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Learning Media Application of Knowledge Sharing Room to Improve Student and Community Literacy

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Abstract: ***The development of technology that is increasingly fast and sophisticated makes it easy for everyone to obtain or disseminate information, discuss and share thoughts between one person and another. Information Technology has an important role in all fields. Electronic learning or distance learning is a new breakthrough in the development of information technology in the field of education, e-learning is a teaching and learning process using the Internet as a learning system. Building a digital literacy culture needs to involve the active role of the community together. The success of building digital literacy is one indicator of achievement in the fields of education and culture. In an effort to improve literacy for students and the community, this research will develop a digital-based literacy resource called the Mobile Web-Based Knowledge Sharing Application. The system development method used in this study uses the System Development Life Cycle (SDLC) method, and the research flow is described using the Fishbone Mapping Chart model. In realizing the Knowledge Sharing Room application, the design stage is used using a structured model using Use Case Diagrams, Entity Relationship Diagrams (ERD) with website design using Hypertext Preprocessor programming, HTML, Java Script as a programming language, and My Structured Query Language (MySQL) as a database storage medium.***

Keywords: E-Learning, Mobile Web, SDLC, Literacy.

1. INTRODUCTION

In technological developments, smartphones and the internet are examples of the most widely used technological developments in Indonesia, based on data from the databoks.katadata.co.id website sourced from eMarketer that the number of smartphone users in 2019 amounted to 92 million units where the data has increased from 2018 which amounted to 83.5 million units. As for Internet usage in Indonesia, based on data from the Indonesian Internet Service Providers Association [APJII], internet users in 2018 amounted

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to 171.17 million people. Higher than 2017 which amounted to 143, 26 million people. Information Technology plays an important role in all fields. Both in the fields of sports, arts, culture, even one of the fields of education. In the world of education, information technology really helps education become more flexible and quite easy to understand.

E-learning is a teaching and learning process using internet media as a learning system, the application of e learning , especially at schools or colleges to be used as learning media, is considered more effective and efficient, because it allows students to take long distance learning. Permendikbud 24 of 2012 which regulates distance education becomes a guideline or reference for schools or universities to implement e-learning programs. Utilization of the development of e-learning is not only used as a medium of learning in universities, but can also be used by the general public to seek knowledge or share their knowledge. From the fact that the number of smartphone and Internet users in Indonesia is very possible to implement the e-learning implementation. The results of the study by Hendra Nusa Putra (2017) an Android-based M-Learning application that aims for STIKes Dharma Landbouw Padang users or students in the teaching and learning process can be done anywhere, the learning process combined with the development of information technology will make learning more unique, interesting, innovative, and up to date. In the second study conducted by Hengki Tamando Sihotang (2017) which aims to provide solutions in the learning and teaching process at the Imelda Tourism Private Vocational School in Medan to make it easier for students and teachers in the teaching and learning process without the lesson time limit provided by the school. Miftahuddin, (2019) The mobile web-based knowledge sharing forum information system is used to provide convenience in providing lessons for the general public easily and as learning material for various groups of people in general wherever they are by using internet media.

From the research stated, it is a reference used to build and develop a system using mobile web for learning media. This study will develop a knowledge sharing space as a medium for learning and discussion so that it can help or facilitate lecturers, students and the general public for teaching and learning activities, discussing and sharing knowledge. The knowledge sharing application that will be built by STIT Pringsewu aims for all circles of society at large. This is the reason researchers are interested in developing a learning system that is cheap and affordable by the wider community and provides a place for tutors, teachers, educational instructors to share knowledge in one application space for sharing knowledge. The mobile web-based knowledge sharing room application can be accessed via smartphones, not only through computers.

2. LITERATURE REVIEW

2.1. Knowledge Sharing Room

Knowledge sharing room is a mobile web-based website application that is used as a means for learning media, discussion media and media for sharing knowledge that can be used to maximize learning. The knowledge sharing room includes the application of the E-learning concept, namely the use of technology in the field of learning, therefore this study takes the

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E-learning theory as a theoretical study concept in research, due to the limited theory regarding the discussion of the knowledge sharing space.

