



JOURNAL OF DIGITAL SYSTEM DEVELOPMENT

<https://e-journal.uum.edu.my/index.php/jdsd>

How to cite this article:

Umami Syahirah Husna Amurad, Abdul Razak Rahmat & Baharudin Osman (2025). Bridging Innovation and Impact: A Web-Based Crowdfunding Solution for Social Entrepreneurship. *Journal of Digital System Development*, 3 (2), 31-43. <https://doi.org/10.32890/jdsd2025.3.2.3>

BRIDGING INNOVATION AND IMPACT: A WEB-BASED CROWDFUNDING SOLUTION FOR SOCIAL ENTREPRENEURSHIP

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Received: 21/7/2025

Revised: 13/7/2025

Accepted: 22/7/2025

Published: 30/10/2025

ABSTRACT

This paper presents the design, development, and usability evaluation of a web-based Crowdfunding Platform tailored for Social Entrepreneurs, aimed at supporting IT-driven initiatives with measurable social impact. The platform features campaign creation tools, real-time funding tracking, and simulated payment processing functionalities, enabling aspiring entrepreneurs to secure financial support for community-oriented projects. A field test involving 30 purposively selected participants, including IT students, recent graduates, and young professionals, was conducted to assess the platform's usability. Participants engaged with the prototype and completed a structured online questionnaire featuring Likert-scale and open-ended items. Findings revealed moderate satisfaction with the campaign management components. However, critical issues were identified related to interface navigation, payment simulation accuracy, and data security, where over 70% of respondents expressed dissatisfaction. Key user recommendations included enhancing user interface intuitiveness, strengthening authentication processes, and incorporating interactive features such as live Q&A sessions and AI-generated feedback. Despite its limitations, the prototype demonstrates significant potential to address financing gaps among tech-based social innovators. This study offers valuable insights for the future refinement of digital crowdfunding ecosystems, particularly in fostering accessible, user-friendly solutions for the next generation of social entrepreneurs.

Keywords: Crowdfunding solution, digital entrepreneurship, funding platform, social entrepreneur, innovation,

INTRODUCTION

Crowdfunding has become an essential digital tool for enabling entrepreneurs to access alternative funding sources outside of traditional financial systems. It provides an opportunity for individuals, especially those in the early stages of business development, to gain support from the public through online platforms (Mollick, 2014). According to Belle Flamme et al. (2014), crowdfunding facilitates both the validation and financing of new ideas by allowing creators to present their projects to potential backers, who can pledge financial support. These platforms are particularly valuable for social entrepreneurs, who often prioritise impact over profit and may face challenges accessing conventional investment channels.

Gerber and Hui (2013) categorised the types of crowdfunding into four main models: donation-based, reward-based, lending-based, and equity-based. Each model supports different goals, ranging from community support to business investment. In the context of social innovation, reward-based and donation-based crowdfunding models are widely used to raise awareness and funds for causes with community benefits. In line with this, digital platforms play a vital role not only in enabling fund collection but also in creating trust and transparency between project creators and supporters.

As part of efforts to support sustainable social enterprise development, the Thai Ministry of Digital Economy and Society (2020) emphasised the need for inclusive digital solutions that promote financial accessibility and innovation. Therefore, developing and evaluating user-friendly crowdfunding platforms tailored for IT-based social entrepreneurs is a crucial step in addressing funding barriers and encouraging the growth of impact-driven projects. This study focuses on the development and field testing of a prototype designed for this purpose.

LITERATURE REVIEW

This section discusses the background of crowdfunding platforms and summarises related studies that have influenced the design and development of this project. Crowdfunding has emerged as a vital component in digital entrepreneurship, particularly in providing financial access to social entrepreneurs who often face limitations in securing funding through traditional financial institutions. Despite the growing adoption of online crowdfunding platforms, existing systems still face limitations in terms of user experience, data transparency, and personalised campaign support.

