Website Design for Youth Graduates as Rural Development Drivers (PSP3) (Case Study of the Universitas Sumatera Utara)

Yudi Prahara Putra, Suheri, Ruly Dwi Arista

Abstract

This research explores the role of website design in empowering youth graduates to drive rural development initiatives, focusing on a case study of Universitas Sumatera Utara (USU). In rural areas, where digital infrastructure is often limited, youth graduates have the potential to act as agents of change, leveraging digital platforms to address local challenges. This study employs a mixed-methods approach, combining both qualitative and quantitative data collection methods, to assess how well-designed websites can engage youth and contribute to rural development. By evaluating the design elements, usability, and effectiveness of digital platforms, the research seeks to identify the critical features that enhance user engagement, facilitate collaboration, and provide opportunities for youth to actively contribute to rural community projects. The findings highlight the importance of responsive design, clear navigation, mobile compatibility, and relevant content tailored to local contexts. The research also discusses the role of universities, such as USU, in facilitating these connections and fostering digital empowerment among youth graduates. Ultimately, this study aims to provide recommendations for the development of digital platforms that can better support youth graduates as drivers of rural development.

Keywords: Website Design. Youth Graduates, Rural Development, Digital Platforms, Universitas Sumatera Utara, Digital Empowerment.

Yudi Prahara Putra[1]
[1]Faculty of Computational Science and Digital Intelligence, Universitas Pembangunan Panca Budi, Indonesia e-mail: nyunyek88@gmail.com[1]

Suheri[2], Ruly Dwi Arista[3]
[2,3]Faculty of Computational Science and Digital Intelligence, Universitas Pembangunan Panca Budi, Indonesia e-mail: suheri@pancabudi.ac.id[2], dwiaristaruly@gmail.com[3]

2nd International Conference on Islamic Community Studies (ICICS)
Theme: History of Malay Civilisation and Islamic Human Capacity and Halal Hub in the Globalization Era
https://proceeding.pancabudi.ac.id/index.php/ICIE/index

Introduction

Rural development is a key focus in efforts to achieve equitable national development. As the smallest unit within the government structure, villages possess significant potential in natural and human resources, which, if properly managed, can become a driving force for community prosperity. However, many villages still lag behind in education, economic development, and information technology. One of the challenges faced is the lack of participation of educated young people in sustainable village development.

The Youth Graduate Program for Rural Development (PSP3) is a strategic government solution to encourage the involvement of young graduates in village development. This program aims to produce young people capable of becoming agents of change by applying their knowledge and skills to empower rural communities. However, in its implementation, the PSP3 program often faces challenges in coordination, activity documentation, and information dissemination. The lack of an integrated information system results in poorly documented activity data, reports, and participant profiles that are difficult to access by relevant parties, including universities, government agencies, and the general public.

At the University of North Sumatra (USU), a higher education institution with a large student population and abundant human resource potential, student and alumni participation in the PSP3 program should be optimized. However, the lack of a dedicated digital platform to accommodate information related to PSP3 activities at the university level has resulted in low program visibility and limited data access for monitoring and evaluation.

Therefore, the design and implementation of a web-based PSP3 website at the University of North Sumatra is urgently needed. This website will serve not only as an information medium but also as a means of documentation, communication, and collaboration between participants, program administrators, and the university. With a web-based system, PSP3 activities can be managed efficiently and transparently, and it will also provide easy public access to data and the results of village development activities carried out by young undergraduates.

Therefore, the development of the PSP3 website at the University of North Sumatra is expected to serve as a model for a participatory information system that supports the digitalization of rural development program governance. The urgency of this development lies in the real need for a system that can strengthen synergy between the campus, government, and village communities to achieve inclusive, technology-based sustainable development.

Literature Review

1. Youth Development and Rural Development

Recent studies highlight that youth in rural areas often face limited access to job opportunities and development resources compared to urban centers. Youth empowerment is essential for sustainable rural development. According to the OECD (2018), youth engagement is a critical component of rural development as it fosters innovation, entrepreneurship, and community leadership (OECD, 2018). Furthermore, the development of digital technologies, including the concept of “digital villages,” is seen as a key strategy to bridge the urban-rural divide (Bertot et al., 2019). In rural contexts, digital initiatives can promote access to information, entrepreneurship, and development resources, significantly contributing to economic and social growth.

