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The Implementation of Kuliah Kerja Nyata Information System for Higher Education

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Abstract

This paper explores the implementation of a Kuliah Kerja Nyata (KKN) Information System for Higher Education. The KKN program is a mandatory community engagement program for Indonesian university students, which requires careful management and coordination between universities, students, and community partners. The paper discusses the benefits of implementing a KKN Information System, which can streamline the process of managing student placements, community partnerships, and program logistics. The paper also presents various research methods, such as system design, database design, information system design, testing, evaluation, and improvement, which can be used to effectively develop, test, and refine the KKN Information System to meet the specific needs of the university and its stakeholders. In this research, the university that is the case study is the University of Pembangunan Panca Budi. This case study was chosen because the University of Pembangunan Panca Budi is one of the tertiary institutions that implement the Community Service Program (KKN) as part of its curriculum and already has a KKN information system to facilitate the management of the program. In this study, an analysis was carried out on implementing the KKN information system at the University of Pembangunan Panca Budi, starting from system design and system testing to system evaluation and improvement. In this process, the data obtained from Pembangunan Panca Budi University was used as a reference to obtain relevant and accurate research results.

Keywords *– Information System, KKN, Higher Education, University Students*

1. Introduction

Kuliah Kerja Nyata (KKN) is a mandatory program for students in Indonesia that requires them to work on community development projects in rural areas[1]. The program is designed to provide students with hands-on experience in community development while also contributing to the development of society. KKN is an important component of higher education in Indonesia, as it helps to develop students' social awareness and skills.

However, the implementation of KKN is often hindered by administrative and logistical challenges. The large number of students participating in the program, the variety of projects, and the decentralized nature of the program make it difficult to manage and monitor. Moreover, the manual processes and paper-based documentation used to manage the program are often inefficient and error-prone, leading to delays and inconsistencies in program implementation.

To address these challenges, the implementation of an information system for KKN in higher education institutions has been proposed[2], [3]. This information system aims to provide an integrated platform for managing the KKN program, including student registration, project planning and monitoring, and data management. The implementation of this information system is expected to streamline administrative processes, reduce errors and inconsistencies, and improve data accuracy and accessibility. The implementation of KKN information system is a significant step towards improving the effectiveness and efficiency of KKN program implementation[4], [5]

2. Research Method

The following are the stages is research methodology aims to provide a comprehensive understanding of the implementation of the KKN Information System in higher education institutions.

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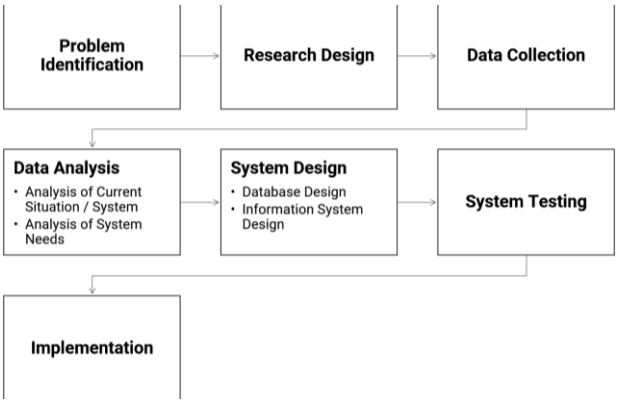

Figure 1. Research Method Workflow

a. **Problem Identification**: This step involves identifying the research problem and the objectives of the study. In this case, the problem is the lack of an efficient information system to manage the Kuliah Kerja Nyata program at the University of Pembangunan Panca Budi. The objective is to develop and implement an information system that can improve the management of the program.
b. **Research Design**: This step involves planning the research design and methodology. The research will be conducted using a quantitative approach, with data collected through a survey and interviews with stakeholders involved in the program.
c. **Data Collection**: This step involves collecting the data necessary for the research. The data will be collected through a survey of students and faculty members involved in the Kuliah Kerja Nyata program, as well as through interviews with program coordinators and other stakeholders.
d. **Data Analysis**: This step involves analyzing the collected data. The analysis will include an analysis of the current situation and the needs of the program, which will inform the design of the information system. The analysis will also involve identifying any potential challenges and constraints that may affect the implementation of the system.
e. **System Design**: This step involves designing the information system. The design will include database design and information system design, with a focus on developing a system that is user-friendly, efficient, and meets the needs of the program.
f. **System Testing**: This step involves testing the information system to ensure that it functions as intended. The testing will involve identifying and resolving any technical issues, as well as evaluating the system's performance in real-world scenarios.
g. **Implementation**: This final step involves implementing the information system. This will involve training stakeholders on how to use the system, as well as ongoing maintenance and support to ensure the system continues to meet the needs of the program.