Figure 1

Analysis of a similar system interface layout of a typical crowdfunding platform (KICKSTARTER)

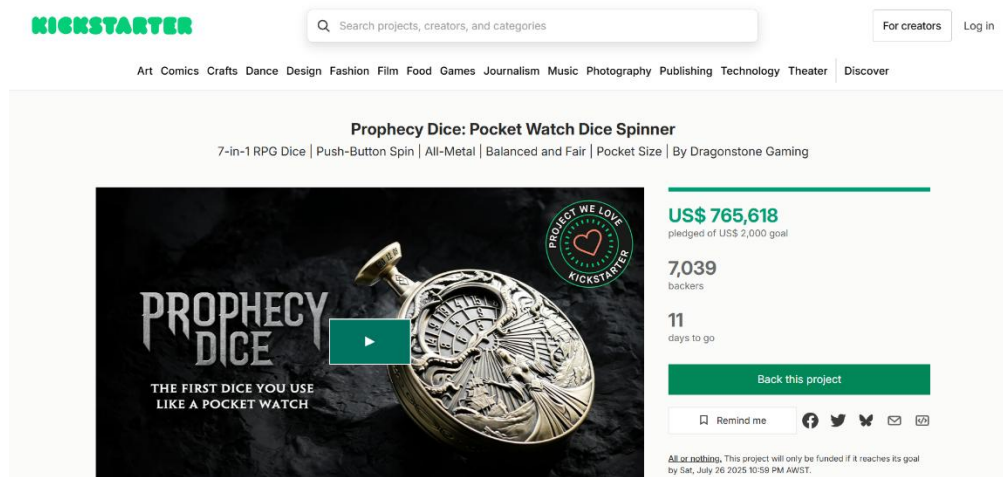
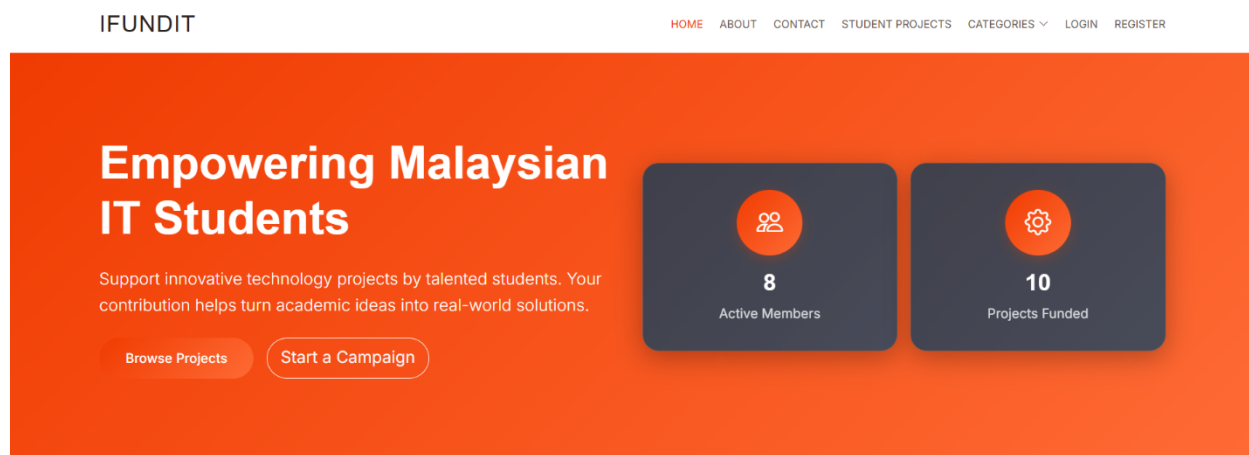


Figure 1 illustrates the user interface of a commonly used crowdfunding platform. It typically includes campaign descriptions, funding goals, progress bars, reward tiers, and a backer engagement section. While such platforms support campaign visibility and financial pledges, they often lack deeper user interaction tools like direct mentorship support or real-time feedback mechanisms.

Figure 2

Architecture of a Custom Crowdfunding Platform for Social Entrepreneurs



Featured Student Projects

Discover innovative IT projects by talented Malaysian students seeking funding to bring their ideas to life

Figure 2 presents the proposed system architecture for a tailored crowdfunding platform that emphasises social impact. The system consists of modules such as campaign management, funding tracking, a simulated payment gateway, and user analytics. It also includes admin control panels and user registration with basic verification to ensure authenticity.

