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Optimization of Donation Management at Daarul Multazam Islamic Boarding School Using a Laravel-Based Web Information System

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Abstract
Manual donation management at Pondok Pesantren Daarul Multazam poses challenges related to efficiency, reach, and transparency, which could potentially reduce donor trust. This study aims to design and develop an integrated web-based donation reception information system to address these issues. The software development methodology used is the Prototype Method, which emphasizes an iterative process through continuous evaluation with stakeholders to ensure the system built meets the real needs of users. This system is developed using a combination of modern technologies, namely the Laravel framework for the backend, Vue.js for a dynamic user interface, and Tailwind CSS for responsive design. The result of this study is a functional web donation application that has undergone a series of tests. Functional testing using the Black Box Testing method showed that all features worked as expected, while feasibility testing through User Acceptance Testing (UAT) showed a task completion success rate of 100%, indicating that the system is highly acceptable and easy to use. The limitation of this study is its focus on a single case study, and future research could explore the scalability as well as the implementation of advanced security features. The key features of the system include campaign management, online donation processes through payment gateway integration, and a crucial module, the Fund Usage Report, to enhance transparency and accountability, providing a replicable model for similar nonprofit institutions.

Keywords: Donation Management; Information System; Laravel; Islamic Boarding School; Web-Based Application

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1. Introduction
In the era of digital transformation, information technology has become a fundamental catalyst in various sectors, including in the realm of philanthropy and social activities. Donations, as a vital instrument of social concern, play a crucial role in supporting the sustainability of nonprofit organizations, including religious educational institutions such as Islamic boarding schools (Mulandari et al., 2021). Ideally, modern donation management requires a high level of transparency, efficiency, and accessibility in order to reach a wider donor audience and maximize financial support potential (Karim & Dakir, 2025; Munir & Hoiriyah, 2024). A professionally managed system not only ensures optimal use of funds but also serves as a foundation for building and maintaining public trust (Warouw & Harimurti, 2024).

However, the reality on the ground shows a significant gap between those ideal conditions and the actual practices. Many institutions, including the case study in this research, Pondok Pesantren Daarul Multazam, still rely on manual and conventional donation management processes. Dependence on these traditional methods gives rise to a series of strategic challenges, ranging from inefficiencies in recording and reporting processes, limited geographic reach of potential donors, to a lack of transparency that could potentially erode donor trust (Misbah, 2024; Putu Sumada et al., 2021; Warouw & Harimurti, 2024). This manual process, which is prone to human error and time-consuming, has become an anomaly amid the rapid adoption of digital literacy and the trend of online transactions in society (Zandi et al., 2022). This issue is not merely an administrative matter, but a strategic obstacle that limits the potential for the institution's growth and sustainability.

This gap is the main justification for this research. This study aims to design, build, and validate a web-based donation management information system as a comprehensive solution to the existing problems. The novelty of this research lies in the application of a combination of modern technologies that are holistically integrated, using the Laravel framework for robust backend engineering, Vue.js for dynamic and reactive user interface (frontend) development, Tailwind CSS for responsive design, and payment gateway integration to facilitate secure and efficient donation transactions. Although online donation systems have been widely studied, research documenting the specific application of this technology stack in the unique context of Islamic boarding schools in Indonesia is still limited, making this study offer a significant practical contribution.

Thus, the objectives of this study are: (1) To design an efficient and transparent donation information system architecture using the Laravel framework; (2) To implement a responsive and interactive user interface using Vue.js and Tailwind CSS; (3) To integrate a payment gateway for secure online transaction automation; and (4) To test the system's functionality and feasibility using the Prototype method to ensure alignment with the real needs of the Daarul Multazam Islamic Boarding School. The system produced is expected not only to be a technical solution but also a digital adaptation model that can be replicated by similar institutions.

2. Literature Review

Information systems are defined as an integrated combination of individuals, facilities, technology, media, procedures, and control mechanisms designed to facilitate vital communication channels within an organization. In the modern context, web-based information systems offer fast, easy, and comprehensive access to measure performance, manage data, and support various operational activities. The implementation of digital information systems in nonprofit organizations enables more efficient, transparent, and accountable data management and reporting, which is a crucial factor in increasing public trust in fund management (Misbah, 2024; Putu Sumada et al., 2021).

Digital philanthropy refers to a mechanism for channeling donations that utilizes online-based media, such as electronic banking and financial technology. This concept provides greater convenience and accessibility for donors to participate without having to be physically present (Warouw & Harimurti, 2024). The key to this ecosystem is the payment gateway, a technology that serves as a payment portal to securely and efficiently process transactions from various digital channels. The integration of a payment gateway has been proven to increase transaction success rates and donor trust, making it an essential component in modern donation systems(Shiddiqy & Ekawati, 2022).

