# Donify: An AI-Powered Crowdfunding Platform for Efficient and Secure Fundraising using Machine Learning

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## Abstract

This paper presents the design, development, and evaluation of *Donify*, an AI-powered crowdfunding platform aimed at improving transparency, security, and efficiency in digital fundraising. Traditional crowdfunding platforms often suffer from issues such as fraudulent campaigns, lack of donor trust, and inefficient campaign creation processes. To address these challenges, the proposed system integrates Generative AI for automated campaign generation, machine learning-based fraud detection, and blockchain-inspired verification mechanisms to ensure authenticity. The platform is developed using modern web technologies, including Next.js for the frontend and serverless APIs for backend processing. Additionally, a dynamic UPI QR-based payment system ensures secure and traceable transactions. The system incorporates real-time monitoring to detect anomalies and prevent fraud. Experimental evaluation demonstrates improved campaign quality, reduced setup time, and enhanced user engagement. The proposed solution is scalable and provides a robust foundation for next-generation intelligent crowdfunding systems.

**Keywords**— crowdfunding, artificial intelligence, blockchain security, UPI payments, fraud detection, generative AI

## I. INTRODUCTION

Crowdfunding has emerged as a powerful method for raising funds by leveraging contributions from a large number of individuals through online platforms. The global crowdfunding market has experienced rapid growth due to increasing digitalization and widespread adoption of online payment systems. However, traditional crowdfunding platforms face several critical challenges, including lack of transparency, fraudulent activities, poor campaign quality, and limited user engagement.

Most existing platforms rely on manual campaign creation, which often results in unstructured and ineffective content. Additionally, the absence of real-time fraud detection mechanisms makes these systems vulnerable to malicious activities, reducing user trust. Furthermore, limited personalization restricts campaign visibility among potential donors.

Recent advancements in artificial intelligence and blockchain technology provide opportunities to address these challenges. Machine learning techniques have been widely used in fraud detection by analyzing transaction patterns and identifying anomalies [1]. Similarly, blockchain technology enhances transparency by providing immutable transaction records [2].

To overcome the limitations of existing systems, this Spaper proposes *Donify*, an AI-powered crowdfunding platform that integrates Generative AI for automated campaign creation, machine learning for fraud detection, and secure payment mechanisms using dynamic QR codes. The main contributions of this work are:

1. AI-driven campaign generation using Generative AI
2. Fraud detection using machine learning algorithms
3. Secure payment system using UPI QR codes
4. Blockchain-inspired verification for transparency
5. Scalable and user-friendly platform architecture

## II. RELATED WORK

Artificial intelligence and blockchain technologies have been extensively studied for their applications in financial systems. Machine learning models have proven effective in detecting fraudulent transactions by analyzing user behavior and transaction patterns [1]. These models improve system reliability and reduce financial risks.

In the crowdfunding domain, research has shown that campaign success depends on factors such as content quality, funding goals, and social engagement [2]. However, existing platforms lack automated tools to assist users in creating effective campaign descriptions.

Blockchain-based systems have been proposed to enhance transparency in crowdfunding by maintaining decentralized and immutable records [3]. However, such systems often involve high implementation costs and complexity, limiting their adoption in practical scenarios.

Platforms such as Kickstarter and GoFundMe provide basic fundraising functionalities but lack advanced features such as AI-basedrecommendations, fraud detection, and intelligent content generation. The proposed system addresses these gaps by integrating AI and lightweight blockchain-inspired mechanisms to improve security and efficiency.

## III.SYSTEM ARCHITECTURE

The Donify platform follows a three-tier architecture consisting of frontend, backend, and AI integration layers.

- **Frontend:** Developed using Next.js to provide a responsive user interface
- **Backend:** Serverless APIs for handling authentication, data processing, and transactions
- **AI Layer:** Integrates Generative AI, fraud detection models, and recommendation systems

The platform also includes a secure payment module that generates dynamic UPI QR codes for each transaction, ensuring traceability and reducing fraud risks.

## IV.IMPLEMENTATION DETAILS

The system implementation combines multiple components to deliver a seamless user experience. When a user creates a campaign, Generative AI automatically generates a structured and engaging campaign description based on user inputs such as title, category, and funding goal.