Crowdfunding platforms serve as intermediaries connecting entrepreneurs and contributors online. According to Mollick (2014), successful crowdfunding depends not only on the campaign idea but also on trust, user interface design, and the platform's ability to convey transparency. This has led to increased demand for platforms that are more intuitive and purpose-built for social entrepreneurship.

Digital technologies like HTML, PHP, JavaScript, and MySQL are commonly used to build such systems. Responsive design is also crucial to support cross-platform access, especially on mobile devices. In addition, incorporating artificial intelligence (AI) and real-time data analytics can improve campaign visibility and help backers make informed decisions.

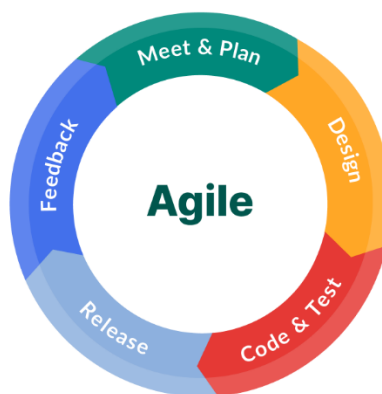
The system developed in this project adopts Agile methodology, emphasizing iterative feedback and user involvement to refine system usability and performance. By integrating features such as live Q&A sessions, project verification tools, and a secure simulated payment system, this platform aims to bridge the gap between innovation and funding in the social entrepreneurship ecosystem.

METHODOLOGY

The Software Development Life Cycle (SDLC) serves as the core methodology for the development of the PID82 Crowdfunding Platform. A structured and systematic approach is essential to ensure the platform's success and deliver a system that meets user expectations. For this project, the Agile model was chosen due to its iterative nature and emphasis on continuous feedback, which allows rapid adaptation based on user input and evolving requirements. Figure 3 illustrates the Agile development methodology applied in this study.

Figure 3

Agile Development Methodology Framework



In the requirement gathering phase, interviews, surveys, and secondary research were conducted to understand the functional and non-functional needs of IT entrepreneurs. These included campaign creation tools, real-time funding tracking, secure payment simulation, and mentorship or resource connectivity.

In the planning and design phase, the system was outlined using flowcharts and UML diagrams. These visuals defined platform structure, user flow, and technical architecture, ensuring that all stakeholders had a clear vision of the proposed system.

During the implementation phase, the development team built the prototype using HTML, CSS, PHP, JavaScript, and MySQL. Key modules such as user registration, campaign management, and payment processing were developed in sprints, allowing functionality to evolve based on testing and feedback. The testing phase involved usability testing with 30 target users to assess the platform's intuitiveness and functionality in real-world scenarios. Feedback was collected through structured forms to evaluate navigation, performance, reliability, and security.

After successful testing, the platform moved into the deployment phase, where the prototype was made accessible for broader testing. The system was hosted on a web server, ensuring compatibility across devices and screen sizes.

In the final maintenance phase, improvements were identified based on user feedback. These included enhancements to the user interface, security suggestions (e.g., two-factor authentication), and bug fixes. This iterative improvement cycle is crucial in Agile, ensuring the platform remains aligned with user expectations. The Agile methodology supports continuous iteration, user involvement, and flexibility. By using short sprints and incorporating regular feedback loops, the PID82 platform was developed in a user-centred way, ensuring usability and effectiveness for IT entrepreneurs seeking to launch socially impactful campaigns.

DESIGN AND DEVELOPMENT OF A CROWDFUNDING PLATFORM FOR SOCIAL ENTREPRENEURS

This section describes the design and development process of the Crowdfunding Platform for Social Entrepreneurs. It is divided into two sub-sections:

- (A) the functional and non-functional requirements, and
- (B) The prototype development involves the implementation of a web-based platform to validate the identified requirements.

