



Employee Presence Application System Using Android-Based Qr Code Reader

Muhammad Syahputra Novelan¹, Aminuddin Indra Permana²

^{1,2} Faculty Of Science And Technology, University Of Pembangunan Panca Budi, Medan, Indonesia

E-mail: putranovelan@dosen.pancabudi.ac.id

ARTICLE INFO

ABSTRACT

Article history:

Received: Jul 15, 2022

Revised: Jul 30, 2022

Accepted: Aug 10, 2022

Keywords:

Presence,
Smartphone,
QR Code,
Android

At this time there are still many companies or government offices that still use manual attendance, especially in the office of the head of the village of kelambir 5, sub-district of expanse of silver, deli, serdang district. The office is utilized by technology that is currently widely used by the public, namely by using gang devices such as smartphones. So with manual systems such as signatures on paper, it is caused by frequent manipulation of attendance data. The manual attendance system can also cause the village head office administration to manually collect attendance data in large quantities, and the process becomes ineffective and inefficient. Therefore, it is necessary to have a system designed, namely an employee attendance application system using an Android-based QR Code Reader. So with the system that will be made, employee attendance data is automatically stored into the website database and it is easy to recapitulate attendance. For processing databases on the website using Mysql and making websites using the PHP programming language, then making android applications using Android Studio

Copyright © 2022 Jurnal Mantik.
All rights reserved.

1. Introduction

In today's modern era, almost everyone has smartphone users. Currently, many people use smartphones for daily needs such as communication, viewing news, ordering taxis online and ordering food. There are also people who use smartphones for work purposes such as attendance and so on. [1]. Attendance at this time is very important for companies to see an increase in discipline. In the current development of attendance, it has developed a lot with the existence of computer-based technology by utilizing the internet. Fingerprint, facial scanning, still uses the old method, so many now switch to using smartphones, especially those based on Android. Android smartphone devices can be used in using attendance. [15] The presence system using an android smartphone maximizes work time in a company compared to employees having to queue for signatures on the format or fingerprinting directly. This is a waste of work time. Therefore, the use of Android is very necessary in updating the presence system. [4].

If the company switches to using an Android smartphone, the company only needs to set up a server to control/manage incoming data and setting incoming and outgoing hours. And it is also necessary to have a local WIFI network to connect android smartphones with this network server so that the coverage is only within the company's territory because to avoid fraudulent employees who are absent from outside the company[11]. The attendance system in this way is very effective and the prices issued are cheap and affordable. The Android-based attendance system application will provide a daily, monthly, and yearly log report/report on employee attendance data and lists, arrival times, and time to go home[14]. This attendance application will only record matters relating to employee attendance data and lists, and do not make arrangements for determining the time of arrival and departure of employees. [5]

Literature Review, Presence employee attendance is an activity to document employee attendance in the company, every working day employees are required to make attendance at the time of arrival and return, within a period of time. So, employee attendance is a process of recording employee attendance data starting from the time the employee enters and leaves at a certain time period. The representative office of SKK



Migas Surabaya in recording employee attendance using a finger print, where an employee must clock in and clock out during weekdays and who manages employee attendance data is the financial administration section. [12].

QR Code is a two-dimensional barcode that was invented by a Japanese company called Denso Wave in 1994. This QR Code is an extension of the previous barcode. In the old barcode model, data is stored only horizontally, while in QR Code, data is stored both vertically and horizontally.[8]

Android, Android is a software stack for mobile devices that includes an operating system, middleware, and key applications. Android provides an open platform for developers to create their own applications for use by a wide variety of mobile devices[7]. The programming language needed to build applications on the Android platform is the Java programming language. An important part in developing Android applications is the Android Software Development Kit (SDK) and the Android Emulator.[6]

2. Research Method

2.1 Research Stages

At the research stage, the flow of the research will be described and explained one by one how the system of the entire research will be built. The following is a picture of the research stages. [10]