2.2 . E-learning

E-learning is a type of teaching and learning that allows the delivery of teaching materials to students using the internet, intranet and other computer network media. (Hartley, 2003:1). E-learning consists of the words E and Learning, E stands for Electronics which means objects that have electronic principles and Learning which means learning or learning. thus E learning means the learning process using electronic tools (Lidia Simanihuruk, et al, 2019:4). theelearningcoach.com in the Glossary of Online learning Terms states a definition where E learning stands for electronic learning is a general term that refers to all types of training, education and teaching that occur on digital media, such as computers or mobile phones. [5] . From the definition above, it can be concluded that e-learning or electronic learning is the application of information technology used in education, training and learning materials that use electronic media as facilities and can be used anywhere without place restrictions. According to (Rosenberg, 2001; 28) E learning has the following criteria:

1. E-learning is a network with the ability to update, store, distribute, and share teaching materials or information.
2. Delivery to the final user via a computer using standard internet technology.
3. Focuses on the broadest view of learning beyond the traditional learning paradigm.

According to Clark & Mayer (2008:10) E-learning has the following features:

1. Content thatrelevant to learning objectives.
2. Use instructional methods such as examples and practice to help study.
3. Using media elements such as sentences and images to distribute content and methods study.
4. Learning can be directly with the instructor (synchronous) or individually (asynchronous).
5. Build new insights and techniques that are linked to learning objectives.

According to Clark & Mayer (2008:11) The definition of E-learning has several elements about the what, how and why of E-learning:

1. what. E-learning includes both content, i.e. information, and instructional methods, namely technique, which help person learn learning content.
2. How. E-learning is distributed through computers in the form of sentences and images. The distribution can be in an asynchronous form designed for individual learning and in a synchronous format designed with the guidance of instructor directly.
3. Why a. E-learning is intended to help students achieve their learning goals or do their job.

2.4. Literacy Reading

There are several definitions of reading literacy according to experts including:
Literacy according to **Elizabeth Sulzby** is a person's ability to speak and communicate. Where the person not only has the ability to read only. But also have the ability to listen, speak and write. From what was conveyed by Elizabeth above, it shows that literacy is the main factor so that a person can develop and be literate in knowledge through reading. At

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least, through reading, the individual will have skills other than knowledge. For example having other skills in the field they have read about or something like that.

Harvey J. Graff, which means that literacy is a person's ability to read and write. At least with these two things, people are becoming more scientifically literate. The knowledge gained from reading is what can also hone good communication skills. And improve the quality of life because it has other additional skills. For example, being skilled at writing books and getting royalties or something like that.

Jack Goody's opinion is also the core of the notion of literacy. Namely the individual's ability to read and write. But in my opinion, literacy is very important. Because of the importance of the role of literacy, it is able to determine the credit point of a country. Countries like Japan, Europe and America. The community has a high awareness of literacy . It is very different from Indonesia, where literacy awareness is still very low. In general, here we can see that countries that have good awareness and understanding of literacy are easier to invite to advance their country. It is proven that these countries are also developing rapidly from many sectors.

Marriam Webster literacy is the literacy ability of individuals. Where literacy is not only defined as literacy in the true sense, for example reading books and the like. But it also includes the ability to read and understand ideas visually. This includes when viewing billboards or viewing billboards or posters. Because not everyone is able to translate and understand the visual message displayed. That's why many billboards and billboards are often accompanied by short sentence messages to make it easier to understand and read the message.

2.5. SWOT Analysis (*Strengths , Weaknesses , Opportunities , Threats)*

To find out how effective this application is, a research study using SWOT analysis is used which is a systematic identification of various factors to formulate strategies. This analysis is carried out on the logic that money can maximize strengths and opportunities, but at the same time minimize weaknesses and threats. (Rangkuti & Freddy, 2009) · SWOT analysis is an analytical method used by companies to identify internal and external factors that will be used to improvise and improve the company's competitiveness.