(A) Requirements Specification

To gather the requirements of the PID82 Crowdfunding Platform, two primary methods were used:

1. User feedback through informal discussions with IT students and aspiring entrepreneurs, and
2. Secondary research by analysing similar existing crowdfunding platforms such as Kickstarter, Milaap, and Goteo.

Relevant documentation, interface walkthroughs, and platform reviews were studied to identify standard features, user interface needs, and technical specifications. The data collection was done through internet searches using keywords such as “crowdfunding platform features,” “fundraising system UX,” and “reward-based donation models.” The goal was to identify the necessary system features for both campaign creators and backers, focusing on usability, security, and real-time updates.

Table 1

List of Requirements

No	Requirement ID	Requirement Description	Priority
1	CF_01_01	The system allows users to register an account by entering a username, email, and password.	M
2	CF_01_02	Users must agree to the terms and conditions during registration.	M
3	CF_02_01	The system verifies login credentials and redirects users to their dashboard.	M
4	CF_03_01	Campaign creators can create, edit, and publish crowdfunding campaigns.	M
5	CF_03_02	Users can view detailed information on each campaign.	M
6	CF_04_01	Users can pledge funds to campaigns using a simulated payment gateway.	M
7	CF_04_02	The system records and tracks all transactions securely.	M
8	CF_05_01	Admin can manage user accounts and verify campaign content.	M
9	CF_05_02	Users can receive campaign notifications and progress updates.	O
10	CF_06_01	Campaign owners can view analytics of their campaign (e.g., number of backers, amount pledged).	O

Table 2

Non-functional requirements

No	Requirement ID	Requirement Description	Priority
1	NF_01_01	The system should be available 24/7 for both campaign creators and backers.	M
2	NF_01_02	The platform interface should be responsive and mobile-friendly.	M
3	NF_01_03	The payment process should simulate a secure transaction flow with basic encryption.	M
4	NF_01_04	All data should be stored in a centralised, secure MySQL database.	M
5	NF_01_05	Page load time should not exceed 3 seconds for key user actions.	O

Once the requirements were documented as in Tables 1 and 2, they were translated into UML models using Draw.io to visualise system architecture and user interaction flows. These include use case diagrams, sequence diagrams, and class diagrams to help conceptualise user-system interaction.

Figures 4, 5, 6, 7, and 8 represent the major use cases between actors (Guest, Admin, Entrepreneur, and Contributor) and the system. The core actions include registration, login, creating campaigns, donating, viewing campaigns, and admin moderation.

