Study control system through IoT based on SIPENYET to accelerate student studies at Islamic Universities

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Abstract

Completion of studies on time is not a personal problem for students, but concerns the quality of academic governance in a university. With this perspective, IAIN Kendari implements the SIPENYET application which functions as a control tool in completing student studies. The application involves three-way interaction, namely: lecturers, students, and education staff. The interaction process begins when students submit research titles, the guidance process, exams, to graduation. The research was conducted qualitatively with a narrative approach. This research found that the use of IOT in the form of the SIPENYET application has a very large impact on the following aspects: 1) availability of correspondence records between lecturers and students; 2) monitoring the progress of student study completion; 3) creating effectiveness and efficiency in completing student studies.

Keywords

Study control system, IOT, SIPENYET, Acceleration of study

Introduction

The development of information and communication technology in the digital era has brought major changes to the world of education [1], especially in efforts to improve the quality of academic services in higher education [2]. One of the innovations that is starting to be widely implemented is the use of Internet of Things (IoT) technology to support real-time and integrated data and information system management [3]. This technology has the potential to help universities solve various challenges [4], including in terms of accelerating the student's study period.

At the State Islamic Institute (IAIN) Kendari, accelerating the student's study period is one of the main concerns. Various obstacles faced by students, such as lack of supervision of academic progress, delays in decision-making related to guidance, and the inability to monitor schedules effectively, can cause delays in graduation. The

manual system that is still used is often time-consuming and inefficient, so a technology-based solution is needed that can speed up the process.

SIPENYET (On-Time Study Completion Information System), an IoT-based platform, is designed to address this issue. SIPENYET utilizes IoT technology to integrate various aspects of academic management, such as monitoring study progress, managing guidance schedules, and automatic reminders related to final assignments or theses. With this system, students can more easily monitor their academic progress, while supervisors and administration can monitor and provide timely interventions. Through this research, the author wants to explore the potential for utilizing IoTbased SIPENYET in accelerating the study period of students at IAIN Kendari. This research will analyze how this technology can support more effective, efficient, and accountable study management. With the implementation of this IoT-based control system, it is hoped that IAIN Kendari will not only be able to improve the quality of academic services, but also become an example for other universities in presenting innovations to support the success of student studies.

Method

This study aims to analyze the utilization of the Internet of Things (IoT) through the SIPENYET (On-Time Study Completion Information System) platform in supporting the acceleration of students' study period at IAIN Kendari. This study was conducted qualitatively with a narrative approach [5], to describe in depth the implementation of IoT-based SIPENYET and its impact on accelerating student studies. This approach allows for the collection of rich and diverse data from various related sources.

Primary data was obtained directly through interviews, observations, and discussions with students, supervisors, and administrative staff involved in the implementation of SIPENYET. While secondary data was collected from academic documents, progress reports on the implementation of SIPENYET, campus policies related to study acceleration, and relevant literature on IoT and academic information systems.

Data collection was conducted through semi-structured interviews conducted with SIPENYET user students, supervisors, and system administrators to gain an in-depth understanding of their experiences in using this platform. Observations were conducted where the researcher directly observed how SIPENYET works, including the process of managing schedules, guidance, and automatic reminders. Meanwhile, the documentation study includes policies related to study completion, student graduation data before and after SIPENYET implementation, and technical reports on the system.

The subjects of the study included students who actively use SIPENYET to monitor and manage their academic progress. Supervisors involved in the SIPENYET based guidance system. SIPENYET system administrators who are responsible for the technical management and functionality of the platform.

Data analysis was carried out through the following stages: 1) Data Reduction, where data obtained from interviews, observations, and documentation were filtered to ensure relevance to the focus of the research; 2) Data Presentation, where data was presented in narrative form, tables, and diagrams to facilitate understanding and identification of patterns; 3) Conclusions were drawn based on patterns, themes, and relationships found in the data, with validation through data triangulation [6].

Data validity is guaranteed through method triangulation, namely comparing the results of interviews, observations, and documents to ensure consistency of information. In addition, discussions were held with information technology experts and academics to ensure the validity of the conclusions [7].

Results

Research on the implementation of an IoT-based Study Control System through the SIPENYET application at IAIN Kendari shows that this technology has a positive impact in supporting the acceleration of students' study period.

Implementation of SIPENYET System

SIPENYET utilizes IoT to integrate various important functions in academic management. Some of the main features that have been successfully implemented include:

1. Real-Time Academic Progress Monitoring. The system allows students to monitor their study progress in real-time, including information on uncompleted courses, grades, and the status of final assignments or theses.

2. Guidance Schedule Management. SIPENYET provides an automatic scheduling feature that makes it easier for students and lecturers to arrange guidance times, reducing delays in the guidance process.

3. Automatic Reminder. The system provides notifications regarding assignment deadlines, seminar registrations, and guidance schedules, so that students can be more organized in completing their academic obligations.

Impact on Student Study Acceleration

The results of the implementation show an increase in efficiency and effectiveness in completing student studies:

1. Increased Timely Completion. After six months of implementation, the percentage of students completing their studies on time increased compared to the previous period.

