Journal of Information Technology, computer science and Electrical Engineering (JITCSE)
Vol. 1, No. 3, October 2024, pp. 453~457
ISSN: 3046-4900, DOI: 10.30596/jitcse

Designing a Crowdfunding Information System in Kota Pari Village using the Laravel Framework

Abdul Khaliq[1], Maya Syaula[2], Muhammad Muttaqin[3], Sahrial[4]
Computer Science, Universitas Pembangunan Panca Budi, Medan, Indonesia

ABSTRACT

This research aims to design a crowdfunding information system to empower the community in Kota Pari Village in raising funds for various projects and initiatives. The system is built using the Laravel framework and is designed with a scalable and secure architecture, consisting of key components such as the user interface, project management system, donation management system, user management system, reporting system, database, and API. Key features implemented include user registration and profiles, project management, donations and payments, notifications, and analytics. The waterfall methodology is used in system development, including the stages of needs analysis, system design, implementation, testing, and deployment. The results of this research are in the form of a web-based crowdfunding information system design which is expected to increase access to funding, transparency, and community participation in village development. Leveraging the Laravel framework provides advantages in terms of development speed, security, and system scalability. This research contributes to the development of technological solutions for economic and social empowerment in rural areas.

Keywords : Crowdfunding, information system, Laravel, village, Pari City, community empowerment

Corresponding Author:
Abdul Khaliq
Computer Science,
Universitas Pembangunan Panca Budi,
Jl. Jend. Gatot Subroto 20122. Medan City, Indonesia.
Email : abdulkhaliq@pancabudi.ac.id

Article history:
Received Oct 29, 2024
Revised Oct 30, 2024
Accepted Oct 31, 2024

I. INTRODUCTION

Background

The rapid advancement of technology has transformed the way individuals and organizations conduct financial transactions. One such innovation is the emergence of crowdfunding, a collaborative approach to raising funds for various projects or ventures. Crowdfunding platforms leverage the power of the internet to connect project creators with a vast network of potential funders, enabling them to bypass traditional funding channels. This decentralized approach to fundraising has democratized access to capital, particularly for small businesses, startups, and social initiatives. (Parhankangas et al., 2019)

In the context of rural areas, like Kota Pari Village, crowdfunding presents a unique opportunity to empower communities and drive local development. Often, rural communities face challenges in accessing traditional financial institutions and securing funding for essential projects. Crowdfunding can bridge this gap by providing an alternative avenue for raising capital for initiatives such as infrastructure development, small and medium enterprise growth, and community-based social programs. However, the effective implementation of crowdfunding in rural areas requires careful consideration of the specific needs and challenges of these communities. A well-designed crowdfunding information system can play a crucial role in facilitating this process. (Arvila et al., 2020)

This research focuses on designing and implementing a crowdfunding information system specifically tailored for Kota Pari Village. The system aims to provide a user-friendly and accessible platform for residents to initiate crowdfunding campaigns, manage donations, and track project progress. By leveraging the power of technology, this system seeks to empower the community to take ownership of their development and create positive change. The Laravel framework has been chosen for the development of this system due to its robust features, scalability, and suitability for building modern and responsive web applications. Laravel's elegant syntax, modular structure, and active community support make it an ideal choice for developing a sustainable and maintainable crowdfunding platform. This research will explore the key features and functionalities of the proposed system, the development methodology employed, and the potential impact of this technology on the community of Kota Pari Village.

II. Literature Review

A. Crowdfunding

Definition and Concept of Crowdfunding

Crowdfunding is a method of collecting funds collectively from many individuals or organizations, which is usually done through online platforms. There are various types of crowdfunding, such as donation-based crowdfunding, reward-based crowdfunding, equity-based crowdfunding, and debt-based crowdfunding (Hutomo, 2019). Crowdfunding has various benefits and advantages, including transparency, efficiency, and effectiveness in the fundraising process. (Hutomo, 2019)

In the context of rural areas, crowdfunding can be a promising solution to overcome the challenges of accessing traditional financial institutions and obtaining funding for important projects in villages. Crowdfunding can bridge this gap by providing alternative channels to raise capital for initiatives such as infrastructure development, small and medium business growth, and community-based social programs (Hutomo, 2019).

