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.
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>
<thead>
<tr>
<th>Table 1. Software requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Software</strong></td>
</tr>
<tr>
<td>Operating System</td>
</tr>
<tr>
<td>Server Web</td>
</tr>
<tr>
<td>DBMS</td>
</tr>
<tr>
<td>Programming Language</td>
</tr>
<tr>
<td>Framework web</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Table 2. Hardware requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hardware</strong></td>
</tr>
<tr>
<td>Computer</td>
</tr>
<tr>
<td>Server</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Table 3. User Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Users</strong></td>
</tr>
<tr>
<td>Students</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
• Is the most active party using the information system.

<table>
<thead>
<tr>
<th>Lecturer</th>
<th>Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is a monitor and supervisor of KKN implementation.</td>
<td>Is a system manager and KKN information system administrator.</td>
</tr>
<tr>
<td>Requires a feature to view KKN schedules, assignments and reports made by students.</td>
<td>Requires a feature to manage data on villages, students, lecturers and KKN assignments.</td>
</tr>
<tr>
<td>Requires a feature to provide grades and feedback to students.</td>
<td>Requires a feature to view KKN reports and manage village data and KKN assignments.</td>
</tr>
<tr>
<td>Requires a feature to manage village data and KKN assignments.</td>
<td>Requires a feature to monitor and evaluate the implementation of KKN.</td>
</tr>
</tbody>
</table>

**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:

![Activity Diagram](image)

**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].

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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].

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

Table 4. Black-box testing result

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.

Acknowledgement
We would like to express our deepest gratitude to the people who have made this research project possible. Firstly, we would like to thank our university, University of Pembangunan Panca Budi, for their invaluable guidance, support, and constructive feedback throughout this project. Their expertise and insights have been instrumental in shaping our research and helping us to achieve our goals.

References