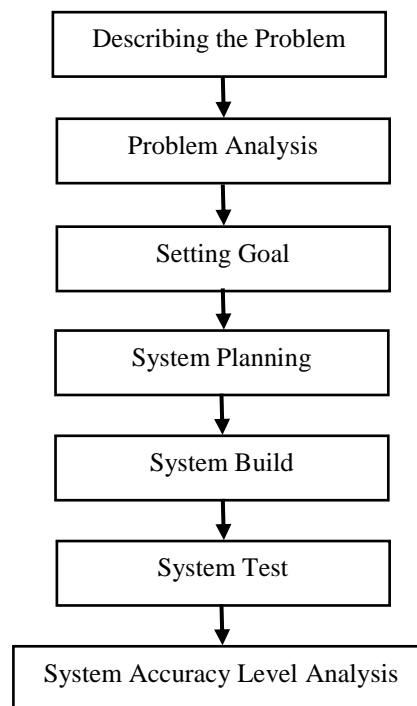


Figure 1. Rancangan Tahapan Penelitian

a. Describing the Problem

Describing the problem transparently will support in preparing and realizing an employee attendance application system using an Android-based qr code reader that will be studied must be described first, because without being able to describe the problem, determine and define the boundaries of the problem to be studied, there will never be a solution that can be solved. best of the matter. So this step is the most important first step in this research.

b. Problem Analysis

The problem analysis step is a step to find out the problem that has been defined by its scope or limitations. By analyzing the problems that have been set, it is hoped that these problems can be studied easily. [11`]

- c. **Determine Destination**
Based on the understanding of the problem, the objectives to be achieved in conducting this research are determined. At this goal set targets to be achieved, the most important in solving existing problems
- d. **System planning**
This stage is the stage of the design of the device that is carried out, at this stage the framework of the device is made and preparation of the arrangement of the employee attendance application system using an Android-based qr code reader.
- e. **System Build**
This stage is the stage for creating an employee attendance application system using an Android-based qr code reader, making the system based on the framework and system design that was made in the previous stage.
- f. **System Test**
System testing is done by creating a QR Code and barcode using a smartphone, then the data will enter the database system and create an employee attendance report.
- g. **System Accuracy Level Analysis**
This stage is the stage where the analysis is carried out in conducting internet communication in remote areas with 3G network coverage. [10]

3. Result and Discusion

This online attendance system is a system design that makes it easier for employees to attend. With this system, it is hoped that the company/office can be more disciplined, because a system that can simplify and speed up absenteeism means that the time needed to work is also very efficient. This system can also produce very accurate reports, because attendance data has been processed by the system and neatly recapitulated. As for the design of the employee attendance system and user activities when using the system, which includes use case diagrams and activity diagrams.

3.1 Design Sistem

a. Use Case Diagram

In the preparation of a program required a data model in the form of a diagram that can explain a process flow of the system to be built. In this study the author uses the UML method in which the author applies a Use Case diagram following a System Use Case diagram. The following Use Case can be seen in the image below. [13]

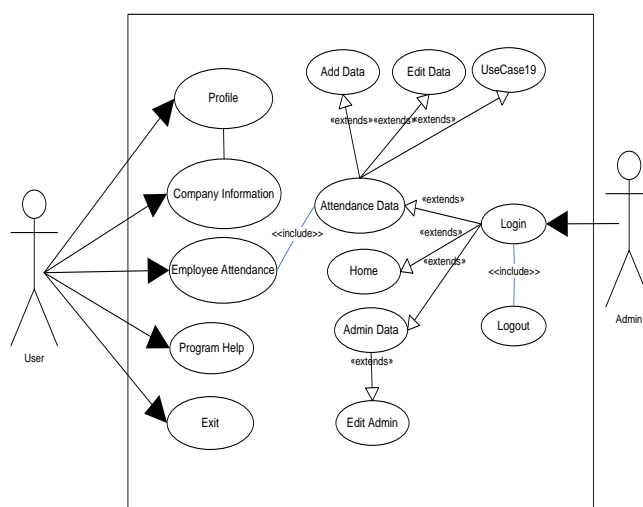


Figure 2. Use Case Digaram

b. Activity Diagram Attendance

The user activity in this activity is to perform attendance on employees and input employee names if there are new employees who enter. The Activity diagram can be seen in the image below:.