3. Result

A. System requirements

The following is a table of requirements for develop and Implementation of Information System [4] [6].
Table 1. is the software used to build and develop the KKN information system

Table 1. *Software requirements*

Software	**Information**
Operating System	Windows
Server Web	Apache
DBMS	MySQL
Progamming Language	PHP, HTML, CSS, JavaScript
Framework web	CodeIgniter

Table 2. is the hardware used to build and develop the KKN information system

Table 2. *Hardware requirements*

Hardware	**Specification**
Computer	Computer with minimum: Processor Intel Core i5 or AMD Ryzen 5, RAM 8 GB, Hard Disk 500 GB
Server	Server with minimum: Processor Intel Xeon or AMD EPYC, RAM 16 GB, Hard Disk 1 TB

Note: Minimum specifications may change according to the scale and complexity of the application to be developed.

Table 3. *User Identification*

Users	**Requirements**
Students	• The main user of the KKN information system. • Need information about KKN schedules, assignments and reports. • Requires a feature to view village locations, village profiles and tasks to be performed. • Requires a feature to upload KKN reports.

	• Is the most active party using the information system.
Lecturer	• Is a monitor and supervisor of KKN implementation. • Requires a feature to view KKN schedules, assignments and reports made by students. • Requires a feature to provide grades and feedback to students. • Requires a feature to manage village data and KKN assignments.
Coordinator	• Is a system manager and KKN information system administrator. • Requires a feature to manage data on villages, students, lecturers and KKN assignments. • Requires a feature to view KKN reports and manage village data and KKN assignments. • Requires a feature to monitor and evaluate the implementation of KKN.

Requirements Documentation is a document that contains a specific description of the user's needs and expectations of a system[7]. The following is the Requirement Documentation for the KKN Information System:

User Identity: Student, Lecturer and Coordinator

a. General Needs:
   - Easy and fast access to information about KKN implementation
   - An integrated information system with KKN activities
   - Information system that can be accessed by all users
   - Safe and accessible data storage

b. Students needs:
   - Obtain information about the village where the KKN is being conducted
   - Obtain information about duties and responsibilities during KKN
   - Obtain information about schedules and activity plans during KKN

c. Lecturer needs:
   - Obtain information about the progress of KKN activities carried out by students
   - Get the final report on KKN activities carried out by students
   - Evaluating KKN activities conducted by students
   - Special needs of Coordinators:
   - Obtain information about the progress of KKN activities carried out by students
   - Get the final report on KKN activities carried out by students
   - Evaluating KKN activities conducted by students
   - Manage and monitor KKN activities.

B. System Workflow

The following is an activity diagram that describes the information system workflow:

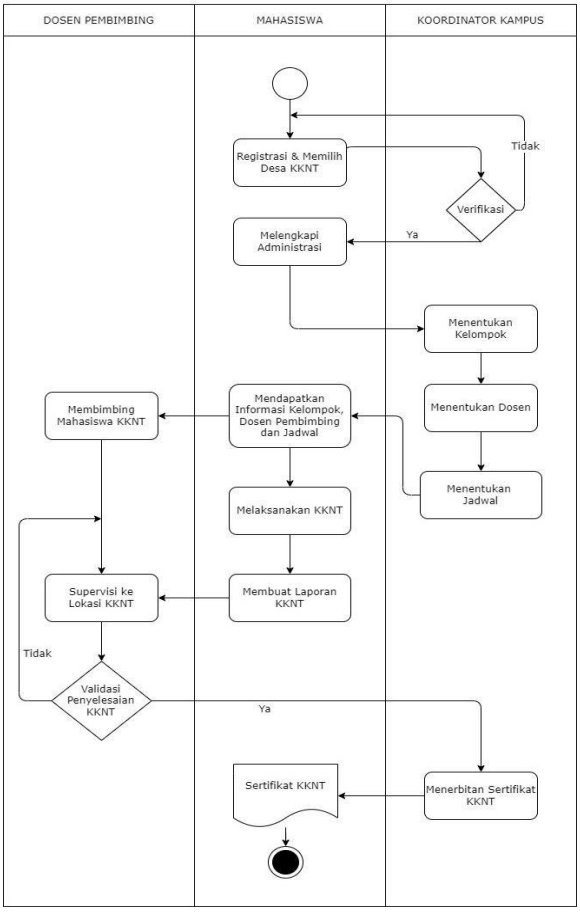

Figure 2. The information system workflow

C. System Design

The following is a database design presented in the form of a table relationship which is a relationship between one table and another in a database[8].