Figure 4

Sequence Diagram of View Campaign

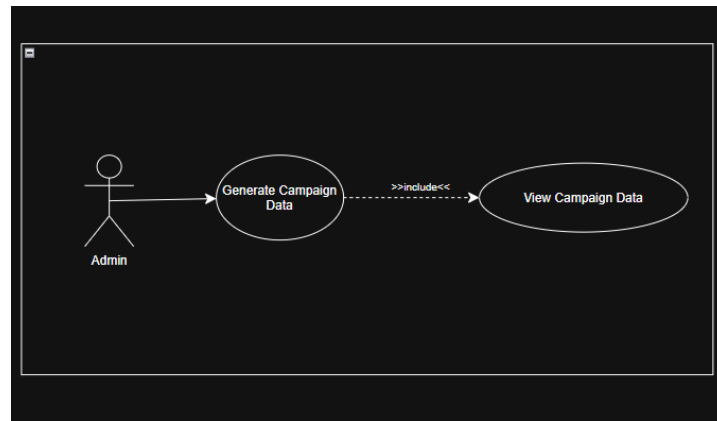


Figure 5

Sequence Diagram of Register Campaign

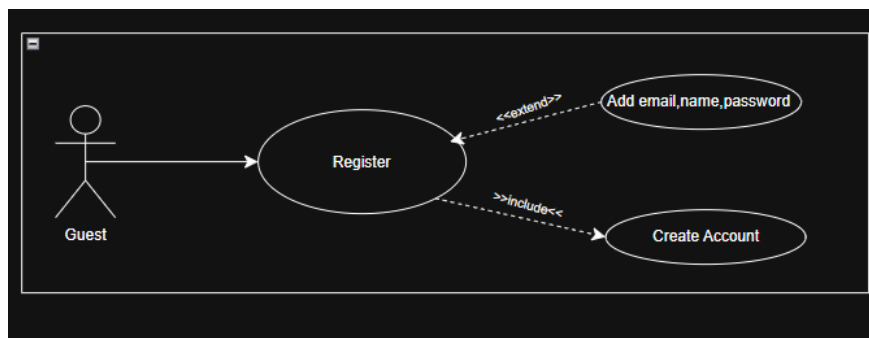


Figure 6

Sequence Diagram of the Donate Campaign

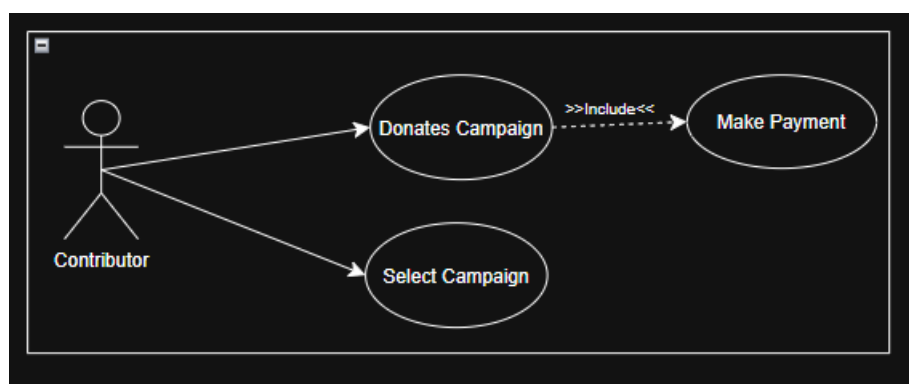


Figure 7
Sequence Diagram of Visit Homepage

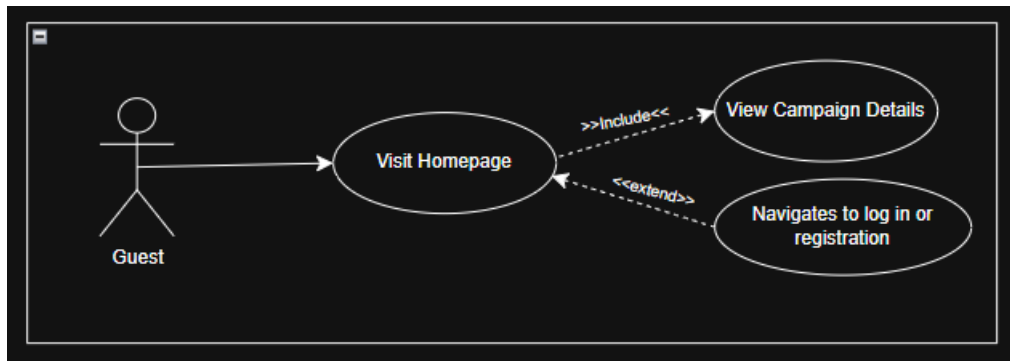
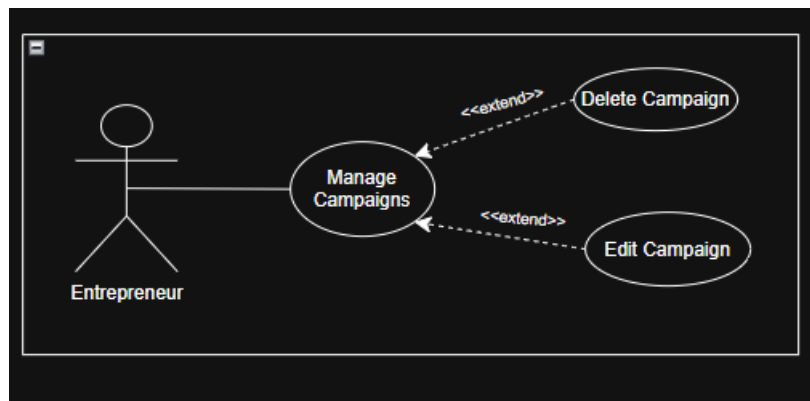