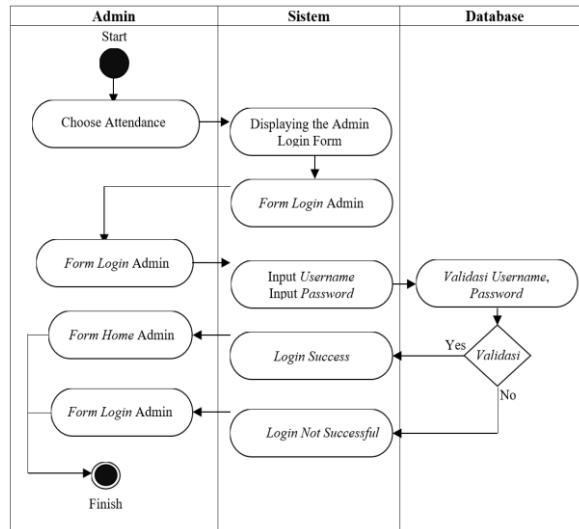


Figure 3. Activity Diagram Doing Attendance

3.2 Design Program

a. Main Menu Display

The main menu display is the start page that will appear when the program is run. On this page, the user can choose the menu they want. The main menu display can be seen in the image below.



Figure 4. Main Menu Display

b. Employee Attendance Display

The display design in the employee attendance design is to perform attendance on employees and input employee names if there are new employees who enter. The display of employee attendance can be seen in the image below

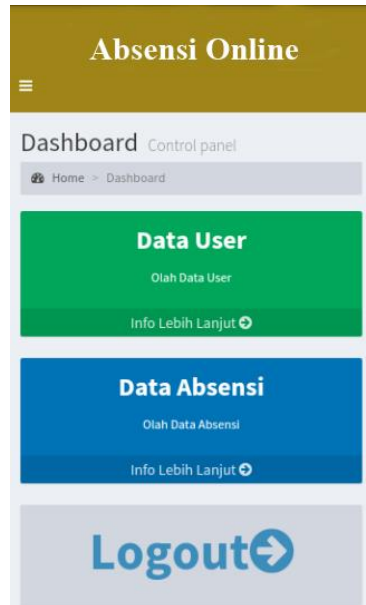


Figure 5. Employee Attendance Display

c. App Help View

In this view there is information about application assistance in case of problems with the running application. Help display can be seen in the image below.

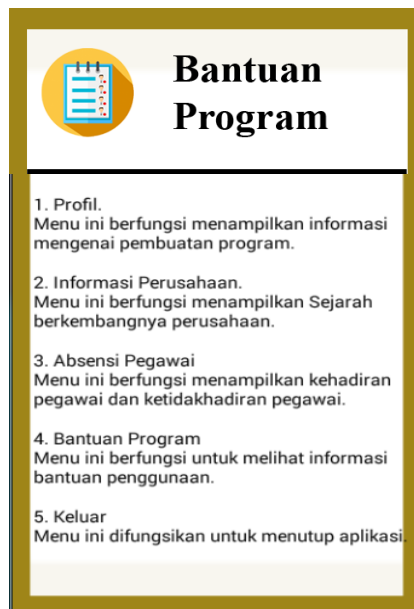


Figure 6. Employee Attendance Display

3.3 System Test

System testing is done by alpha and black box testing, namely this test focuses on the functional application. Black box testing is carried out with a focus on the expected output results from the system under test which will run as expected or not. For this reason, the black box test table can be seen as follows:

No	Test	Expected Test Results	Test result
1	Scanning the QR Code on the employee attendance card	Application Go to Scan page	Success
2	Receive data from scanning results	Application displays employee data	Success
3	Display QR Code description via android application	Description in the form of original NIP	Success
4	Scanned data is entered into the database server	The application displays data that has been connected to the database server	Success

4. Conclusion

Based on the results of the above system testing, it can be concluded that the attendance system developed using current technology such as Android allows the company to get a lot of benefits, because it will simplify and speed up employees in terms of attendance, besides that attendance data and employee data have been integrated into the system. one database. A simple interface can also make it easier for users to use the application system.