Laravel is a PHP-based web application framework that implements the Model-View-Controller (MVC) architectural pattern. Known for its expressive syntax and feature-rich ecosystem, Laravel enables fast, structured, and secure application development. This framework is very suitable for building RESTful APIs and demonstrates solid performance for applications with a high level of concurrent user access

(Siahaan & Wijaya, 2024). Laravel has been widely adopted in the development of information systems for educational and religious institutions (Asri et al., 2024).

Vue.js is a progressive JavaScript framework designed to build interactive user interfaces (UI). As a Single Page Application (SPA), Vue.js operates on the view layer and utilizes a reactive rendering system, where data changes automatically update the interface without manual manipulation. This approach results in a smooth and responsive user experience. The combination of Vue.js as the frontend and Laravel as the backend is a common practice in modern web development to enhance application efficiency and performance (Aryasta, 2022).

Tailwind CSS is a CSS framework with a utility-first approach that allows developers to quickly build custom interface designs directly within HTML markup. By providing low-level utility classes, Tailwind CSS reduces the need to write extensive custom CSS, thereby speeding up the development process, enhancing design consistency, and facilitating the creation of fully responsive interfaces (Azhariyah & Mukhlis, 2024).

The Prototype Method is an iterative software development approach, where an initial working version of the system (prototype) is built to be explored, tested, and refined based on continuous feedback from users. This method is very effective for projects where user requirements may not be fully clear at the beginning or are highly dependent on user experience (UI/UX). By actively involving users early on, this method can detect errors or overlooked needs, thereby reducing risks and repair costs in the final stages (Damanik et al., 2024; Kustanto et al., 2024).

Black Box Testing is a testing technique that focuses on validating the functionality of software from the end user's perspective, without considering the internal code structure. Its goal is to ensure that every input produces an output that complies with the specifications (Halawa & Saifudin, 2023). Meanwhile, User Acceptance Testing (UAT) is the final validation phase where target users test the system to ensure that it meets their business needs and can be used to complete real-world tasks effectively. UAT serves as the final determinant of the system's readiness before it is deployed to the production environment (Purnomo, 2017).

Previous research has extensively explored the development of web-based donation systems. Zandi et al. (2022) successfully built a ZIS donation system using Laravel. Ginting & Pandia (2025) demonstrates the effectiveness of combining Laravel and Vue.js for religious web applications. Shiddiqy & Ekawati (2022) specifically implementing payment gateway integration and validating it through UAT with very good results. Meanwhile, research by Setiawan (Kustanto et al., 2024) emphasizing the effectiveness of the Prototype method in producing products that meet user needs.

Nevertheless, this study positions itself with clear novelty. Its contributions lie in (1) the comprehensive integration of specific modern technology stacks (Laravel, Vue.js, Tailwind CSS, and Payment Gateway) into a single unified solution; (2) application to the unique case study of Pondok Pesantren Daarul Multazam with specifically identified problems; and (3) the use of the Prototype method not only for development but also as a tool for UI/UX validation and discovery of latent needs, such as features for transparency in fund usage.

3. Methods

To ensure that the system being built addresses real needs, the data collection process is carried out through three approaches:

1. Observation

   An in-depth analysis of the ongoing donation process at Daarul Multazam Islamic Boarding School, including inspecting the workflow on the existing website. This observation identified key problem points, such as manual confirmation via WhatsApp and the absence of integrated online payment options.

2. Interview
   Structured interviews were conducted with key stakeholders, including the leaders and treasurer of the boarding school. This session aimed to validate findings from observations and explore functional and non-functional requirements in more detail, such as the need for systematic reporting and donor data management.

3. Literature Review
   A review of the pesantren's internal documents and relevant scientific literature to build a strong theoretical foundation regarding the technology to be used and the most appropriate development methodology.

This research adopts the Prototype Method as a software development model. This choice is based on the nature of the project, which heavily relies on user interaction and feedback to produce an intuitive and functional system. This process is not merely a series of technical steps but a narrative of collaboration between the development team and end users, where the final system is shaped together.