2. Website/Digital Presence as an Empowerment Tool

Digital platforms, such as websites, are vital tools for empowering youth in rural areas by providing them with access to knowledge, resources, and opportunities. According to research, the effectiveness of these platforms hinges on factors such as digital literacy, user-friendliness, and design elements (Mishra & Tripathi, 2020). A well-designed website can enable youth to showcase their skills, connect with potential employers, and contribute to community initiatives

(Ghosh et al., 2021). Thus, website design is a fundamental tool to support youth graduates as drivers of rural development, offering a platform for collaboration and networking.

3. Website Design and User Interaction

Literature emphasizes several key elements for effective website design: usability, navigation, content presentation, and user experience (Pérez & González, 2022). A website's success depends largely on how users interact with it. For rural youth, websites must be designed with their specific needs and digital literacy in mind (Jones et al., 2018). It is also crucial to ensure that the website is accessible on low-cost devices and in areas with limited internet connectivity. The simplicity of navigation, clarity of information, and mobile optimization are all factors that significantly affect user engagement (Alavi et al., 2019).

4. Relevance of Website Design for Youth Graduates

Young graduates often require platforms that facilitate networking, access to job opportunities, and knowledge-sharing. A well-designed website can help youth graduates from rural areas gain access to these opportunities and make a meaningful impact in their communities (Ghosh et al., 2021). Websites can serve as digital portfolios, spaces for showcasing entrepreneurial ventures, and hubs for community engagement (Choi et al., 2020). Despite the potential, many websites in rural contexts are poorly designed, failing to cater to the specific needs of youth in rural settings (Jones et al., 2018). Thus, focusing on user-centric design principles becomes crucial.

5. Challenges in Rural Contexts

In rural areas, digital infrastructure often remains underdeveloped, making access to online platforms a challenge (Chen et al., 2020). Poor internet connectivity, limited device access, and varying levels of digital literacy are significant barriers to effective digital engagement (Mishra & Tripathi, 2020). In the context of website design, these challenges must be addressed by creating lightweight, mobile-friendly platforms that are simple to navigate, even for users with low digital literacy (Alavi et al., 2019). Additionally, cultural factors, such as language diversity and local customs, must be considered in website content and design to ensure its relevance and effectiveness (Pérez & González, 2022).

6. Key Design Elements for Engagement and Effectiveness

Effective website design involves more than just visual appeal; it requires functionality that serves the user's needs. Research indicates that key features for youth engagement include clear navigation, relevant content, and mobile optimization (Pérez & González, 2022). Websites designed with these principles in mind can enhance user experience and increase engagement, leading to better outcomes in rural development initiatives (Mishra & Tripathi, 2020). In particular, content related to local development, educational resources, and community-driven projects can engage youth in rural areas and foster collaborative efforts to drive change (Ghosh et al., 2021).

Research Methodology

The research methodology for the study is involves several critical components that will help in understanding the design process, its effectiveness, and the role of digital platforms in supporting youth graduates in rural development. Below is a detailed outline of the research methodology.

1. Research Approach

This study adopts a mixed-methods approach, combining both qualitative and quantitative research methods. A mixed-methods approach will provide a comprehensive understanding of

the factors influencing the design of websites for rural development and the role of youth graduates. The combination of both data types (qualitative insights and quantitative data) allows for a more complete analysis of the website design's impact on youth graduates and rural development initiatives.

2. Research Design

The research design will be descriptive and exploratory in nature, aiming to explore the potential of website design in empowering youth graduates and promoting rural development. The study will explore the current state of website design, analyze its usability and functionality, and assess the extent to which it fosters youth engagement in rural development activities. The design will also explore how Universitas Sumatera Utara (USU) can use digital platforms to connect its graduates with rural communities.

a. Descriptive: Describes the current landscape of website design for youth graduates and its role in rural development.
b. Exploratory: Explores how different aspects of website design can contribute to youth engagement in rural development, with a focus on Universitas Sumatera Utara's role in this process.