2. Reduction of Manual Processes. SIPENYET reduces manual administrative processes such as registration for guidance and document collection, so that students and lecturers can focus more on academic substance.

3. Increasing Productivity of Lecturers and Students. The system helps lecturers in monitoring the progress of student guidance, while students are more motivated to complete their academic assignments with automatic reminders.

Student and Lecturer Responses to SIPENYET

Surveys and interviews conducted with SIPENYET users showed positive results:

1. Student. Most students stated that SIPENYET made it easier for them to monitor and manage their academic progress. They felt helped by the notification feature that reminds them of important schedules and assignments.

2. Supervisor. Lecturers appreciate this system because it helps them monitor student progress efficiently without having to rely on manual reports.

Implementation Challenges

Some of the obstacles faced during the implementation of SIPENYET include:

1. Technology Literacy. Some students and lecturers require additional training to make optimal use of the application's features.

2. Infrastructure Limitations. Some campus areas are experiencing internet network problems which are affecting access to the SIPENYET system.

3. Early Adaptation. In the early stages of implementation, there were obstacles in user adaptation to this new system, especially for users who were less familiar with digital technology.

Discussion

Utilization of IoT in SIPENYET Study Control System

The SIPENYET Study Control System at IAIN Kendari uses Internet of Things (IoT) technology to integrate and manage various academic aspects in real-time. With IoT technology, this system can connect students, lecturers, and administrators in one integrated platform, which facilitates communication, monitoring, and decision making. This shows that IoT technology has an important role in creating an effective and transparent academic ecosystem [8].

1. Real-Time Study Progress Monitoring. Through SIPENYET, students can monitor their study progress directly, starting from courses that have been completed, grades, to thesis status. Lecturers can also check the status of student guidance progress, so that the academic process can run faster and more structured. With this feature, the chance of delays in completing studies can be minimized, and the accuracy of academic data can be guaranteed.

2. Automatic Tutoring Schedule Management. The automatic scheduling feature on SIPENYET makes it easy to arrange guidance times between students and lecturers. Students can easily see the guidance schedule that has been set, while lecturers can set meeting times without requiring manual coordination. This increases the

efficiency of communication and decisionmaking, and minimizes delays in the thesis or final assignment guidance process.

The Impact of SIPENYET Implementation on Student Study Acceleration

1. Improving Student Discipline. One of the important aspects seen from the implementation of SIPENYET is the increase in student discipline in completing academic tasks. Automatic reminders from the system help students to comply with assignment submission deadlines, guidance schedules, and seminar registration processes. This makes students more focused and responsible for their study progress.

2. Academic Administration Efficiency. The use of SIPENYET also eliminates manual administrative processes that often take a lot of time. Campus administration can use this system to verify data, check academic reports, and organize student graduation processes quickly and accurately. This allows the administration to focus more on developing academic systems and campus policies.

3. Faster and More Accurate Decision Making. The SIPENYET system provides real-time data that helps lecturers and administration in making strategic decisions. For example, management can evaluate students' academic performance, identify emerging problems, and provide timely solutions. It also increases the effectiveness of collaboration between lecturers and students, and speeds up the overall academic process [9].

Challenges in Implementing SIPENYET

1. Technology Literacy for Students and Lecturers. One of the challenges faced in the implementation of SIPENYET is the varying levels of technological literacy among students and lecturers. Not all users can quickly understand the features of the application, which requires additional training so that the system can be used optimally.

2. Unstable Network Infrastructure. The implementation of an IoT-based system requires a stable and fast internet network. However, in some areas of the campus, the internet connection is often inadequate. This hampers the accessibility of SIPENYET and causes problems in real-time communication and data management.

3. User Adaptation to New System Changes. Switching from a manual system to a technology-based system requires a change in work culture [10]. Students and lecturers who are accustomed to manual methods need time to adjust to SIPENYET. Resistance to this new technology can affect the effectiveness of system use and requires a strategic approach in implementation [11].

Conclusion and Recommendations

The implementation of IoT-based Study Control System through SIPENYET at IAIN Kendari has proven effective in accelerating student studies. This system utilizes IoT

technology to monitor academic progress, organize tutoring schedules, and provide automatic reminders, thereby improving academic discipline and efficiency. Despite challenges such as technological literacy, network infrastructure, and user adaptation, this system offers significant solutions for faster, more transparent, and structured study management. With further development, SIPENYET can be a model for other universities in utilizing technology to support student academic success.

To address the issue of technological literacy, it is recommended that campuses hold regular training sessions for students and lecturers. This can be in the form of workshops, video tutorials, or direct guidance on how to use the SIPENYET feature. Developing better campus network infrastructure, such as adding Wi-Fi access in all areas of campus, can improve the accessibility and performance of the SIPENYET system. Investing in a stable internet network will ensure that the system can run without interruption. To increase effectiveness, it is recommended that SIPENYET be integrated with other existing academic systems on campus, such as the course registration system, academic financial management, and student portal. The collaboration of these systems will create a more comprehensive and structured academic ecosystem.

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