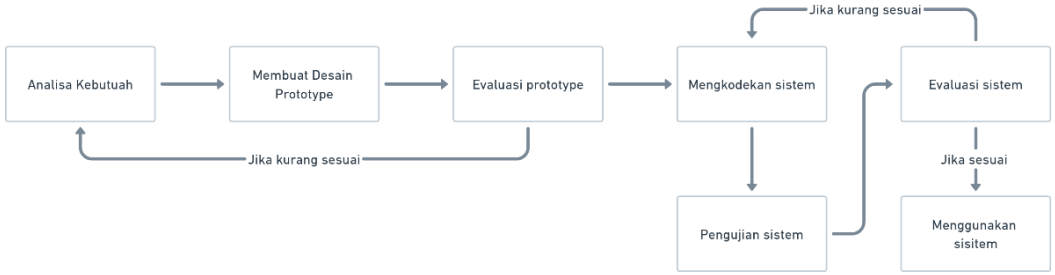

Figure 1. Prototype Method

Needs Analysis and Initial Prototype Design
Based on the collected data, an initial functional prototype was built. This prototype focused on the most crucial workflow (core user journey): the administrator's ability to create donation campaigns and the donor's ability to make donations through the web interface. Secondary features were intentionally omitted to focus the evaluation session on core functionality.

Prototype Evaluation and Collaborative Iteration
The initial prototype was then evaluated in a special session involving the leader, the head of public relations, and the treasurer of the pesantren. This session became a crucial moment in the development process. The evaluation results showed an initial task completion rate of 91.7%. Although high, one failure was identified in the task of creating a new campaign, where participants had difficulty finding the action button. However, more importantly, this session successfully uncovered a critical latent functional need. The treasurer provided input: "This system is good for receiving donations, but how do we report what these funds are used for? To gain donors' trust, there needs to be a usage report for each campaign." This feedback is not merely a request for changes, but a collaborative design moment that fundamentally enhances the system's value proposition.

System Refinement and Final Implementation
Based on feedback from the evaluation session, improvement iterations were carried out. Actions taken included enhancing the user interface (UI) by repositioning action buttons for better intuitiveness, and most significantly, developing a new module for the "Fund Usage Report." This feature allows administrators to record every item of fund expenditure related to a campaign, which can then be viewed publicly by donors. This process demonstrates the power of the Prototype method in transforming user feedback into tangible features that enhance transparency and accountability, which is the main goal of this project.

System Architecture
The system developed adopts a decoupled Client-Server architecture. This architecture consists of two main components:
Backend (Server Side)

Built using the Laravel framework, it serves as the brain of the application. This component is responsible for business logic, authentication, database management, and providing a secure RESTful API for consumption by the frontend.

Figure 2. Laravel Flowchart (Backend)

Frontend (Client Side)
Built as a Single Page Application (SPA) using Vue.js. This component is fully responsible for rendering an interactive and dynamic user interface. All data communication with the backend is carried out asynchronously through REST API calls.

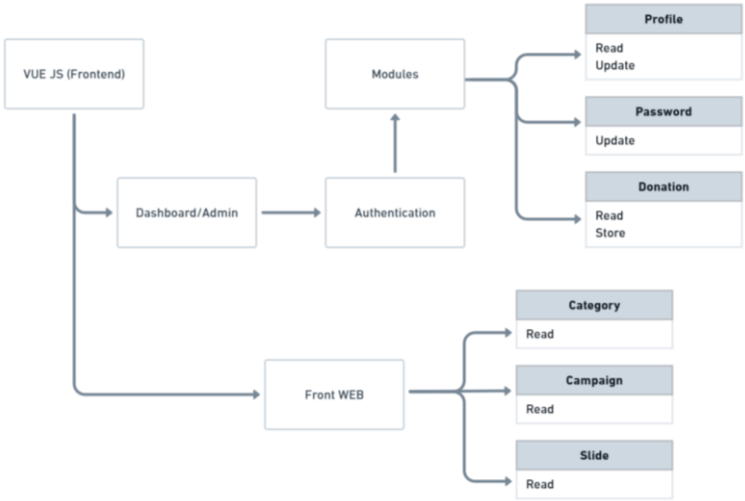

Figure 3 Vue.js Flowchart (Frontend)

This architectural choice is based on modern software engineering principles that prioritize modularity, scalability, and ease of maintenance.

4. Results

System Analysis and Design

Based on the problem analysis, six main issues were identified: a non-automated donation process, the absence of a payment gateway, limited donation reach, lack of transparency, non-integrated data management, and the absence of a campaign management feature. To address these issues, a Client-Server system architecture with a RESTful API was designed. The database structure is modeled using an Entity Relationship Diagram (ERD) as shown in Figure 4, which includes main entities such as users, donors, campaigns, donations, and expense_reports to ensure transparency.