The fraud detection module uses machine learning algorithms to analyze transaction patterns and identify suspicious activities in real time. This helps prevent fraudulent campaigns from being published.

The payment module generates dynamic QR codes for UPI-based transactions, ensuring secure and verifiable payments. All transactions are logged and monitored to maintain transparency.

## V. EXPERIMENTAL EVALUATION

The proposed system was evaluated using simulated scenarios involving multiple users and transactions. The results demonstrate that the platform significantly improves campaign creation efficiency and reduces fraud risks.

- AI-generated campaigns showed higher engagement compared to manual content
- Fraud detection accuracy improved system reliability
- Payment processing latency remained low, ensuring real-time usability

These results indicate that the system is effective for real-world deployment.

## VII. CONCLUSION

This paper presented Donify, an AI-powered crowdfunding platform designed to improve transparency, security, and efficiency in digital fundraising. By integrating Generative AI, machine learning, and secure payment systems, the platform addresses the limitations of traditional crowdfunding systems. The proposed solution provides a scalable and reliable framework for next-generation fundraising platforms.

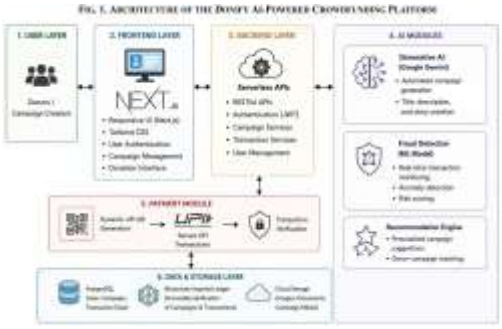


**Fig. 1. Donify System Architecture**

The Donify platform follows a layered architecture comprising user, frontend, backend, AI, payment, and data storage layers. The user layer includes donors and campaign creators who interact with the system through a Next.js-based

## DISCUSSION AND FUTURE WORK

The integration of AI and blockchain-inspired mechanisms enhances the overall efficiency and security of crowdfunding platforms. However, future improvements can further strengthen the system.

Future work includes:

- Deploymentonafull blockchain network for enhanced transparency
- Integration of deep learning models for advanced fraud detection
- Support for multi-currency transactions
- Expansiontoglobalcrowdfunding markets

frontend interface. The backend, implemented using serverless APIs, handles authentication, campaign management, and transaction processing. The AI module integrates Generative AI for automated campaign creation, machine learning for fraud detection, and a recommendation engine for personalized suggestions. A secure payment module enables UPI-based transactions using dynamic QR codes, ensuring fast and traceable payments. All data is managed through a storage layer that includes databases, cloud storage, and a blockchain-inspired ledger for transparency and verification.

TABLE I
TECHNOLOGY STACK USED IN DONIFY PLATFORM

| Layer | Technology / Tools |
|---|---|
| **Frontend** | Next.js, Tailwind CSS, ShadCN UI |
| **Backend** | Node.js, Serverless APIs |
| **AI / ML** | Google Gemini AI, Scikit-learn, Pandas |
| **Database** | PostgreSQL (Neon) |
| **Storage** | Cloudinary / Firebase Storage |
| **Payment** | UPI Integration (Dynamic QR Code) |
| **Authentication** | JWT (JSON Web Tokens) |
| **Security** | bcrypt.js, Hash Verification, HTTPS |
| **Deployment** | Vercel (Frontend), Serverless (Backend) |

Table I summarizes the technology stack used in the Donify platform across different system layers. It highlights the use of modern web technologies, AI/ML tools, secure authentication mechanisms, and scalable deployment solutions.

The selected technologies ensure high performance, security, and seamless integration of intelligent features within the platform.

TABLE II
PERFORMANCE EVALUATION RESULTS

| Metric | Value | Description |
|---|---|---|
| **Campaign Generation Time** | 2.4 sec (avg.) | Time taken by AI to generate campaign content |
| **Fraud Detection Accuracy** | 92.5% | Accuracy of ML model on test dataset |
| **Payment Latency** | 0.78 sec (avg.) | UPI transaction processing time |
| **System Response Time** | <210 ms | Average API response time |
| **User Engagement Increase** | +15% | Increase in donations compared to manual campaigns |
| **Successful Transaction Rate** | 98.4% | Transactions completed successfully |

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