(Bernard & Scott, 2012) SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) is a way to observe the external and internal marketing environment. (Cahyani, 2019:30) **.** Thus, a SWOT analysis can be used to identify internal and external factors to evaluate strengths or strengths, weaknesses or weaknesses, opportunities or opportunities, threats or threats in a business.

3. RESEARCH METHODS

Methods of Analysis and Data Collection

Data Analysis Techniques using **qualitative methods** is a method that emphasizes aspects of a deeper understanding of a problem than looking at a problem. Qualitative research is a research research that is descriptive in nature, tends to use analysis and shows the process of meaning.

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For the data collection technique using the **observation method** or direct observation, it is a technique or method of collecting data by observing ongoing activities (Sudaryono 2017). Observation or observation is a technique or way to collect data by observing ongoing activities. Observations can be made with participation or non-participation (Sudaryono 2015). Based on the above understanding, observation is an observation made directly to collect data used in research. **Literature review** is carried out by reading, citing and making notes sourced from library materials that support and are related to research in this case regarding Learning Media Applications.

3.1. System Development Method

SDLC (Systems Development Life Cycle) or Systems Life Cycle, in systems engineering and software engineering, is the process of creating and modifying systems and the models and methodologies used to develop those systems. This concept generally refers to a computer or information system. SDLC is also a pattern taken to develop a software system, which consists of the following stages: planning, analysis, design, implementation, testing and maintenance.

Figure 1. SDLC Life Cycle

To describe the stages of developing the Knowledge Sharing Room Application system with the SDLC Cycle, a Mapping Chart is made which is the flow section whose job is to explain the flow of documents and information from the documents used. Mapping charts are a mixture of maps and flow charts that show the movement or a research process from one process to another. The function of the mapping chart is to describe, simplify a series of processes or procedures so that they are easy to understand and easy to see based on the sequence of steps of a process. This study uses a fishbone diagram to analyze the cause of a problem or the condition of the causes that may arise from a specific effect.

4. DISCUSSION

4.1. New System Requirements Analysis

In building a new information system, an analysis of the current system is needed to find deficiencies or problems encountered. From the analysis that has been carried out it is known that students are still discussing face-to-face learning about learning, it is less effective when

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students are rarely far away to discuss face-to-face, therefore there is a need for a new system that provides online space facilities for students so that they can continue to discuss about learning a science or knowledge even though they cannot meet face-to-face, by developing a new system for sharing knowledge that can also be used for classroom learning methods can be more effective and efficient

4.2. Design Stage

Use Case Diagram or use case diagram is a picture or representation of the interactions that occur between the system and its environment. Use case is a technique of finding software requirements. Use Case provides an overview of the entire system process and the limitations of one process from the entire system.