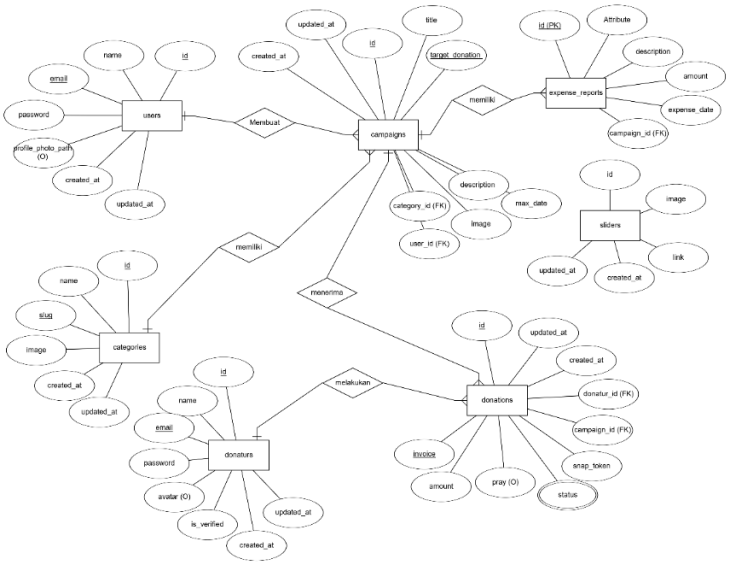

Figure 4 Entity Relationship Diagram (ERD) of the Donation System

User Interface Implementation

User interface (UI) design is a crucial phase aimed at creating a visual representation of the system that is intuitive for users. The UI implementation for the "Donasi Daarul Multazam" application is divided into two main components:

Admin Panel (Backend) for internal management and Public Donor Interface (Frontend) for external interactions. The entire design is implemented using the Tailwind CSS framework to ensure a responsive and consistent appearance across various devices.

Admin Panel Interface (Backend)

The admin panel is designed using Laravel Jetstream integrated with Livewire, resulting in a functional system with a clean and modern interface.

1. ***Main Dashboard***

   Functions as an information center that provides an overview of application operations. The dashboard displays three Key Performance Indicator (KPI) cards highlighting important metrics: total donors, number of active campaigns, and total donations collected.

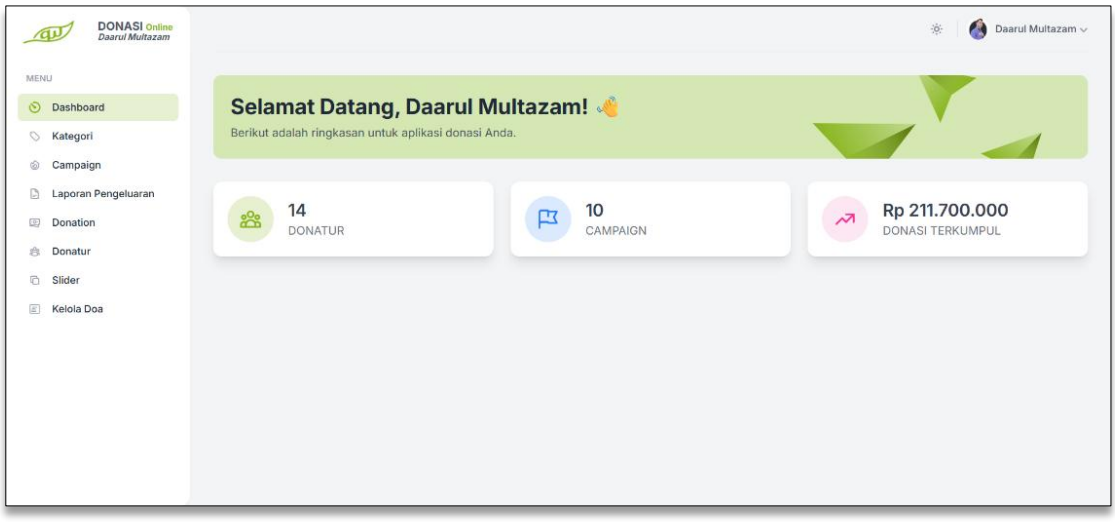

Figure 7. Dashboard Interface

2. ***Campaign Management***

This interface is the central management hub for donation programs. There is an informative data table that displays all campaigns along with their targets and end dates. The add and edit campaign forms are equipped with the Trix Editor, a Rich Text Editor (RTE) that allows admins to create detailed and engaging campaign descriptions.

