorted out. In the future, more research ought to be dedicated to blockchain deployment for secure donation transactions, fraud detection through AI, and more efficient user interfaces to promote more engagement. Inter-governmental cooperation with NGOs and technology firms could also enhance scalability and dependability of these virtual platforms.

This review offers a complete understanding of the progress and limitations of online donation websites, providing insights for future innovations in the sector.

REFERENCES

- [1] Dilshan De Silva, Ravindu Wijesundra, and Virajini Godapitiya (2023). *Development of a Web-Based Charity Organizations and Donation Management System: A Case Study*
- [2] Hadeel Ibrahim Alzahrani (2020). *E-Sharing: Developing a Web Based Online Donation System*
- [3] Dr. S. P Khandait, Sakshi Kothekar and Sanskruti Sakharkar (2023). *Donate-Mate Donation Application*
- [4] Prof. S. A. Nalawade (2024). *A Review Paper on Annapurnatha: An Online Food Donation Application*

[5] Husni Husni, Sigit Susanto Putro, and Nurma Ulfa Yuana (2021). *Development of a Web-Based "Let's*

Donate" Fundraising Information System