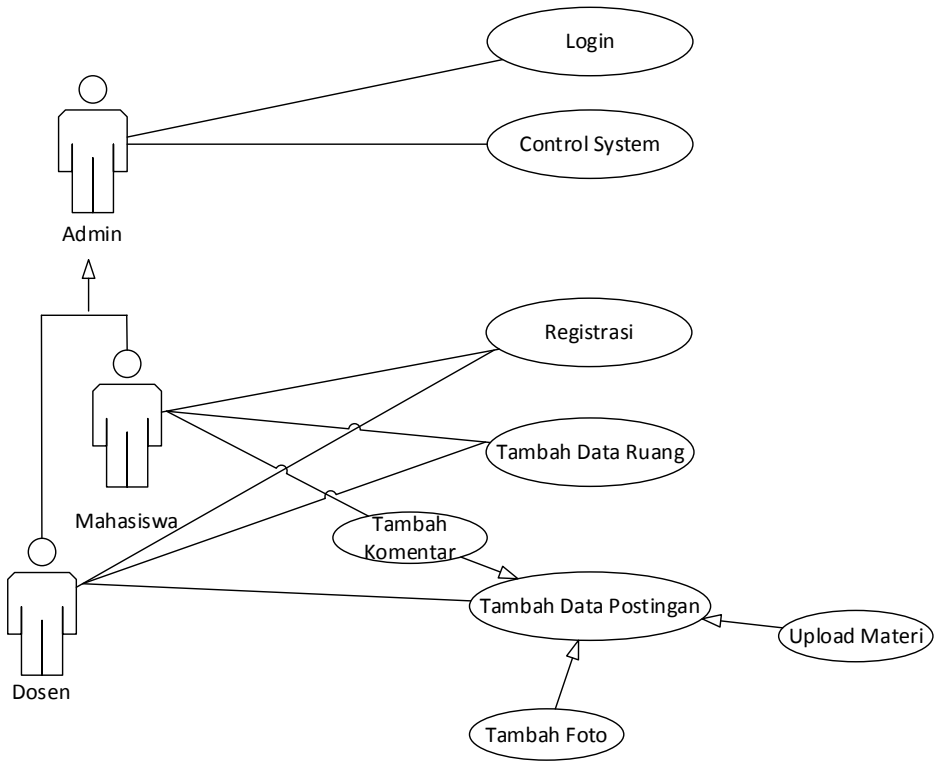

Figure 3. Use Case Diagram of Lecturers, Students and Admin

In the Lecturer, Student and Admin Use Case, the entire system that can be accessed is described as well as the access restrictions by lecturers and students that can be controlled directly by the admin.

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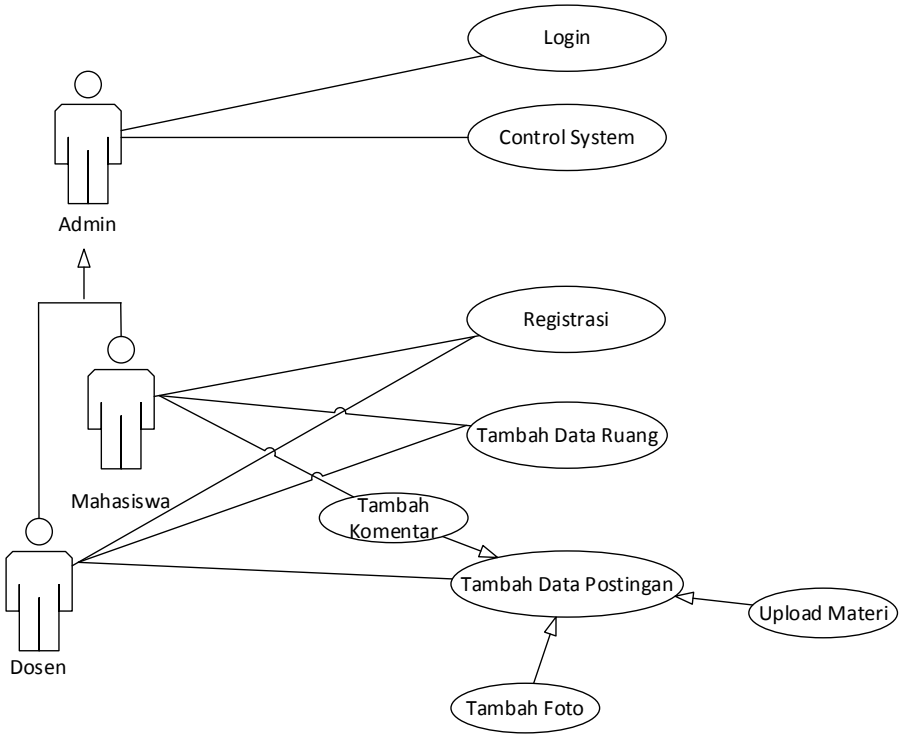

Figure 4. *DFD* Level 0

Use Case Diagram of the STIT Pringsewu Knowledge Sharing Room illustrates the processes that exist in the knowledge sharing system. This space serves as a place for users to create groups to share, study and discuss, users can determine their own theme for the space created so that the discussion in the room is more focused according to the theme. The process of creating a space can be done by users consisting of students, lecturers, and the general public. This step is done after the user registers and logs in to the system, the user can choose the option to create a room, then the user fills in the profile of the room, here the user can choose the type of room he wants, after the space is created other users can join the room. The created space can also be edited regarding the room profile and can also be deleted by the room creator and admin. In addition, the space can also be used for Post Materials / Discussions. This discussion process is carried out after the user creates a room or joins a room. Users in the room can post material according to the theme of the space created, then after that other users in the room can respond by selecting the comment option. Then for class-type rooms, there is an additional task menu. Here group administrators can add tasks for user member rooms, and members can upload assigned tasks.