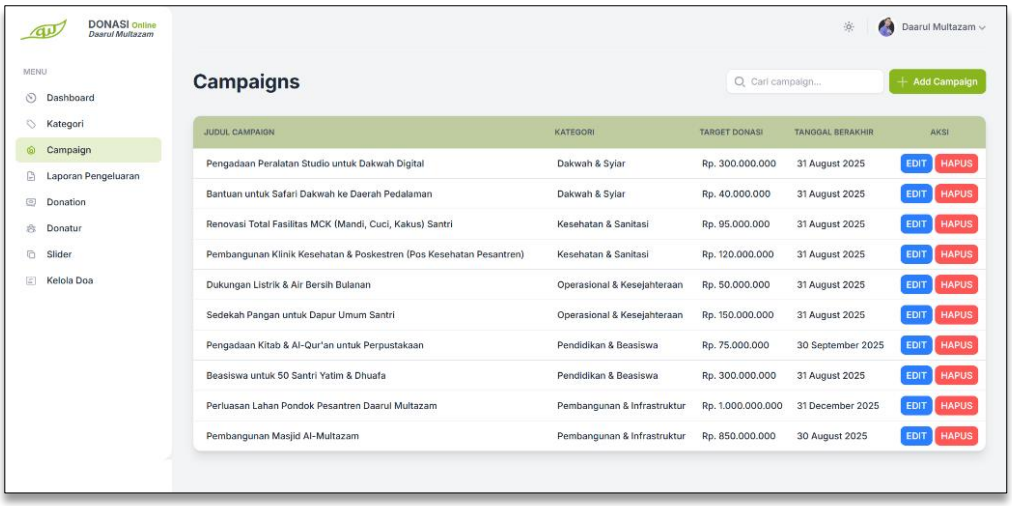

Figure 8. Campaign Management

3. ***Fund Usage Report (Transparency Feature)***

This feature is specifically designed to enhance transparency and accountability. Admins can create expense reports for each campaign. The report form comes with a dynamic fund calculator that automatically displays the total funds collected, total funds spent, and the remaining available funds in real-time, which is very helpful for admins in managing campaign finances.