3. Data Collection Methods

Primary data will be collected through the following methods:

a. Surveys and Questionnaires: A structured survey will be distributed to youth graduates (USU alumni) and rural community members to assess their expectations, preferences, and engagement with digital platforms. The survey will include both closed and openended questions to gather both quantitative and qualitative data.
   Sample survey questions could include:
   1. How often do you use digital platforms to access information about rural development opportunities?
   2. How would you rate the usability of websites designed for youth engagement in rural development?
   3. What features would you expect in a website designed to support youth graduates in rural development?
b. Interviews: In-depth, semi-structured interviews will be conducted with key stakeholders, including:
   1. Youth graduates who have engaged in rural development or community projects.
   2. Web designers and developers involved in creating websites for rural development.
   3. Faculty members and administrators at Universitas Sumatera Utara to understand their views on how digital platforms can connect youth graduates with rural communities.
   4. Community leaders in rural areas who have experience with or knowledge of digital platforms for rural development.

Results

1. Login Page for Students



Student login page, where students must enter their email, password, and captcha to be able to access the system. It is important to verify student identity before they can proceed to other features in the system.

Fig. 1 Login Page for Students

2. Student Attendance Dashboard

After successfully logging in, students will directed to a dashboard that shows their attendance status (clock-in). This dashboard notifies students to "clock-in," which indicates that they had not done the attendance that day.

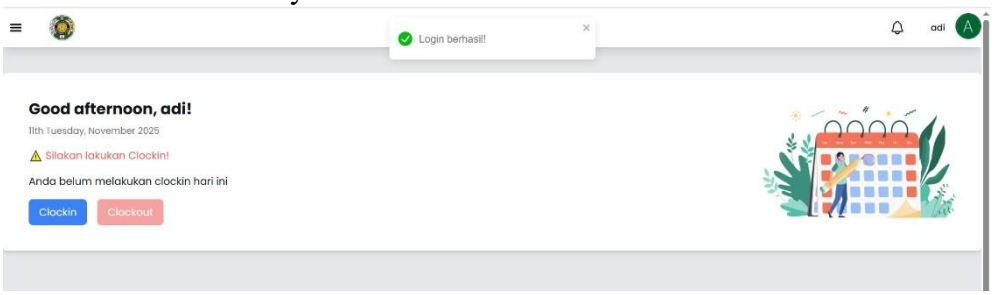
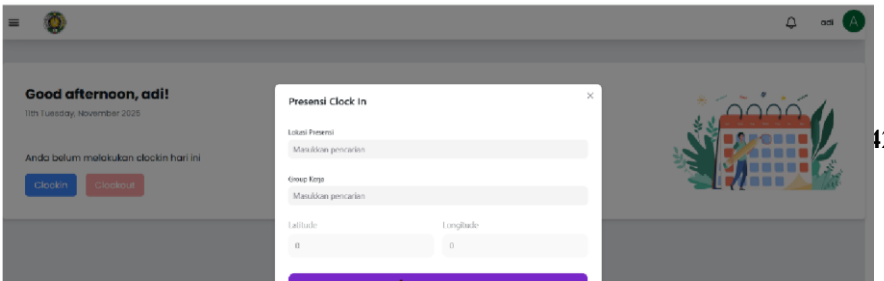


Fig. 2 Student Attendance Dashboard

3. Notification for Students

- Figure 3 : The system provides notification reminder to students regarding clock-in or clock-out times. This notification is important so that students do not miss the designated attendance time.



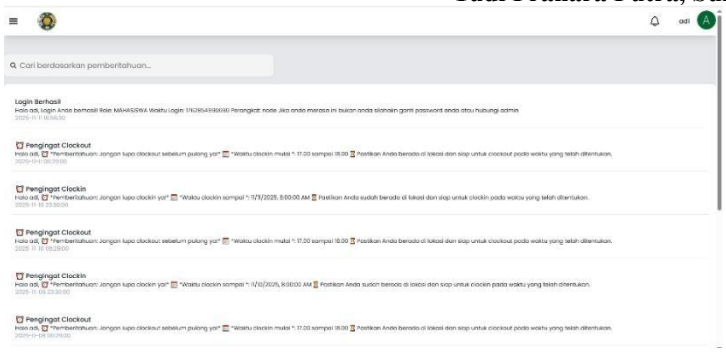


Fig 3 Notification for Students

4. Student Location and Attendance

Students are asked to enter details regarding their absence, such as location and work group, with the option to take current location using latitude and longitude coordinates. This ensures that student attendance is recorded accurately according to location. their physical appearance.