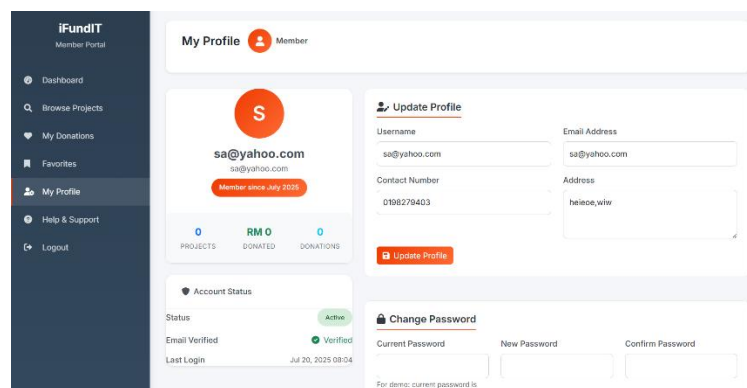
Figure 8
Sequence Diagram of Manage Campaign

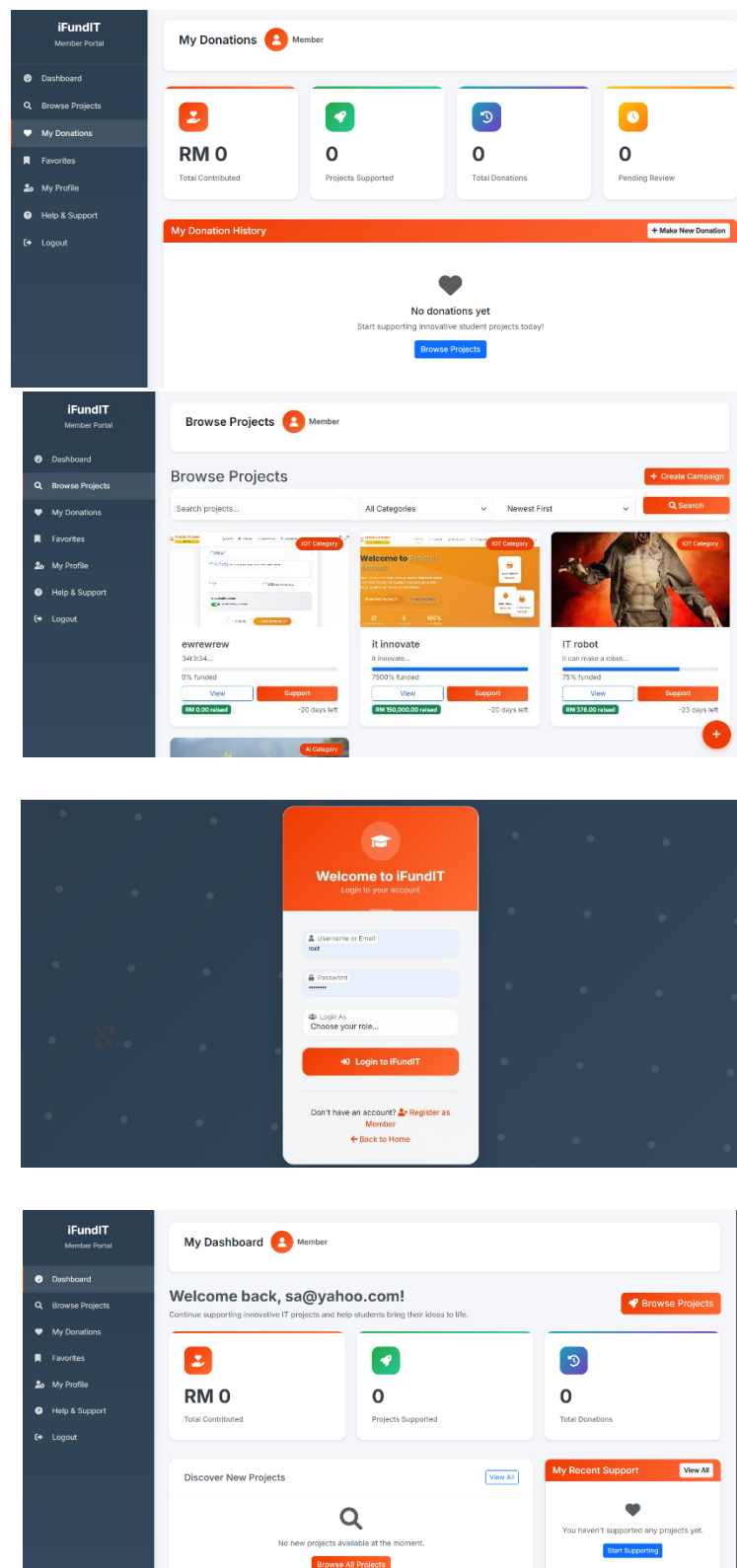


(B) Prototype Development

The platform was developed as a web-based application using HTML, CSS, JavaScript, and PHP, with a MySQL database (refer to Figure 9). The focus was on implementing essential modules: user registration, campaign management, donation simulation, and data visualisation.

Figure 9
Interfaces of Crowdfunding Platform





The front end includes a clean and responsive layout that adapts to both desktop and mobile screens. The back end handles user authentication, data storage, and payment simulation logic. Admin modules were also created to enable campaign moderation and basic analytics tracking. The prototype was tested internally and deployed for field testing among 30 participants aged 17–30. These users evaluated the system based on usability, reliability, and overall experience. Feedback gathered during this phase was used to inform future iterations and system improvements.

EVALUATION OF CROWDFUNDING PLATFORM FOR SOCIAL ENTREPRENEURS

The Evaluation Setting

A usability evaluation was conducted to assess the overall user experience and functionality of the Crowdfunding Platform for Social Entrepreneurs. The aim was to gather insights into how effectively users could navigate the system and whether the platform met their expectations in terms of usability, satisfaction, and practicality.

A total of 30 participants took part in this evaluation. The usability test was conducted using a post-task Google Form questionnaire, following these steps:

1. Participants were given instructions through a Google Form.
2. They were asked to perform key tasks on the crowdfunding platform.
3. After completing the tasks, they filled out the questionnaire to provide feedback.

The questionnaire was divided into two sections:

- Section A: Demographic and background information.