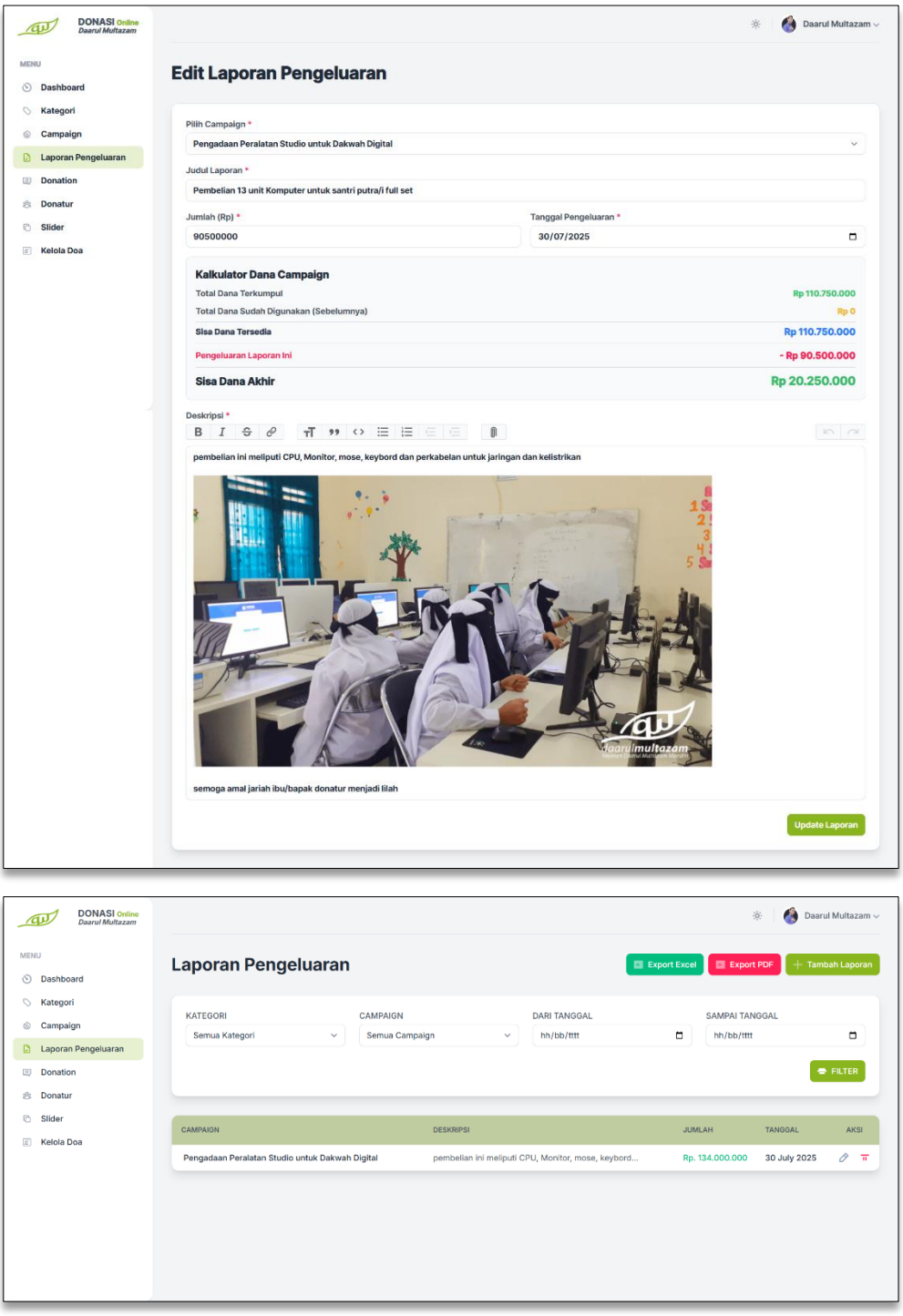

Figure 9. Edit and Fund Usage Report

4. ***Donation Report***

This page provides functional analysis tools for admins, with the ability to filter donation data by category, specific campaigns, and date range. Report results can be exported to Excel or PDF format for documentation purposes.

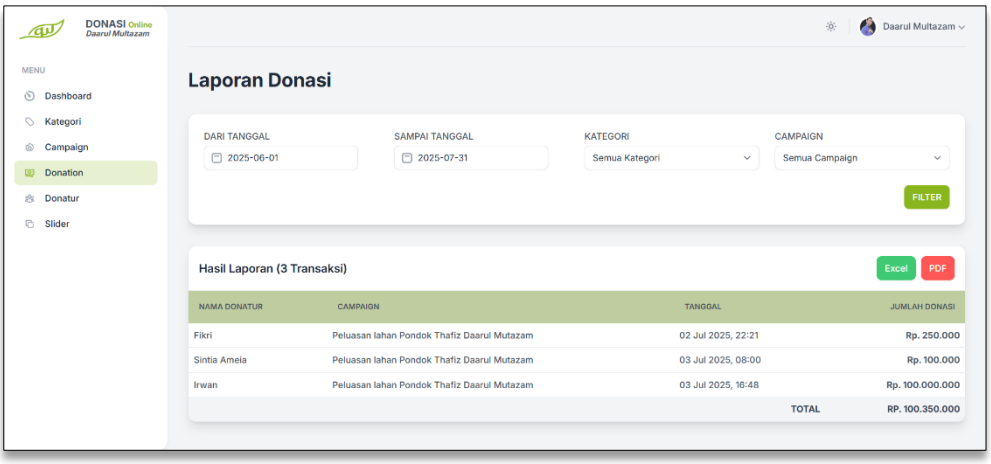

Figure 10. Donation Report

Donor Public Interface (Frontend)

The public interface is designed as a Single Page Application (SPA) using the Vue.js framework to provide a modern, fast, and responsive user experience. Data communication with the backend is done asynchronously through a REST API.

1. ***Home Page and Campaign Details***

   The homepage serves as the main showcase featuring promotional sliders and a list of the latest campaigns to attract donors' attention. The campaign detail page becomes the center of information and transparency. Here, donors can not only read the campaign story but also see a list of other donors (as social proof) and, most importantly, access the Expenditure Report tab that displays detailed information on how the funds are used transparently.

