IMPLEMENTATION OF ANDROID-BASED VOCATIONAL STUDENT ATTENDANCE SYSTEM AS AN EFFORT FOR CHARACTER BUILDING STUDENTS IN THE DIGITAL EDUCATION ERA

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IMPLEMENTATION OF ANDROID-BASED VOCATIONAL STUDENT ATTENDANCE SYSTEM AS AN EFFORT FOR CHARACTER BUILDING STUDENTS IN THE DIGITAL EDUCATION ERA

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Abstract. The presence system in the world of education is the most important role for every teaching and learning activity. In general, schools still use attendance manually, namely by writing in attendance books, this makes inefficiency and errors in data inputting occur. As did SMK Muhammadiyah 7 Gondanglegi, with the number of students reaching thousands, schools still use paper attendance manually. This method is very vulnerable and can be misused by irresponsible parties.

Given these problems, the author will provide a solution, namely creating an information system for reporting student attendance using a QR Code Reader which will be applied at SMK Muhammadiyah 7 Gondanglegi. In addition, this Information System will also be equipped with School Information and School Vision and Mission. From the results of functional testing that has been carried out by students and teachers, by showing the level of accuracy of applications and analysis of student character formation in the current digital learning era, in addition to the presence of an Android-based student attendance information system that uses this Android-based QR Code scanner, it can make it easier the teacher in inputting student data and recording student attendance.

Keywords: Android Based Vocational Student Attendance System

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INTRODUCTION

In the era of increasing globalization and increasingly developing technology, creating a technology to accelerate an activity. The use of computer equipment as a support for data management and processing is very appropriate and very necessary. The use of computer technology technology as an information technology tool in the world of education is very useful to facilitate daily activities. As in the life of computer technology that creates a new program with fast access. Computers have many benefits when used in a positive way and computers can be bad when used in a negative way. Currently the role of information technology is growing, making a lot of human work replaced by the system. Every activity that almost everyone does uses a Smart Phone (smartphone). It is possible that the Smart Phone is used for the presence system. Because Smart Phones are a secondary need for everyone because their functions are more efficient and practical. In the world of education, attendance has an important role for every teaching and learning activity and is one of the educational supports that can support every

activity carried out in it. In general, schools still use the Presence system manually. As was done at SMK .

Muhammadiyah 7 Gondanglegi with the number of students reaching thousands, schools still use the manual attendance system. Still using paper for the student attendance process, namely recording one by one the students who attend school. This method is very vulnerable for an educational institution because the level of discipline cannot be controlled and can be misused by irresponsible people and makes it very difficult for teachers in the process of recapitulating attendance data because they have to copy attendance data one by one into the computer so it takes a lot of time. In this study, the author will implement a Presence system using Android-based mobile technology which is able to overcome some of the weaknesses of the Presence system which has been done manually and tends to be inefficient.

The objectives of implementing this information system are as follows:

1. Implementing an effective and efficient presence information system with android-based applications.
2. Help facilitate the attendance process at SMK Muhammadiyah 7 Gondanglegi.
3. To support the data collection process for student attendance.
4. Provide solutions to school problems in shaping student discipline by using technology.

According to the opinion (Usman, 2002) Implementation is led to activities, actions, actions or the existence of a system mechanism. Implementation is not just an activity, but an activity that is planned and to achieve the objectives of the activity. While the notion of discipline according to. (Ali, Lukman, Dkk, 1997) The word discipline comes from the basic word discipline which gets the prefix ke-an which means obedience (compliance) to regulations (order, and so on). (Homby, 1995) Whereas in English, discipline means: training or control, often using a system of punishment, at producing obedient to rules.

From the three definitions above, it can be concluded that implementation and discipline are related, where discipline and implementation must go hand in hand, where discipline is not just a theory but also an action that must be implemented.