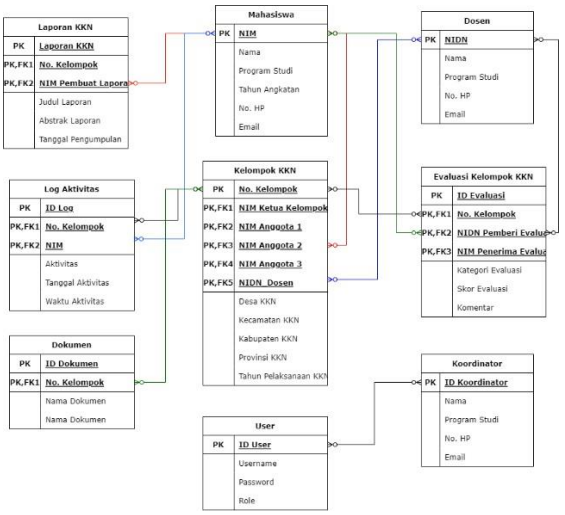

Figure 3. Database Design

1) Landing Page

A landing page for a website that offers a Kuliah Kerja Nyata (KKN) Information System include the following elements: Headline, Subheading, Features, Images or Videos, Contact Information[9].

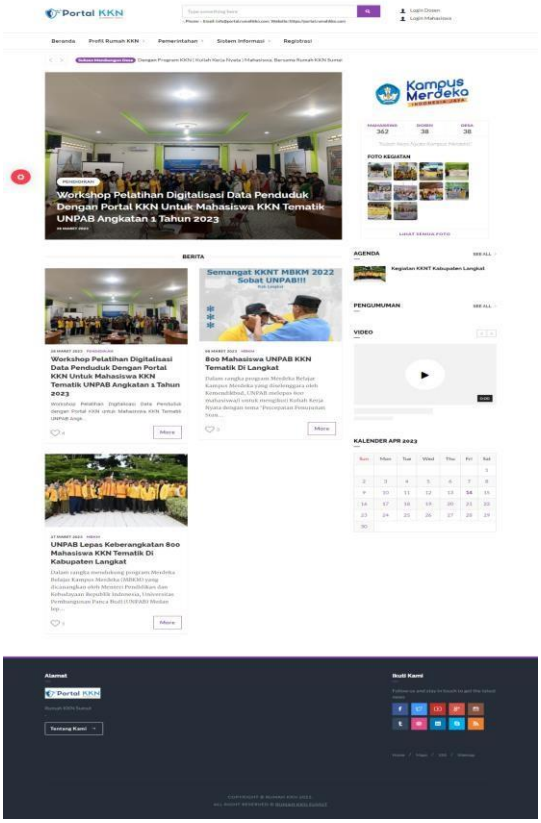

Figure 4. Landing Page

2) Dashboard Page as Coordinator

The coordinator has a feature to add data on students, lecturers, colleges, villages, class groups and information on the website's :