Benefits of Crowdfunding

Better transparency and accountability in the fundraising process (Hutomo, 2019) (Samarah & Alkhatib, 2019)

The ability to fund projects that cannot be financed through traditional channels, such as innovative, high-risk projects, or projects involving social issues that have not received enough attention.

Enabling wider participation and involvement of the community in supporting initiatives in their area.

B. Crowdfunding Information System

Crowdfunding Information System Architecture

An effective crowdfunding information system must be designed with a robust and scalable architecture to accommodate the growth of users and projects. This architecture typically consists of several key components that are integrated with each other:

- User Interface: This section is the main view that directly interacts with users, whether they are campaigners or backers. An intuitive and easy-to-use interface is essential to ensure a positive user experience. This interface should provide easy access to project information, donation features, and communication features between campaigners and backers.
- Project Management System: This component is responsible for managing all project-related information, from project descriptions, funding targets, fundraising timeframes, to project progress reports. The system should also provide features for campaigners to upload supporting documents and manage information related to the project team.
- Donation Management System: This component handles all financial transactions that take place within the platform. This system must be secure, reliable, and integrated with various payment methods. In addition, this system must also record all transactions in detail and transparently, so that campaigners and backers can monitor the flow of funds easily.
- User Management System: This component is responsible for managing user data, both campaigners and backers. This system should provide user registration, login, and profile management features. In addition, this system must also ensure the security of user data and their privacy.
- Reporting System: This component generates the reports needed by campaigners, backers, and system administrators. These reports can be project progress reports, financial reports, and user activity reports. Comprehensive and easy-to-understand reports can help improve the platform's transparency and accountability.
- Database: A database is an important component that stores all the data related to the crowdfunding platform. This data includes user data, project data, donation data, and other data needed by the system. Choosing the right database system and efficient database design are essential for the performance and scalability of the platform.
- API (Application Programming Interface): APIs allow integration with third-party services, such as payment gateways, social media, and other services. This integration can expand the platform's functionality and improve the user experience.

With a well-structured and integrated architecture, the crowdfunding information system can operate efficiently and effectively in facilitating fundraising for various projects in Kota Pari Village.

C. Features and Functionality

Some of the main features and functionalities that must be available in the crowdfunding information system in Kota Pari Village include:

- User Registration and Profiles: Users, both campaigners and backers, can register and create profiles on the platform. This user profile can include information such as name, contact, background, and preferences.
- Project Management: campaigners can create, manage, and publish their projects on the platform. This feature includes uploading project descriptions, funding targets, deadlines, images/videos, and supporting documents.
- Donations and Payments: backers can channel donations to projects they are interested in.

C. Laravel Framework

Laravel is a popular *open-source* PHP *framework* for web application development. It is known for its elegant, expressive, and easy-to-understand syntax, which aims to make the development process more enjoyable and efficient. Laravel follows the *Model-View-Controller* architectural pattern which helps in code organization and separation *of concerns*.

Here are some key points about Laravel:

- **Easy to Learn:** Laravel's documentation is comprehensive and easy to understand, making it easy for developers, both experienced and just starting out, to learn and use the *framework*.
- **Modern Features:** Laravel provides a variety of modern features such as *routing*, *templating*, *ORM*, *authentication*, *authorization*, *caching*, and more, which speeds up the development process.
- **Security:** Laravel offers robust built-in security features, such as protection against *cross-site scripting attacks*, *SQL injection*, and *cross-site request forgery*.
- **Active Community:** Laravel has a large and active developer community, which provides additional support, *resources*, and *packages* that can be used to extend the functionality of the application.
- **Good Performance:** Laravel is designed to provide optimal performance, so applications built with Laravel can run quickly and efficiently.
- **Testing:** Laravel provides an easy-to-use testing environment, so developers can easily perform unit testing and integrations to ensure code quality.