According to (Tata, 2012) a system is basically a group of elements that are closely related to each other that function to achieve certain goals. The definition can be further detailed about the system in general, namely:

1. Every system consists of elements. The human respiratory system consists of a group of elements, consisting of the nose, respiratory tract, lungs and blood. Elements of a system consists of smaller subsystems, which consist of groups of elements that make up the subsystem.
2. These elements form a unifying part of the system concerned. The elements of the system are closely related to each other and the nature and cooperation between the elements of the system have a certain form.

3. System elements work together to achieve system goals. Each system has a specific purpose. Our respiratory system aims to provide oxygen and remove carbon dioxide from our bodies for our survival. System elements in the form of nose, respiratory tract, lungs, and blood cooperate with each other with certain processes to achieve this goal.
4. A system is part of another larger. Our respiratory system is part of the body's metabolism.

From the description of the understanding of the system in general, a question arises "what is a system created for?" (Ariadi, 2011) every system is made to handle something that happens repeatedly or frequently (Suendri, 2015) The systems approach is a philosophy about the structure that coordinates an activity within the organization in the most efficient and best way (Hadinata, 2017) A system can be formulated as a collection of components or subsystems designed to achieve a goal. (Supraptono, 2019) With a systems approach, we deal with individual components and emphasize the role in the system rather than the role as a whole individual. With a systems approach to describe reality, it can be of great benefit to the user. (Sholeh, 2016) The success of the components considered as a system may be greater than the sum of the successes of each component considered separately.

According to Dewi (Dewi, 2018) the Java programming language. The java code is compiled along with the resource files required by the application. Where the process is packaged by a tool called apttools into the android package. This results in a file with an apk extension, called an application, which can later be run on mobile devices. There are four components in an Android application, namely:

1. Activities are components that present the user interface (user interface) to the user.
2. Service is a component that does not have a user interface (user interface), but the service runs in backgrounds.
3. Broadcast Receiver is a component that functions to receive and react to present notifications.
4. Content Provider is a component that creates a specific collection of data applications, so that other applications can use them.

METHODS

The following is a flowchart of the Android-Based Android-based Student Attendance Information System for SMK Muhammadiyah 7 Gondanglegi. This system flowchart describes the process of running the application system

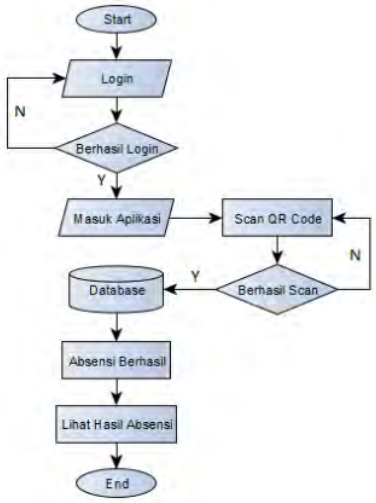


FIGURE 1. *Flowchart Information System*

1. Start, the process of starting the application
2. Login, Master login to the system
3. Login successful?, after logging in, there are two possibilities for successful or failed login. If the login is successful, it will go directly to the next step, if it fails, it will return to the previous step.
4. Scan the QR Code, Attendance process by scanning the QR Code on the student id card.
5. Scan Successful? , there are two possibilities of the scan succeed or fail. If successful, it will continue to the next step, and if it fails, it will return to the previous step for a re-scan.
6. Database, after a successful scan the data will be automatically entered into the database.
7. Attendance is successful, after the data is entered into the Presence database it will be declared successful.
8. View Attendance Results, after the Attendance is successful, the detailed results of the Attendance can be seen.
9. End, Attendance Process is complete

The following is a Data Flow Diagram for designing an Android-Based Information and Reporting System for Student Attendance at SMK Muhammadiyah 7 Gondanglegi. In this system there are two entities, namely teachers and admins, where teachers can login and can make attendance to students.

FIGURE 2. *DFD Information System*

Berikut ini merupakan sequence Presensi pada sistem informasi Presensi pada SMK Muhammadiyah 7 Gondanglegi.