- Section B: Usability assessment using a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).

Respondents' Demographic and Background Information

The participants represented a variety of backgrounds to ensure the results reflected a diverse range of users (refer to Table 3).

Table 3

Demographics of respondents

Demographic Factor	Percentage Distribution
Occupation	63.3% students, 30% entrepreneurs, 6.7% NGOs
Gender	53.3% female, 46.7% male
Age Group	63.3% (21–25 years), 16.7% (26–35 years), 20% (36 years and above)

When asked about their experience with crowdfunding platforms:

- **60%** had never used a crowdfunding platform before.
- **36.7%** had used similar platforms previously.
- **3.3%** were regular users of such platforms.

Usability of the Crowdfunding Platform

Section B evaluated the platform's Usefulness (Table 4), Ease of Use (Table 5), Satisfaction (Table 6), and Functionality (Table 7).

Table 4

Results related to Usefulness

Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Helps support social entrepreneurship	0%	0%	6.7%	46.7%	46.7%
Makes crowdfunding easier	0%	3.3%	16.7%	53.3%	26.7%
Facilitates project promotion	0%	0%	10%	63.3%	26.7%
Useful for project owners and backers	0%	0%	13.3%	63.3%	23.3%
Encourages community involvement	0%	0%	20%	60%	20%

From Table 4, for all five statements, many respondents either agree or strongly agree, suggesting substantial perceived value. For instance, "Helps support social entrepreneurship" received 93.4% combined agreement (46.7% agree, 46.7% strongly agree). "Makes crowdfunding easier" also scored highly, with 80% combined agreement, though it had the highest proportion of neutrality (16.7%) among all items except "Encourages community involvement". These findings demonstrate a strong consensus on the platform's usefulness, particularly in supporting social entrepreneurship, promoting projects, and providing direct benefits to project stakeholders, though there is slightly less emphatic endorsement for community engagement.