Laravel's choice to build *a crowdfunding* information system in Kota Pari Village was based on several considerations, including:

- **Ease of Development:** Laravel simplifies many common tasks in web development, allowing developers to focus on the business logic of the application.
- **Scalability:** Laravel's modular and flexible architecture allows applications to scale easily as users and data grow.
- **Security:** Laravel's built-in security features help protect applications from a wide range of security threats.
- **Rich Ecosystem:** Laravel has an extensive ecosystem *of packages* and *libraries*, which can be used to add additional functionality to applications.

III. Methodology

This study uses a waterfall model system development methodology consisting of several stages (Yuniati et al., 2022):

1. Needs Analysis: At this stage, the need for a crowdfunding information system is identified and analyzed in accordance with the conditions and needs of the people of Kota Pari Village.
2. System Design: Based on the results of the needs analysis, the research team designed a crowdfunding information system design that includes system architecture, database design, and

user interface. The design of this system considers the required features such as project management, donations and payments, and user management.

3. Implementation: At this stage, the crowdfunding information system is designed and built using the Laravel framework. Various system components such as user interface, business logic, and integration with digital payment platforms are implemented according to the design that has been created.
4. System Testing: This stage involves a series of tests to ensure that the crowdfunding information system is functioning properly according to the needs. Testing is carried out on the functionality, security, and performance of the system.
5. Deployment and Maintenance: After the system is declared to pass the test, the crowdfunding information system is deployed and implemented in Kota Pari Village. This stage also includes ongoing maintenance and upgrading of the system to keep it relevant and functioning properly.

Through this methodology, it is hoped that the crowdfunding information system built can meet the needs of the people of Pari City Village and have a positive impact on the development of the creative economy in the village.

IV. Result

This research resulted in the design of a web-based crowdfunding information system for Pari City Village using the Laravel framework. The design of this information system includes the architecture and key components such as the user interface, project management system, donation management system, user management system, reporting system, database, and API.

Some of the key features designed in this crowdfunding information system include user registration and profiles, project management, donations and payments, notifications, and analytics. By using the Laravel framework, this information system is expected to be built quickly, safely, and scalably to meet the fundraising needs in Kota Pari Village.

The design of this crowdfunding information system is based on previous studies related to the application of information technology in the field of fundraising and village development (Gunawan & Diwiryo, 2020)(Millaningtyas, 2023)(Andhika et al., 2019)(Yuniati et al., 2022). The studies highlight the potential of information technology in improving community participation, transparency, and fundraising effectiveness for various initiatives at the local level.

V. Conclusion

This research succeeded in designing a web-based crowdfunding information system that can be used by the people of Kota Pari Village to raise funds for various projects and initiatives. The system is designed using the Laravel framework, which was chosen for its ease of use, scalability, security, and rich ecosystem. A well-structured and integrated system architecture, including user interface, project management system, donation management system, user management system, reporting system, database, and API, is expected to facilitate the crowdfunding process efficiently and effectively. Key features such as user registration and profiles, project management, donations and payments, notifications, and analytics are designed to provide ease and transparency for users, both campaigners and backers. The development of this system uses a waterfall methodology which includes the stages of needs analysis, system design, implementation, testing, and deployment. The results of this research are expected to make a positive contribution to the economic and social empowerment of the people of Pari City Village by increasing access to funding, transparency, and community participation in village development. Further research can be conducted to implement and evaluate these systems in a real environment, as well as develop additional features to improve the functionality and usability of the systems.

BIBLIOGRAPHY

Hendrawan, J., Perwitasari, I. D., & Ramadhani, M. (2020). Rancang Bangun Sistem Informasi Ukm Panca Budi Berbasis Website Design of Information System Ukm Panca Budi Based on Web. Journal of Information Technology and Computer Science (INTECOMS), 3(1), 18-24.

Wahyuni, S., Hariyanto, E., & Sebayang, S. (2022). Pelatihan Camtasia Pada Guru SD Panca Budi Untuk Mendukung Transformasi Digital Sekolah Masa Pandemi Covid-19. *ETHOS: Jurnal Penelitian Dan Pengabdian Kepada Masyarakat*, *10*(1), 59-67.