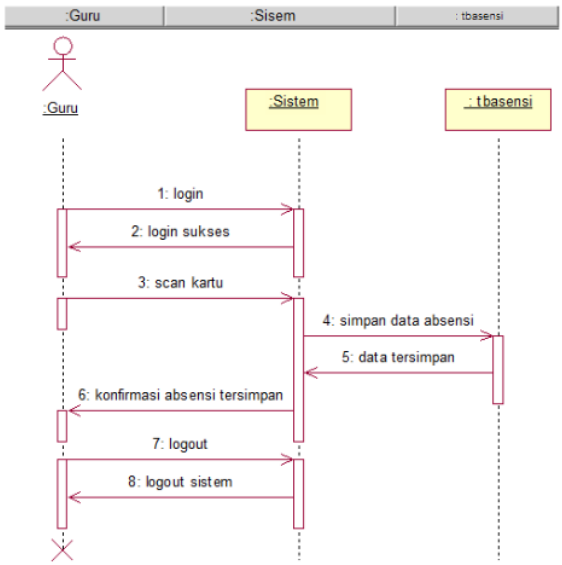


FIGURE 3. *Sequence Presensi*

Information :

1. Teacher login to the system
2. The system informs that the login has been successful on the teacher
3. The teacher scans the student attendance card to the system
4. The data is saved by the admin to the Presence table
5. Data stored on the system
6. The system confirms to the teacher that the Presence has been saved
7. Master logout from the system

RESULTS

In this section, we will describe the program that will be used in the Android-based information system and attendance reporting for SMK Muhammadiyah 7 Gondanglegi students. The appearance of the Presence information system application is as follows:

Student Detail Form

In this student detail form there are NIS, Name, Class and Department of the Student. There is also an option for absent entry or absent leave.

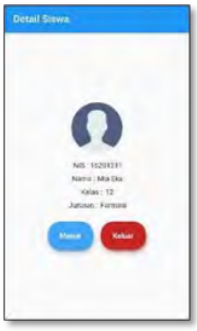


FIGURE 4. *Student Detail Form*

Presence History Form

In the student attendance history form, there are photos of students, student names, student NIS, class, major, attendance date, admission time and attendance time home.

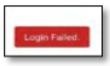
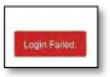
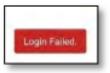
FIGURE 5. *History Presensi Form*

Functionality Test

In general, this test aims to test the function of each module made in the program. If all modules have been functioning properly as expected, then the

program is considered good. However, if there are several modules that do not work as expected, the percentage of program failures is calculated.

Table 1. *Functionality Test*

No	Test scenario	Test Case	Results that expected	Test result	Status
1.	Empty username and password then directly click the "Login" button		The system will deny access login and will showing message "login" failed"		Valid
2.	Empty the username and then click the button "Login"		The system will deny access login and will showing message "Login Failed"		Valid
3.	Clear password Then straight away Click button "Login"		The system will deny login access and will display the message "Login Failed"		Valid
4.	Fill in the username and password then directly click the "Login" button		The system will display the message "Login Success"		Valid
5.	Fill in the admin username and admin password then click the "Login" button		The system will process and will display the main page		Valid
6.	On the main page, click the scan QR code button in the middle		The system will display a page to scan the QR code		Valid
7.	On the main page, click the student data list button on the left		Then the system will display a list of student data		Valid
8.	On the main page, click the Presence history button on the right		Then the system will display the history of student attendance that has been done		Valid

In the functional test, the author tested the teachers of SMK Muhammadiyah 7 Gondanglegi. Where in the test obtained valid results.

DISCUSSION and CONCLUSIONS

From the conclusion of the system made, it can be concluded that this system can help SMK Muhammadiyah 7 Gondanglegi in the student attendance process and make it easier to record student data. As a support for the data collection process for student attendance, this system provides solutions to school problems in shaping student discipline by using technology.

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