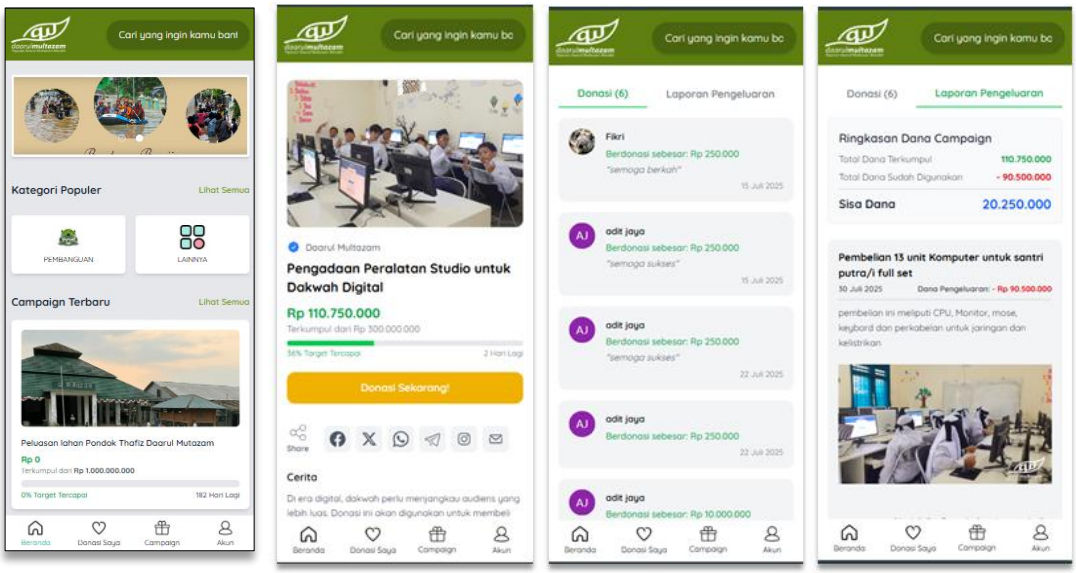

Figure 11. Homepage and Campaign Details

2. ***Donation Process Flow and Payment Integration***

   The donation process is designed to minimize obstacles. Donors are directed to a simple amount input page, where they can choose a quick amount or enter a specific amount, as well as add a prayer message (optional). After proceeding with the payment, the system displays the Midtrans Snap popup, a secure and trusted external payment interface. This popup provides a variety of payment methods familiar to users in Indonesia (such as GoPay, Virtual Account, QRIS, etc.), thereby increasing donor trust and convenience in making transactions.

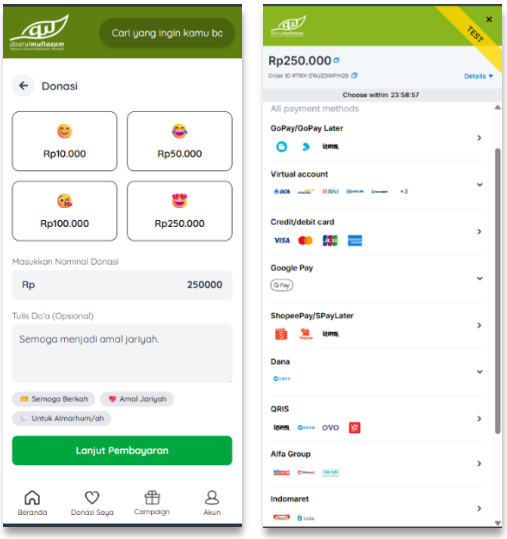

Figure 12. Donation Process Flow and Payment Integration

3. *Donor Account Area*

After logging in, donors have access to their personal account page where they can manage their profile, change their password, and view the complete history of donations they have made, including the status of each transaction.

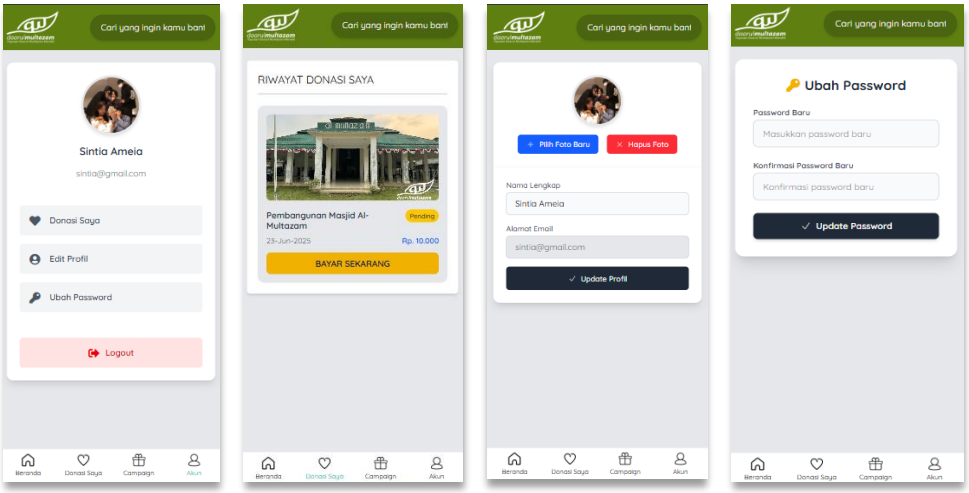

Figure 13. Donor Account Area

System Test Results

System testing was carried out in two stages. First, Black Box Testing was performed to verify the functionality of each feature. The results showed that all 10 main test cases, for both the admin and donor sides, ran as expected with a 'SUCCESS' status, confirming that the system is technically solid.