Arpan, D. Y., Pratama, D. S., & Wafi, D. F. (2023). Pembuatan Website Program Studi Akuntansi Universitas Pembangunan Panca Budi Medan Dengan Menggunakan Codeigniter 3. *Jurnal Nasional Teknologi Komputer*, *3*(3).

Erika, W. (2023). Rancang Bangun Web Profil Program Studi Perpajakan Berbasis Wordpress (Studi Kasus: Universitas Pembangunan Panca Budi Medan). *Jurnal Nasional Teknologi Komputer*, *3*(3), 202-208.

Munisa, M., Rozana, S., & Syahira, W. (2024). Efektivitas Media Origami Dalam Meningkatkan Motorik Halus Dan Kreativitas Anak Di TK Panca Budi Medan. *Jurnal Review Pendidikan dan Pengajaran (JRPP)*, *7*(2), 3548-3554.

Zen, M., Irwan, I., Hafni, H., & Ananda, M. D. P. (2024). Perancangan Sistem Informasi Tracer Study Universitas Pembangunan Panca Budi Medan. *Senashtek 2024*, *2*(1), 89-101.

Wardhana, W., Fadhillah, N., Khairunnisa, P., & Atmaja, N. S. (2023). Web Profile Unit Usaha Universitas Pembangunan Panca Budi. *Jurnal Ilmiah Sistem Informasi Dan Ilmu Komputer*, *3*(3), 115-132.

Suheri, P. S., Akbar, R., & Scardila, V. (2023). Penggunaan Framework Codeigniter Dalam Pembuatan Web Profil Programstudi Teknik Elektro Universitas Pembangunan Panca Budi Medan. *Jurnal Nasional Teknologi Komputer*, *3*(3).

Nasution, F. A. (2022). Sistem Informasi Pengajuan Judul Skripsi Fakultas Ilmu Komputer Universitas Panca Budi Menggunakan Bahasa Pemrograman Berbasis Web. *INFORMATIKA*, *10*(3), 85-97.

Siahaan, A. P. U. (2023). SOSIALISASI DAN KUNJUNGAN KAMPUS DALAM PROMOSI PROGRAM STUDI SISTEM KOMPUTER UNIVERSITAS PEMBANGUNAN PANCA BUDI DI SMK NEGERI 9 MEDAN. *Jurnal Hasil Pengabdian Masyarakat (JURIBMAS)*, *1*(3), 88-94.

Yuniati, Y., Andrianingsih, A., & Fitri, I. (2022). The development of a web-based discussion forum registration application uses a combination of Decision Tree and Random Forest algorithms. In Y. Yuniati, A. Andrianingsih, & I. Fitri, JOURNAL OF MEDIA INFORMATICS BUDIDARMA (Vol. 6, Issue 2, p. 887). https://doi.org/10.30865/mib.v6i2.3810

Hariyanto, E., & Wahyuni, S. (2020). Socialization and training on the use of healthy internet for members of village-owned enterprises (bumdes) mosaic of Pematang Serai village. *BSI Service Journal: Journal of Community Service*, *3*(2), 253-259.

Wahyuni, S., Sari, D. J., Hernawaty, H., & Afifah, N. (2023). Ternakloka: a Web-Based Marketplace for Qurban and Aqiqah. *JURTEKSI (Journal of Technology and Information Systems), 9*(2), 249-254.

Marlina, L., Wahyuni, S., & Sulistianingsih, I. (2023). The Information System for Promotion of Products for Micro, Small, and Medium Enterprises in Hinai Village is Website-Based With a Membership Method. *International Journal Of Computer Sciences and Mathematics Engineering*, *2*(2), 141-151.

Khaliq, A., Batubara, S., & Syaula, M. (2023). Designing a Web-Based Career System Using the Laravel Framework. *Journal of Logic*, *7*(1), 30-38.

Khaliq, A., Arianti, C., Simanjuntak, C. A., & Harahap, D. A. P. (2023). Study Program Profile Website Design Using Wordpress Content Management System. *National Journal of Computer Technology*, *3*(3), 196-201.