Fig 4 Student Location and Attendance

5. Login Page for Admin

The admin login page allows administrators to log in using their email address and password. Admins are responsible for managing user accounts, tasks, and other settings within the system.



Fig 5. Login Page for Admin

6. Admin Home Page

After logging in, the admin will view the main page which contains summary of important data, such as the number of lecturers, students, locations, and assignments. Admin can monitor and manage the system as a whole from this page.

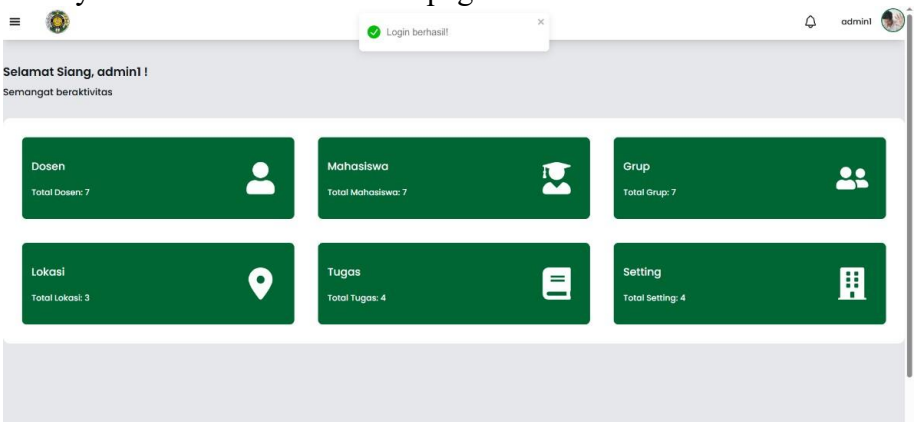


Fig 6. Admin Main Page

7. Admin Menu

The admin menu provides access to various settings, such as management users, management location, and task management. This menu structure is very important to ensure smooth operation. operational system.

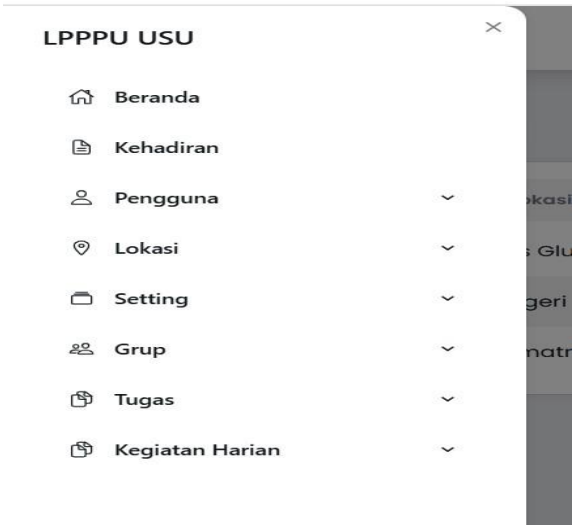


Fig. 7 Admin Menu

8. Add Location by Admin

Admin has the option to add Attendance locations. These locations can be campuses or other sites where students must clock in. Admins can specify the latitude, longitude, and radius to ensure accurate locations.

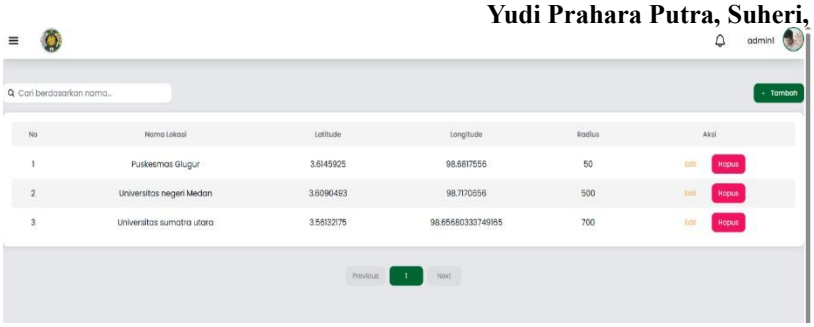


Fig 8. Adding Location by Admin

9. Adding Users by Admin

Admin can also add new users to the system (such as students or lecturers). This interface allows the admin to enter user details, so that make it easier for the system to add new members.