Secondly, User Acceptance Testing (UAT) is conducted to validate the system's feasibility and ease of use by end users. This testing involves pesantren staff (as administrators) and representatives of donors who are given 8 real task scenarios. The results are summarized in Table 1.

Table 1. Summary of User Acceptance Testing (UAT) Results

Role	Test Case ID	Test Scenario	Actual Result	Status
Administrator	UAT-ADM-01	Login to the Admin Panel	Admin can log in without any issues.	Successful
Administrator	UAT-ADM-02	Create New Campaign	Admin successfully created a new campaign.	Successful
Administrator	UAT-ADM-03	Add Fund Usage Report	Admin successfully added the details.	Successful
Administrator	UAT-ADM-04	Filtering Donation Reports	The filter feature works accurately.	Successful
Donor	UAT-DON-01	New Account Registration	The registration process is easy to follow.	Successful
Donor	UAT-DON-02	Make a Donation	The donation process went smoothly.	Successful
Donor	UAT-DON-03	View Fund Usage Report	Transparency features are easy to find.	Successful
Donor	UAT-DON-04	View Donation History	Transaction history is displayed correctly.	Successful

All 8 UAT scenarios were successfully completed by participants without significant issues, resulting in a task completion rate of 100%. These results provide strong empirical evidence that the developed system is highly acceptable, has a high level of usability, and effectively meets the operational needs of Pondok Pesantren Daarul Multazam.

5. Discussion

The success of this project, validated by a 100% UAT result, can be significantly attributed to the implementation of the appropriate development methodology. The Prototype Method has proven to be a highly effective framework. The user-centered iterative process allowed for the early identification and resolution of usability issues, as demonstrated by interface layout improvements following the initial prototype evaluation. Moreover, this methodology facilitates a constructive dialogue between developers and stakeholders, culminating in the creation of a transparency module for fund usage. This feature, which was not identified in the initial needs analysis, emerged from users' deep understanding of the operational context and the organization's core values—namely accountability and trust. This demonstrates that the Prototype method not only produces functional software but also software that is meaningful and aligned with the organization's mission.

From a technical perspective, the choice of technology stack (Laravel, Vue.js, Tailwind CSS) has proven to be strategic. This combination offers a strong and replicable blueprint for the modernization of similar nonprofit organizations. Laravel provides a secure and scalable backend foundation for data integrity. Vue.js enables the creation of modern user experiences comparable to commercial platforms, which is crucial for attracting and retaining digital donors. Meanwhile, Tailwind CSS significantly accelerates the development of professional and consistent interfaces. The synergy of these three technologies results in a system that is not only functionally advanced but also efficient to develop and maintain.

The broader implications of this research lie in its contribution to enhancing trust and accountability in the philanthropic sector. By providing publicly accessible and real-time reports on fund usage, this system directly addresses donor skepticism. This shifts the donation paradigm from merely a financial transaction to a trust-based relationship, where donors can see the tangible impact of their contributions. The ability to track fund allocation transparently is the foundation for building long-term relationships with the supporting community, which ultimately is crucial for the financial sustainability of the institution.

6. Conclusion

Based on the research results, it can be concluded that the web-based donation management information system for Pondok Pesantren Daarul Multazam has been successfully designed, implemented, and validated. This study successfully achieved all of its objectives. Firstly, an efficient and transparent client-server architecture was successfully designed using the Laravel framework. Second, a responsive and interactive user interface was successfully implemented using Vue.js and Tailwind CSS. Third, the integration of the payment gateway successfully facilitated secure and automatic online donation transactions. Finally, testing of functionality and feasibility through Black Box Testing and User Acceptance Testing (UAT) showed that the system operates according to specifications and is highly acceptable to end users, as evidenced by a 100% completion rate. The Prototype Method has proven to be highly effective in facilitating iterative development and ensuring the final product aligns with the real needs of users. This system conclusively addresses the challenges of efficiency, reach, and transparency faced by the Daarul Multazam Islamic Boarding School.

Limitations and avenue for future research

This research is limited to a single case study at Daarul Multazam Islamic Boarding School, so the generalization of the results should be done with caution. For future development, several research directions can be explored. The system's functionality can be enriched by adding a recurring donation feature to enhance revenue predictability. The development of native mobile applications (Android/iOS) can also be considered to expand reach and ease of access for donors. From a security perspective, implementing two-factor authentication for administrator accounts is recommended to enhance protection against unauthorized access.

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