Table 5

Results related to Ease of Use

Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Easy to navigate	0%	0%	10%	66.7%	23.3%
Information is clear and understandable	0%	0%	13.3%	63.3%	23.3%
The interface is visually appealing	0%	3.3%	13.3%	53.3%	30%
No confusion when completing tasks	0%	6.7%	10%	60%	23.3%
Can use the platform without needing help	0%	0%	20%	60%	20%

The findings from Table 5 indicate that respondents generally perceive the platform as user-friendly and accessible. Across all items, many respondents either agree or strongly agree, indicating high ease of navigation, clarity of information, and overall usability. For example, "Easy to navigate" scored 90% combined agreement, and "Information is clear and understandable" scored 86.6%. "The interface is visually appealing" received 83.3% agreement, with the highest "strongly agree" rate in the table (30%), suggesting strong approval of the design.

Table 6

Results related to Satisfaction

Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am satisfied with this platform	0%	0%	16.7%	60%	23.3%
Would recommend it to friends or colleagues	0%	3.3%	13.3%	53.3%	30%
The platform meets my expectations	0%	3.3%	13.3%	63.3%	20%

From Table 6, the data reflect a high overall level of user satisfaction with the platform. "I am satisfied with this platform" received 83.3% combined agreement, with no disagreement and only 16.7% neutral responses, indicating a strong positive sentiment. "Would recommend it to friends or colleagues" scored 83.3% agreement (53.3% agree, 30% strongly agree), though 3.3% disagreed, showing slightly less consensus compared to direct satisfaction measures.

Table 7

Results related to Functionality

Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
All buttons and links work as intended	0%	0%	10%	66.7%	23.3%
Page loading speed is acceptable	0%	0%	16.7%	56.7%	26.7%
Forms and input fields are responsive	0%	0%	20%	60%	20%
Compatible with both mobile and desktop devices	0%	3.3%	23.3%	50%	23.3%

From Table 7, the result indicates a generally positive experience with the system's interface and performance. A large majority of respondents agreed or strongly agreed that buttons and links function correctly (90%), page loading speed is acceptable (83.4%), and forms are responsive (80%). Overall, the results reflect a well-functioning and user-friendly system with minor areas for potential enhancement.

The evaluation findings suggest that users found the Crowdfunding Platform for Social Entrepreneurs to be highly usable, informative, and relevant for supporting social-based projects. Most participants agreed that the platform made crowdfunding more approachable and encouraged social contribution. Users appreciated the easy navigation, clear instructions, and the professional interface. The platform also scored well in terms of functionality, with users reporting minimal technical issues.

CONCLUSION

This paper presented the design, development, and field testing of the Crowdfunding Platform for Social Entrepreneurs, a web-based system designed to empower IT-driven social innovation by providing an alternative fundraising channel. The platform enables users to create campaigns, track funding progress, and simulate secure transactions through an accessible interface. Developed using HTML, CSS, PHP, JavaScript, and MySQL, and structured using the Agile methodology, the system was refined iteratively through user feedback to ensure usability and scalability. Field testing conducted with 30 participants highlighted the platform's strengths, particularly in campaign management and funding tracking, but also

revealed challenges in navigation, payment processing, and data security. These findings suggest that while the system meets its core objectives, improvements are needed to enhance the overall user experience. Future enhancements will focus on integrating real-time analytics, strengthening authentication methods, and introducing features such as live Q&A and notification systems to improve user engagement. One major limitation identified was the reliance on consistent internet connectivity, which may hinder accessibility in areas with weaker infrastructure. Addressing this issue by developing a mobile application or incorporating offline access could extend the platform's reach. This paper concludes that the PID82 platform has strong potential to serve as a vital tool in supporting IT entrepreneurs, bridging the gap between innovation and funding, and contributing to the growth of technology-driven solutions for social good.

ACKNOWLEDGMENT

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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