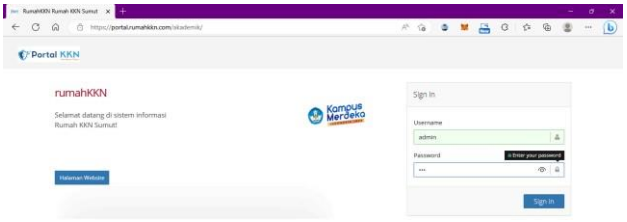

Figure 5. Log In Page

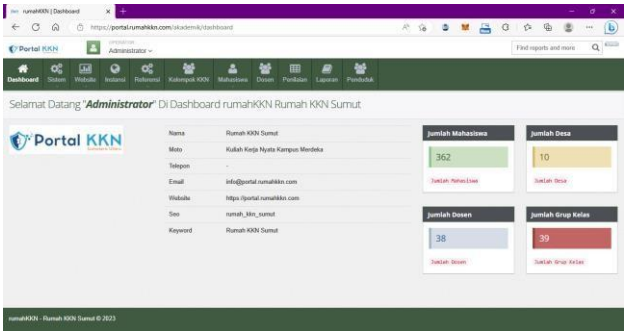

Figure 6. Dashboard

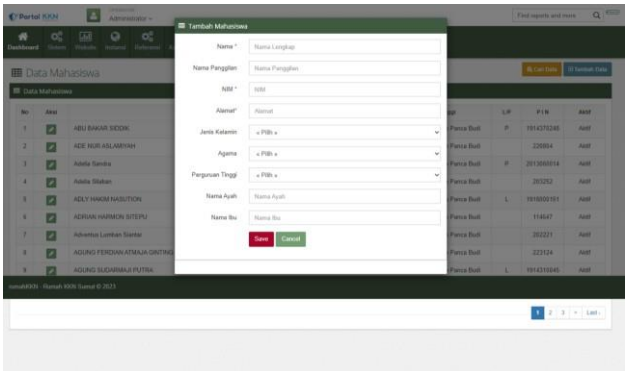

Figure 7. Add Student Data

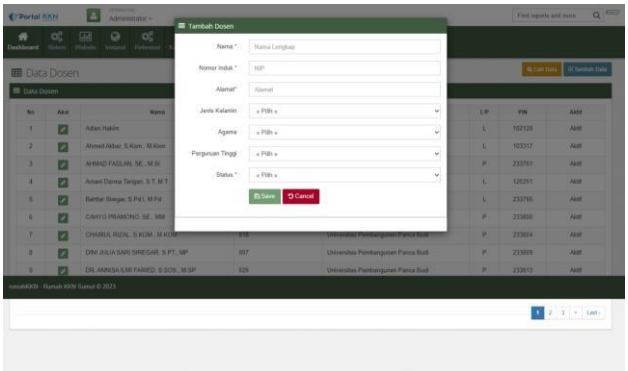

Figure 8. Add Lecture Data

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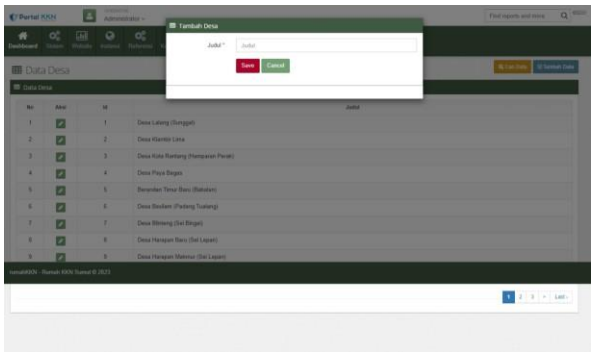