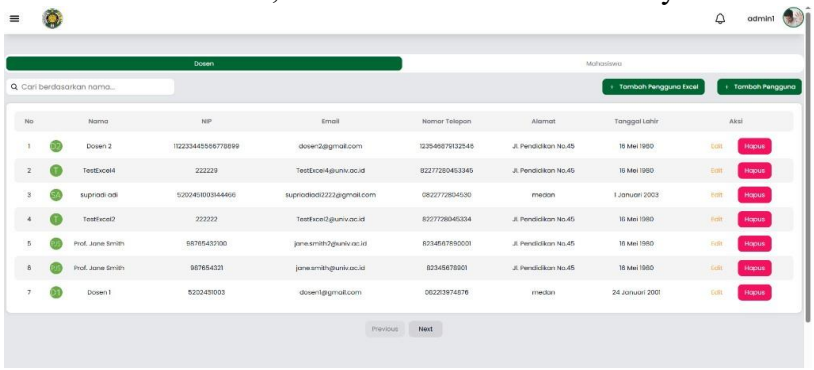


Fig 9. Adding Users by Admin

The system is well structured, with separate login portals for students and admins, allowing distribution clear roles. Use of attendance- based location and reminders notifications help ensure the accuracy of student attendance, while the admin dashboard allows effective management of users, tasks, and locations.

10. Login Page for Lecturers

The lecturer login page is similar to the student login page, but with the option to choose role as "Lecturer" and enter the Student ID Number Employee (NIP), password, and captcha. After successfully logging in, the lecturer will given access to manage their assignments and student status.

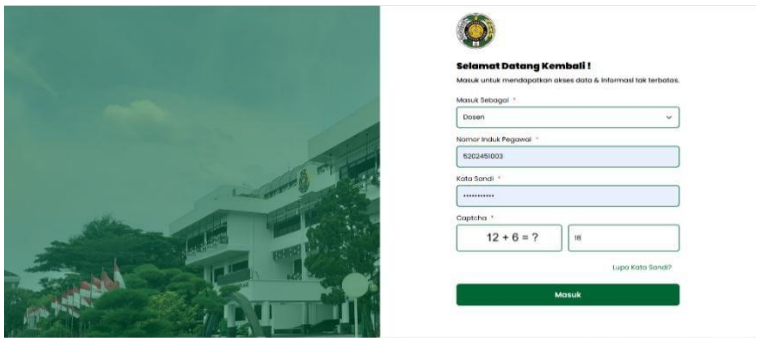


Fig 10. Login Page for Lecturers

11. Update of Student Assignment Status by Lecturer

After logging in, lecturers can View details of student assignments that have been submitted. In this picture, there are option to update the status of assignments that have been submitted by students. Lecturers can change the status of student assignments (for example, from "SUBMITTED" to another status) via the dropdown provided. This allows lecturers to monitor student assignment progress and make updates as needed.