4.3. Entity Relationship Diagram (ERD)

ERD is a model that explains the relationship between the data and the database based on the relationships on the basic data objects. For the mobile -based STIT Pringsewu knowledge sharing space, it has 10 databases and 6 databases have attributes that are related and normalized.

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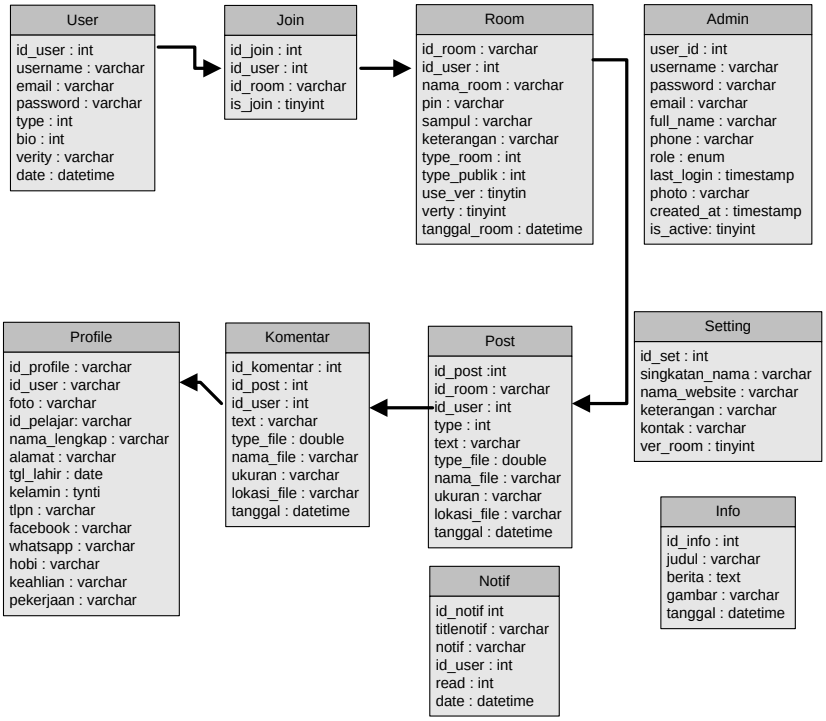

Figure 5. *Entity Relationship Diagram*

4.4. Application Flowchart

Application Flowchart describes an overview of how the structure of the display contained in the application. The application process begins with the main page display containing a login form for student, lecturer and general users, if students already have an account they can login and enter the account status page, but if they don't have an account, students will need to register first. If the user already has a room or group the user can directly select the room, if the user does not have a room the user can create a room or group first, after the user enters the group or room the user can make a post sharing knowledge, if responding the user can comment if the user does not want to respond, it means that the user has received the results of the knowledge sharing post.

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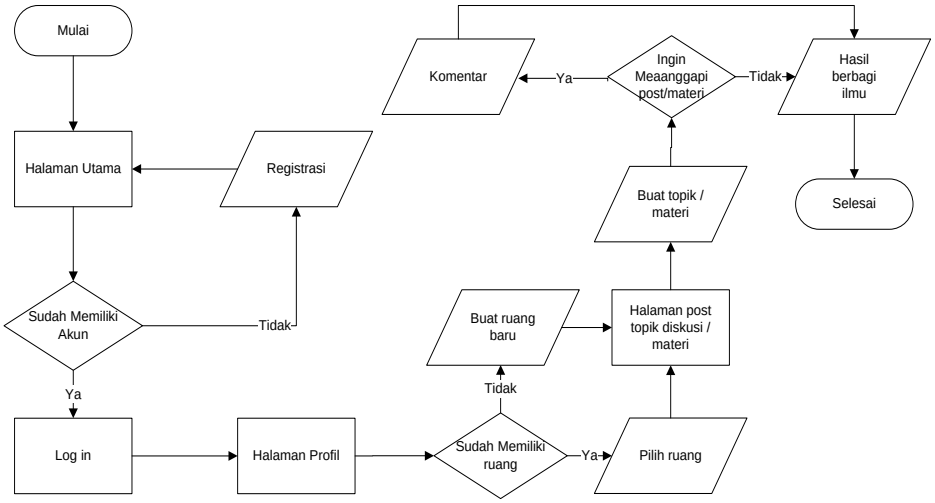

