Integrated Learning Monitoring Information System Design

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Abstract. Utilization of information technology in the field of education should be done. One of them is the use of information technology to monitor the implementation of learning in schools. Learning monitoring that was originally done manually can be done systematically so that it can be more effective. The use of information technology in learning monitoring can also help the work of related parties to be faster, both in terms of data collection and in terms of reporting.

Keywords: Information Technology, Learning Monitoring.

1 Introduction

Learning monitoring is a process carried out to maintain the quality of learning. Monitoring of learning is also routinely carried out within a certain period of time so that the quality of learning starting from preparation, implementation and ending of learning can be maintained and become the basis for evaluation for a better learning process in the future. At SMK Negeri 1 Percut Sei Tuan, learning monitoring is carried out starting from learning preparation which includes the completeness of learning tools, implementation of learning consisting of the presence of teachers and students to class notes containing the title of the material and submaterials discussed in each lesson carried out.

SMK Negeri 1 Percut Sei Tuan itself has about 200 teachers with 2,400 students who enter 75 study groups every day. This overall data will be monitored by the learning process every day. To collect the data, the counseling tutor usually monitors the attendance of all students, while the learning activities carried out by the teacher will be monitored directly by the school leadership consisting of the principal and vice principals.

So that the monitoring process can be carried out quickly and efficiently, a system is created that is able to quickly record, process and produce reports on the results of monitoring automatically and in real time, so that the learning monitoring process can run quickly with precise and efficient results.

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2 Method

This section will describe the methods used to build this integrated learning monitoring system. starting from the system life cycle, waterfall technique used and modelling the system to be built.

2.1 System Life Cycle

Raymond Mc Leod Jr. the life cycle is a process of change followed by the application of a computer-based information system or sub-system. This cycle consists of a series of tasks that follow the steps of the systems approach. This cycle is often referred to as the waterfall approach to systems development and deployment.

According to Gerald V-Post, the life cycle is a system development (SDLC) designed to overcome problems that arise in large-scale projects that involve many users and require a lot of time in the development of analysis and programming.

Technological developments make everything easily accessible. With this development too, many companies develop software as a product to be marketed to the public. In general, the development of this product requires a series of stages. The process of developing a system certainly goes through several systematic stages to ensure that every need has been met. This stage is called SDLC. So, it can be defined that SDLC is a workflow for a device so that it can be completed properly and produce devices that are fit for purpose. Every developer will follow the SDLC so there is no significant miscommunication.

Because SDLC is a flow in making a device, this system is very important and cannot be ignored. Because the SDLC function means a lot to every team. Here are the SDLC functions that you can understand further:

- SDLC is the communication medium for every team involved in software development.
- SDLC will directly divide the tasks and responsibilities of each employee who is included in the device development team.
- With the SDLC, the team has an overview of how the device management process is going, from the start to the end result.

The following are the stages of the waterfall model:

2.1.1 Planning
The first SDLC stage is planning or planning. At this stage, the development team must know the purpose of a device being made. By knowing this goal, the device will later become an effective product for the target market and company.Software Requirements Analysis
The need search process is intensified and focused on software. To find out the nature of the program to be made, the software engineer must understand the information domain of the software, for example the required functions, user interface, etc. Of these 2 activities (search for system and software requirements) must be documented and shown to customers.

2.1.2 Analys

After knowing the purpose of a device being made, the device planning team conducts an analysis, both market and competitor analysis. With this analysis, a superior device will be formed because it has complex functions and according to needs.

2.1.3 Design

After that, the design section, such as the UI/UX designer will do the interface design. Usually, this design is carried out in accordance with the analysis that is already owned.

2.1.4 Implementation

The next SDLC stage is implementing the design that has been made into the system. The team that carries out of course is different according to their duties and responsibilities. Usually, the team on duty here is part of the programmer, starting from the front end to the back end engineer.

2.1.5 Testing

After all the systems have been made, the device is not immediately ready to be given to the public. It needs a trial that will be carried out by the core team first. After that, trials will be carried out on teams outside the developer to get input on which other parts need to be improved so that the device is more perfect when used by the wider community.

2.1.6 maintenance

Finished and deployed tools don't mean the dev team's work stops there. The device must always be maintained and monitored so that if an error occurs it can be corrected immediately. Usually, doing this maintenance is to keep user data safe and not leaked.

2.2 User

In this application, the user is divided into three main parts, namely: administrator, school management, and students.

2.2.1 administrator

The administrator is in charge of entering the initial data in the application. The initial data are in the form of student data, data, lesson data and teacher data. After the data is entered into the system, then the other two users can access the system.

2.2.2 School Management

School management has a major role in this application. School management can see all learning activities that occur in schools, including: student attendance, teacher attendance, room conditions, and the material taught by teachers to students can be seen by school management.

2.2.3 Student

In this application students can do attendance which is done every day. In addition, students can also update their personal data through the login that has been provided.

3 Result and Discussion

In this application, there are several main pages that can be accessed by users based on their access rights, including the login page, the attendance recap page and the attendance recap page.

3.1 Login Page

This page is the index page of this application. This page has two input boxes and 1 option which contains the user's choices available in this application. At this stage the user must choose what rule will be used when the user enters the system.