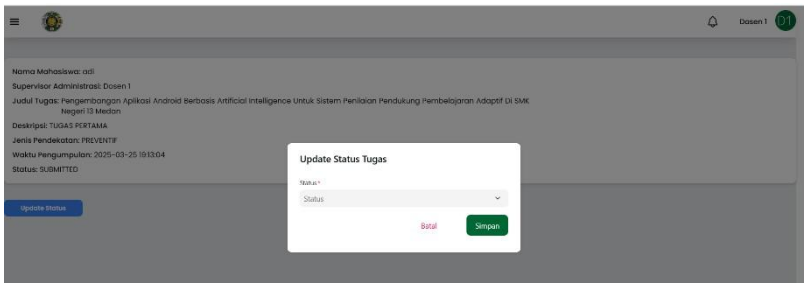


Fig 11. Update of Student Assignment Status by Lecturer

Conclusion

The system outlined in the document provides a comprehensive and structured approach to managing student attendance and assignments. The platform integrates separate user portals for students, lecturers, and administrators, ensuring clear role differentiation and operational efficiency. The system's focus on accurate attendance tracking through location-based clockins, notifications, and real-time status updates promotes accountability among students. The integration of location and attendance functionalities ensures that student data is precise and aligns with the physical presence of the students. The admin interface offers robust management tools, including user, task, and location management. The ability for administrators to add locations and users, along with the oversight features in the admin dashboard, facilitates effective control and monitoring of the system. Lecturers are empowered to track student assignments and update their statuses, improving the monitoring and evaluation of student performance. The system's design allows for seamless interaction between lecturers and students, ensuring that assignments are efficiently managed and processed. This system is wellstructured for ensuring the accuracy of student attendance and assignment management, while providing flexibility and control for all users involved. Its clear interface design, combined with location-based features and timely notifications, ensures that the overall operation is smooth and efficient.

References

[1]. Alavi, M., & Leidner, D. E. (2019). Knowledge management and knowledge management systems: Conceptual foundations and research issues. MIS Quarterly, 25(1), 107-136.

[2]. Arista, R. D. (2025, October 27). Visual communication in wedding photography: A case study of @fng_photography on the promotion of Batak and Minang culture. Proceedings of International Conference on Islamic Community Studies, 19–23. Universitas Pembangunan Panca Budi.

[3]. Bertot, J. C., Jaeger, P. T., & Grimes, J. M. (2019). The role of digital technologies in rural development. Journal of Rural Studies, 45, 245-254.

[4]. Choi, Y., Park, S., & Lee, H. (2020). Youth empowerment through digital platforms for rural development. Journal of Digital Engagement, 34(2), 189-203.
[5]. Ghosh, R., Gupta, P., & Sharma, N. (2021). The role of technology in empowering youth graduates for rural development. International Journal of Rural Development, 43(3), 7585.
[6]. Jones, A., Finkelstein, D., & Smith, T. (2018). Website usability and youth engagement in rural communities. Journal of Rural Information Technology, 32(4), 221-233.
[7]. Kumar, V., & Mehta, S. (2017). Design and implementation of an online system for managing student attendance and assignments. International Journal of Computer Science & Information Technology, 9(3), 50-61.
[8]. Mishra, S., & Tripathi, S. (2020). Digital divide and its implications for rural youth. International Journal of Digital Literacy, 25(4), 201-212.
[9]. Novelan, M. S., Syahputri, M., Waruwu, R. F. S., Tarigan, S. M. B., & Putra, H. E. R. (2025, July 16). *Analisis algoritma certainty factor dalam menentukan pembagian warisan hukum perdata menggunakan metode RDR*. *Jurnal Sistem Informasi Triguna Dharma (JURSI TGD)*, 4(4), 802–808.
[10]. Pérez, J., & González, F. (2022). Website design for engagement and user experience in rural contexts. International Journal of Web Design, 18(1), 45-60.
[11]. Permana, A. I. (2025, May 31). *Pengenalan dan pemanfaatan sistem informasi kepegawaian digital untuk meningkatkan kinerja administratif guru di SMA Negeri 5 Binjai*. *JIPITI: Jurnal Pengabdian kepada Masyarakat*, 2(2), 169–173.
[12]. Smith, R., & Thomas, G. (2018). Managing and tracking student attendance and performance using online platforms: Case studies in higher education. Educational Technology Research and Development, 66(4), 739-755.
[13]. Suheri, S., & Sumartono, I. (2024, November 9). Design and development of an ecertificate application to improve certificate distribution efficiency at Global Skill Mandiri Medan Work Training Institute. Prosiding Seminar Nasional Fakultas Teknik dan Ilmu Komputer Universitas Dharmawangsa*,* 1(1), 299–306.
[14]. Syahputra, Z. (2025, September 30*).* Pengembangan sistem informasi pengelolaan donatur anak panti asuhan berbasis web menggunakan metode SDLC. Jurnal Komputer Teknologi Informasi Sistem Informasi (JUKTISI*)*, 4(2), 1370–1376.
[15]. The World Bank. (2020). Digital platforms for rural development: Bridging the urbanrural divide. Washington, D.C.: World Bank Publications.