Figure 6. Application Flowchart

4.5. Input Display Design

The design of the display is formed as an illustration in the layout of the input and output menu of the application system that is designed, the design that is made is planned in a responsive display for user convenience so that it supports the display of various devices, the following is the appearance of the application design on the input display.

1. Form Input Login and Register

The login design is used by admins and users to access the mobile-based STIT Pringsewu knowledge sharing space, for registration it will be used for users who do not have an account.

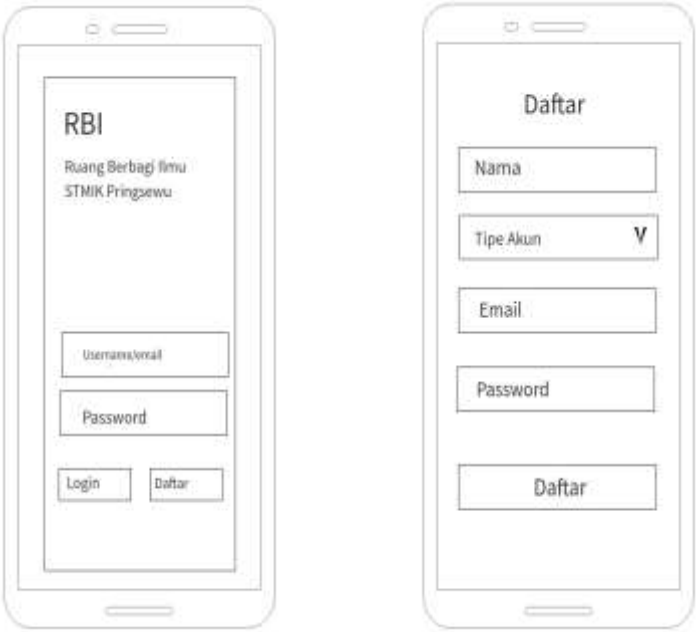

Figure 7. Design of Login and Register Input Forms

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2. Input Display Create Room

The input design for the room is used as a display to create a space that is used as a place for discussion, posting material or as a learning space, this access can be used by users consisting of students, lecturers and the public. In this view the user fills in the created space profile which will be stored in the Database.

Figure 8. Input display for space

3. Post Input Display

This display design is made to add posts in the knowledge sharing room, this page can be accessed by users consisting of students, lecturers and the public. In making posts, users can also add images and document files. Posts that have been made will be saved directly to the database.

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Figure 9. Posting Input Display

4.6. Output Display Design

The output display design is an image design that describes the interface system display for the STIT Pringsewu knowledge sharing room, but the design display that was built was specifically designed for responsive design so that it can be used on smartphones.

1. Knowledge Sharing Room Dashboard Design

The dashboard design is the initial page after the user registers and logs in, this display will display the room the user has created or participated in, the user 's post has been sent and the user profile biodata that can be edited.

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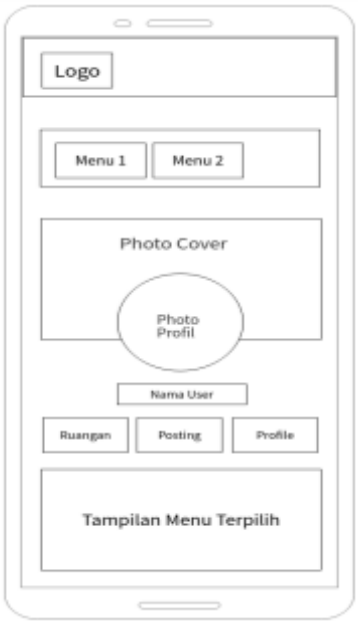

Figure 10. Knowledge Sharing Room dashboard design

2. Room List Design

The room list design is made to display a list of rooms that have been created by the user, making it easier for the user to choose or join the desired discussion group, on this page there is also a search field that is used to search for the room or group the user wants.