References

- [1] Aronson, J. E. & Liang, T.-P. 2015. Decision Support Systems and Intelligent Systems. 7th Edition. Prentice Hall: New Jersey.
- [2] Akbar, R. M., 2014. Aplikasi Absensi Karyawan di Konsul Bogor Menggunakan GPS. Depok: Jurusan Sistem Informasi, Universitas Gunadarma
- [3] Aini, Q., Graha, Y. I., & Zuliana, S. R. (2017). Penerapan Absensi QRCode Mahasiswa Bimbingan Belajar pada Website berbasis Yii Framework. Sisfotenika, 7(2), 207-218.
- [4] Muhammad Syahputra Novelan, "Sistem Monitoring Kualitas Udara Dalam Ruangan Menggunakan Mikrokontroler dan Aplikasi Android", Jurnal Nasional Informatika dan Teknologi Jaringan, ISSN 2540-7597 | ISSN (Online) 2540- 7600., Vol. 4 No. 2, pp. 50-54, 2020
- [5] Moh Fajar Rajasa F, Ya'umar, Suryanto, 2013 "Rancang Bangun Prototipe Monitoring Suhu Tubuh Manusia Berbasis O.S Anroid"
- [6] Novelan, M. S. (2020). Sistem Monitoring Kualitas Udara Dalam Ruangan Menggunakan Mikrokontroler dan Aplikasi Android. InfoTekJar: Jurnal Nasional Informatika dan Teknologi Jaringan, 50-54.
- [7] Putranto, H., Pengembangan Aplikasi Database Persediaan Barang Berbasis Web Pada Wahana Komputer Semarang. Jurusan Sistem Komputer Sekolah Tinggi Elektronika dan Komputer
- [8] Pohan, N. (2016). Implementasi Barcode untuk Sistem Informasi Absensi pada PT. Coca Cola Distribution Indonesia Pekanbaru. Riau Journal Of Computer Science, 2(2), 87-102
- [9] Priawan, M. Y., 2013. Teknologi, Smartphone dan Android. Semarang: Jurusan Kurikulum dan Teknologi Pendidikan, Universitas Negeri Semarang, Semarang.
- [10] Pressman, R. S., 2015, *Software engineering: a practitioner's approach.5th ed.* New York : McGraw-Hill Higher Education.
- [11] Sugiantoro, B. (2015). Pengembangan QR Code Scanner Berbasis Android Untuk Sistem Informasi Museum Sonobudoyo Yogyakarta. Telematika: Jurnal Informatika dan Teknologi Informasi, 12(2), 134-145
- [12] Susila, M. D., 2013. Sistem Absensi Mahasiswa Menggunakan Metode Barcode berbasis Android. Surabaya: Jurusan Teknik Informatika, Universitas Pembangunan Nasional 'Veteran', Surabaya
- [13] Syahputri, N., Indriani, U., Alfina, O., Astuti, E., Siregar, E. T., & Tanjung, Y. (2019, November). Child Development Application (Toddler) Based on Android. In 2019 7th International Conference on Cyber and IT Service Management (CITSM) (Vol. 7, pp. 1-5). IEEE.
- [14] Rahmawati, N.F, Wibawa, H.A. & Bahtiar, N. 2014. Sistem Pendukung Keputusan Pemilihan Penerima Basiswa Dengan Metode Simple Additive Weighting (Studi Kasus Di SMA N 1 Karanganyar Kebumen). Journal of Informatics and Technology 2(3): 59-65
- [15] Wijaya, B. D., Fenty, E. M. A., Fiade, A., 2015. Implementasi Json Parsing Pada Aplikasi Mobile E-Commerce Studi Kasus : CV V3 Tekno Indonesia. Jakarta: Jurusan Teknik Informatika, Universitas Islam Negeri Syarif Hidayatullah Jakarta