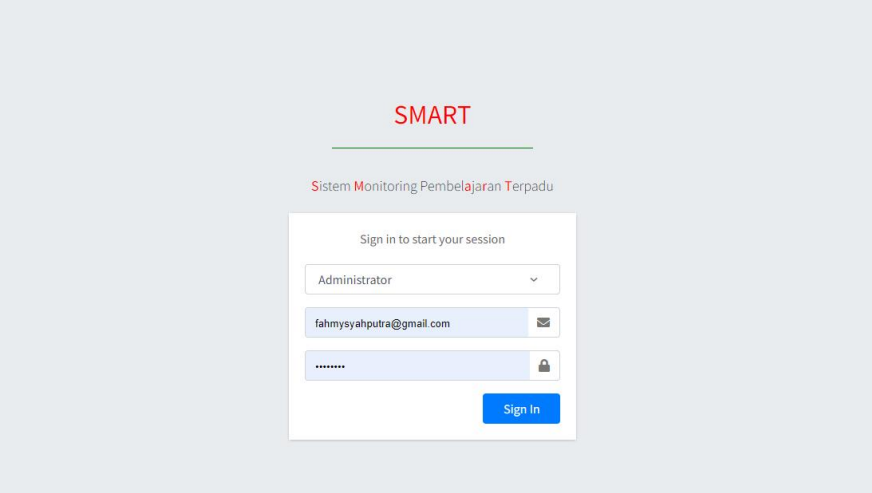

Fig. 1. Login Page

3.2 Absence Page

This page is a page used by the teacher to fill in attendance every time they want to start a lesson. This attendance page can be accessed only when the attendance officer logs in and opens this page.

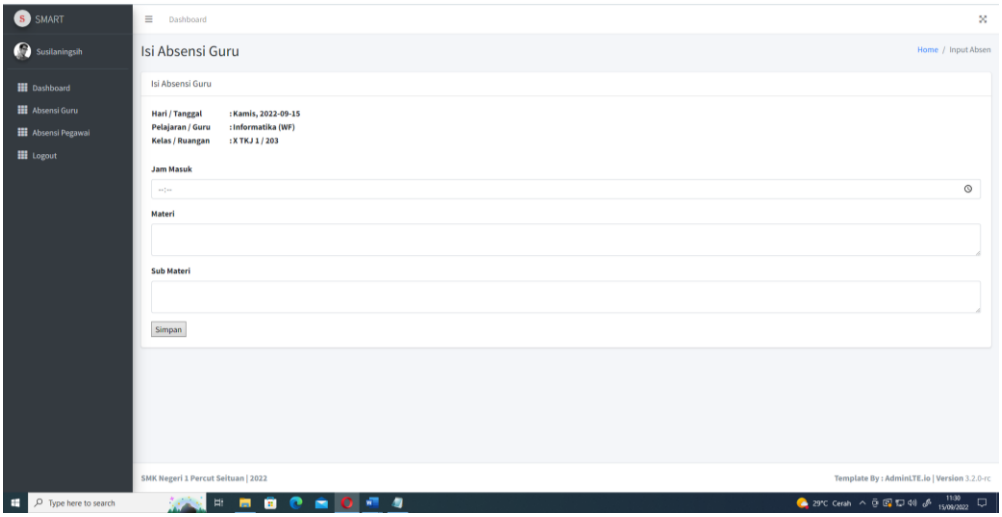

Fig. 2. Absence Page

3.2 Absence Recap Page

This absent recap page functions as a page that informs about the attendance of each teacher who does learning in class every day.

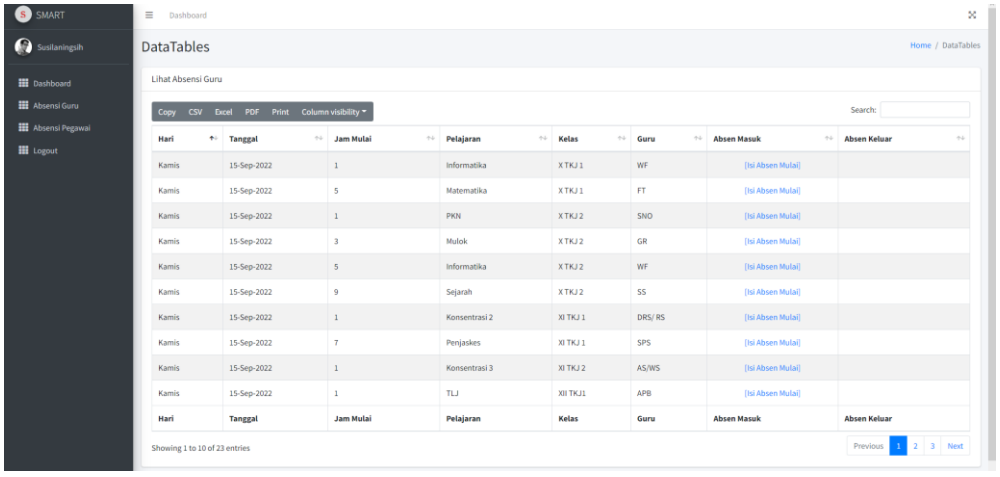

Fig. 3. Absence Recap Page

4 Conclusion

The use of information technology in the field of education is considered very useful and highly expected by the education unit for service efficiency and the efficient functioning of schools.

The application of this information technology is one of the demands of RI 4.0 so like it or not in the end we have to live it so that we can still compete with others. The SMART application that is designed is able to become a tool for schools that can be used to monitor all activities related to the teaching and learning process.

References

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