Figure 11. Room list design

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3. Post Detail Design

This design displays posts in detail that have been created by the user.

Figure 12. Post Detail Design

4. Admin Dashboard Design

This dashboard page design is specially made for admin access which is used to manage and supervise the activities of the knowledge sharing space website.

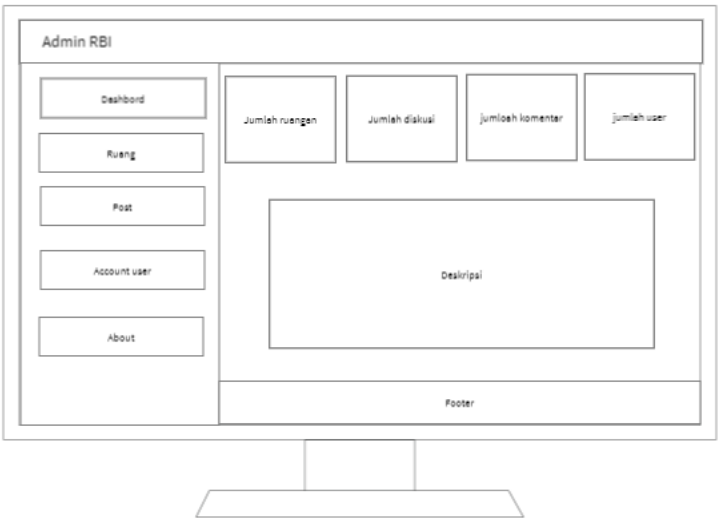

Figure 13. Admin dashboard design

4.7. Analysis of Research Results

Future opportunities, so that agencies can prepare new strategies to take advantage of these opportunities. Threat analysis is carried out to find out what kind of threats the agency

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will face, so that the agency can as soon as possible minimize or prepare for the threat. The following is a SWOT analysis obtained from interviews which can be seen in the table below

Strengths * _ _	**Weaknesses** * _ _
1. Applications made can be used as a means of learning media, discussion media and media to share knowledge that can be used in maximizing learning. 2. Applications made can make it easier for students and lecturers in the learning process, as well as the general public to discuss and share knowledge anywhere and anytime.	1. Inadequate supporting facilities and infrastructure. 2. Lack of awareness of digital developments.
Opportunity (Opportunity) *	**Threats (Threats)** *
1. As a means of promotion and communication of agencies to the public. 2. The realization of educational literacy. 3. Increased knowledge of students and the community through public discussions.	1. There are similar applications made by well-known platforms. 2. Policy changes that affect application development.

The new system design is expected to be able to improve and answer weaknesses and problems in the previous system by utilizing applications and internet networks. The mobile-based STIT Pringsewu Science Sharing Room application can be accessed on a smartphone in the form of a mobile web as well as an android browser and computer so that it can be accessed anywhere and anytime with an internet network. Testing the system using the blackbox method is useful for ensuring the functions contained in the system run according to the process flow that has been designed so that it can overcome when there are errors in the designed functions.

5. CONCLUSION

In the research conducted, the use of the STIT Pringsewu knowledge sharing room to facilitate students, lecturers and the community in learning activities and can be used as a solution to solve the problem of limited time efficiency with a distance where it can be used as a means of space to discuss knowledge and learning. The results of this study are in the form of Space Applications Sharing Knowledge STIT Pringsewu was built using the SDLC method with SOWT analysis. STIT Pringsewu's knowledge sharing room provides an online space for sharing knowledge, discussing classroom learning, and learning media for lecturers and students so that learning is more effective and efficient.

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