Figure 9. Add Villages Data

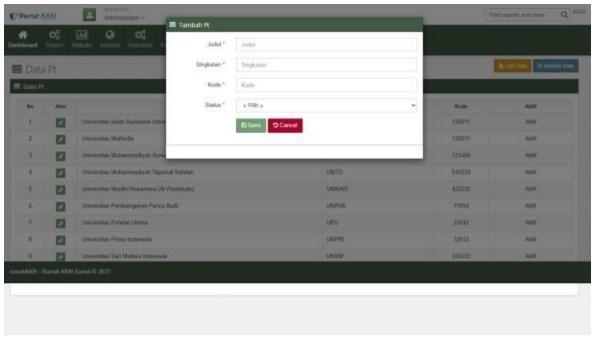

Figure 10. Add College Data

3) Dashboard Page as Students

Figure 11. Log In Page

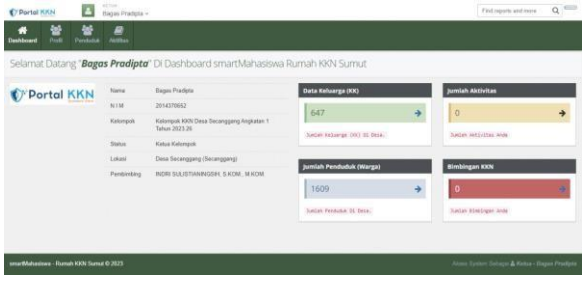

Figure 12. Students Dashboard

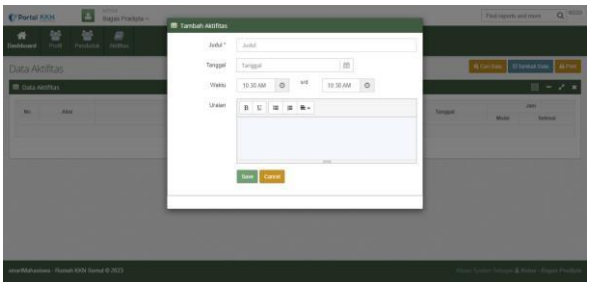

Figure 13. Students Logbook

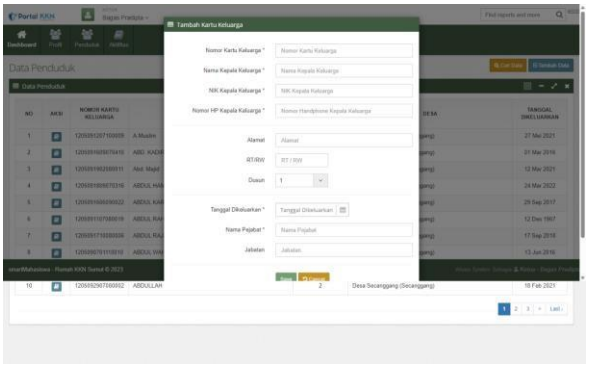

Figure 14. Student Task digitization

4) Dashboard Page as Lecturers

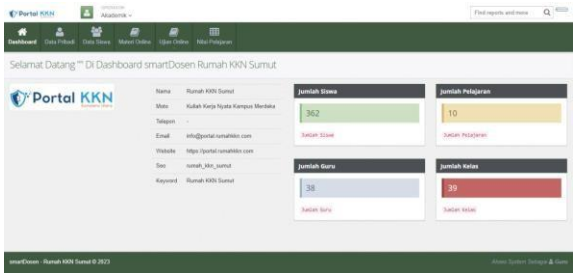

Figure 15. Student Task digitization

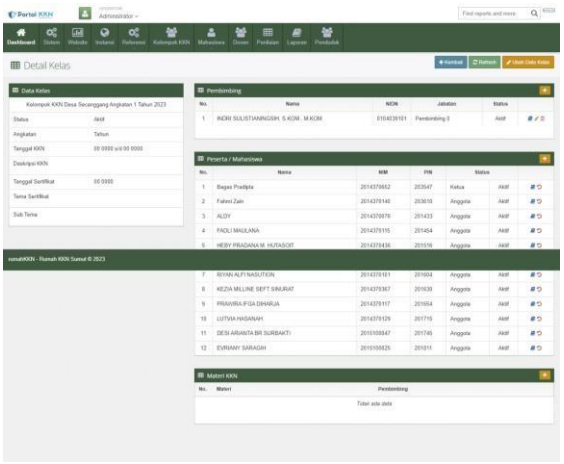

Figure 16. Adjust Class Detail

D. Testing

This table includes 10 test cases for the KKN Information System, with input and expected output columns. This type of black-box testing helps ensure that the system is functioning correctly from a user's perspective, without requiring knowledge of the system's internal workings[10], [11].

Table 4. Black-box testing result

Test Case	Input	Expected Output	Actual Output	Pass/Fail
1	Log in with valid credentials	Dashboard displayed	Dashboard displayed	Pass
2	Log in with invalid credentials	Error message displayed	Error message displayed	Pass
3	Add new student placement	Student placement added successfully	Student placement added successfully	Pass
4	Edit existing student placement	Student placement updated successfully	Student placement updated successfully	Pass
5	Delete student placement	Student placement deleted successfully	Student placement deleted successfully	Pass
6	Search for student placement	Relevant student placement displayed	Relevant student placement displayed	Pass
7	Generate report on student placements	Report generated with accurate information	Report generated with accurate information	Pass
8	Send message to community partner	Message sent successfully	Message sent successfully	Pass
9	View community partner details	Relevant details displayed	Relevant details displayed	Pass
10	Log out of system	Redirected to login page	Redirected to login page	Pass

4. Conclusion

Data from the implementation of the KKN Information System at the University of Pembangunan Panca Budi (UNPAB) showed significant improvements in the efficiency of managing the KKN program.

a. The implementation of the KKN Information System can save time in the process of managing the KKN program. With the automation of tasks such as data collection, documentation, and report generation, the system can reduce the time required to complete these tasks. This can lead to increased efficiency and productivity in managing the KKN program.
b. The KKN Information System can save resources by reducing the need for manual labor in managing the KKN program. With the system's automation, the need for staff to perform tasks such as data entry and report generation is minimized, which can save resources such as labor costs and time.
c. The KKN Information System can provide a meaningful and impactful experience for users, including students, staff, and community members. The system's features can facilitate better communication, collaboration, and information sharing among KKN stakeholders, leading to a more effective and impactful KKN program.

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