Socialization of Qr Code Employee Attendance Applications Based on Android at the Balung Lor Village Office, Jember Regency

Author
Reni Umilasari (Orcid ID: 0000-0001-5491-7373)
Amalina Maryam Zakiyyah (Orcid ID: 0000-0001-5589-0467)
Ginanjar Abdurrahman (Orcid ID: 0000-0001-8249-6529)
Teguh Mutawaffi H.F (Orcid ID: 0000-0001-7884-7488)
Dody Wahyu Wirawan (Orcid ID: 0000-0003-1345-2201)

Correspondence
University of Muhammadiyah Jember, Jawa Timur, Indonesia
University of Muhammadiyah Jember, Jawa Timur, Indonesia
reni.umilasari@unmuhjember.ac.id, amalinamaryam@unmuhjember.ac.id,
abdurrahmanginanjar@gmail.com, teguhfawait4@gmail.com dodywahyu307@gmail.com

Abstract

Attendance can be said to be a sign of presence which is part of the reporting activities that exist within the institution. Attendance Qr Code is a creative idea to be environmentally friendly or paperless, where the technology is codular-based (website application development). Not only that, the implementation of Google access such as Google forms that use attendance data input and Google Spread sheets for data storage or databases, reporting is easy to manage, because basically Google Spread sheets or Excel can be accessed easily, of course the advantage of using this is free or no cost only with email from Google, no need to buy hosting and domain. So that the control process from the leadership can be carried out properly, the leadership can find out whether the employee is present or not.

Keywords: google access, Qr Code, attendance

Introduction

The development of the world of information technology is currently entering various fields, so that now more and more agencies are trying to improve their services which are closely related to information technology itself. This is supported by the statement that the use of computers in government applications is to provide information quickly and precisely. This information is like blood flowing in the body of an agency. If in an agency, the information is stopped or hampered, then the agency system will become shabby (Jogiyanto, 1999: 96). One of the important developments in information technology is the increasing need for the use of data processing tools that function to produce the required information. Agencies that want to improve their services and achieve success must follow the information age by using data processing support tools, namely computers. This is supported by the statement that computers are used to manage information on community resource data as the target of their services. (Mcleod, 1998:92). With the computer as a data processing tool, all fields in a company or agency can be computerized, in this case the areas that are considered important and main because this can support the success of an agency in achieving its goals. 2 In this study the author wants to provide a solution by designing and applying an attendance system workflow based on the existing manual attendance system at the Balung Lor Village Office which is still less effective and efficient, and creating a database system that will be used in computerized attendance applications. , user interface to manage the database, and computerized attendance application between the database system, user interface, and the user itself with the addition of the barcode method to provide optimal computerized solutions, speed and accuracy of data processing, and reduce error rates. during the attendance process. Therefore, based on

this reason the author tries to take the theme in writing this field work practice with the title "Implementation of the Android-based employee Qr Code attendance application system".

a. systematically, structured so that the attendance system is made really useful and streamlines work in the agency.
b. Provide a solution by designing and implementing the attendance application that has been created and will be used at the Balung Lor Village Office.

Method

Stages of activity in the manufacturingAttendance Application Based Design QR Code covers the data, making the structure of the relationship*(Relationship)*any entity, Architecture and Design Interface Design as described below.

a. *Data Flow Diagram* (DFD)

QR Code-based Attendance System allows users to more easily perform attendance, admins can also control. Admin has full rights to the development of an application. Admin is also able to change, delete, add information and admin data. The following is a Data Flow Diagram (DFD) for theAttendance System *QR Code* at the Balung lor village office:
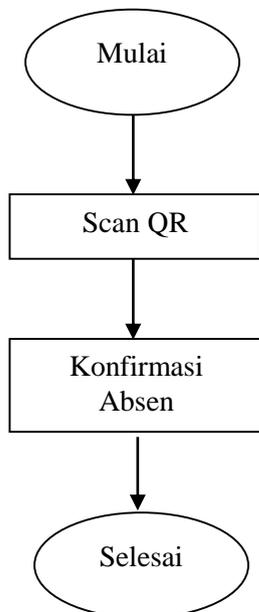

Figure 1. Data Flow Diagram (DFD)

b. *Entity-Relationship Model* (ERD)

The results of the database analysis of the QR Code Attendance System in the next stage is to create a relationship structure (*Relationship*) for each entity that is interconnected or has a need for other entities. The results of the creation of the *entity-relationship model* (ERD) are shown in Figure 2.

c. *Architectural Design of*

Information Technology Infrastructure Library

3 (ITIL v3) (2011), defines information technology architecture as all aspects including hardware, software, network devices and other necessary facilities. for development, testing, regulation and support for information technology applications and services. All aspects must be managed as they run to ensure these elements operate as they should and form a smooth operation so as to meet user requirements.
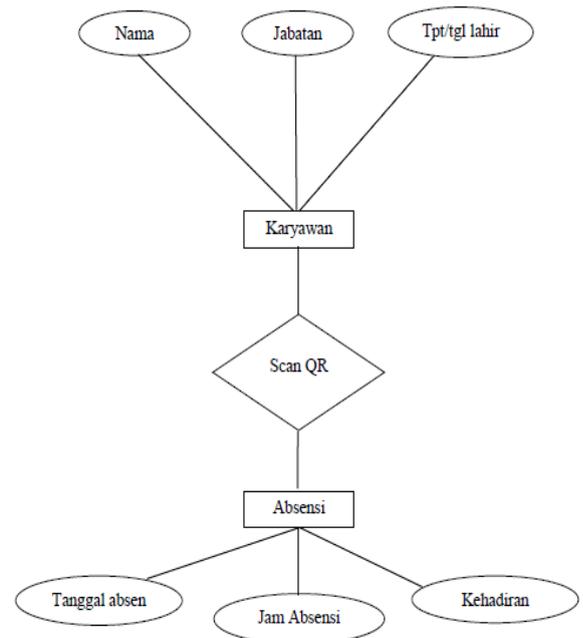

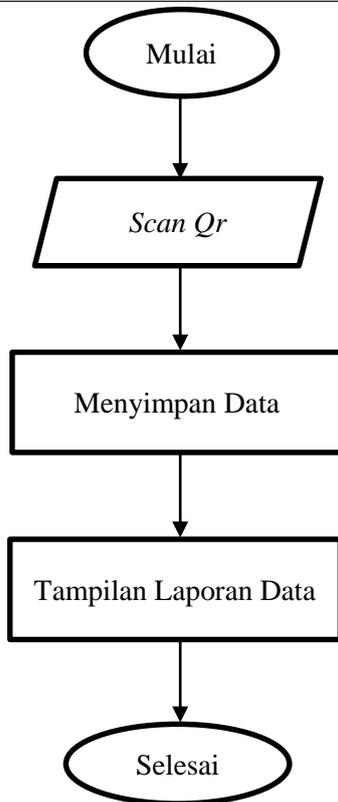Figure 2. Entity-Relationship Model (ERD)

Figure 3.Flowchart

d. Interface Design

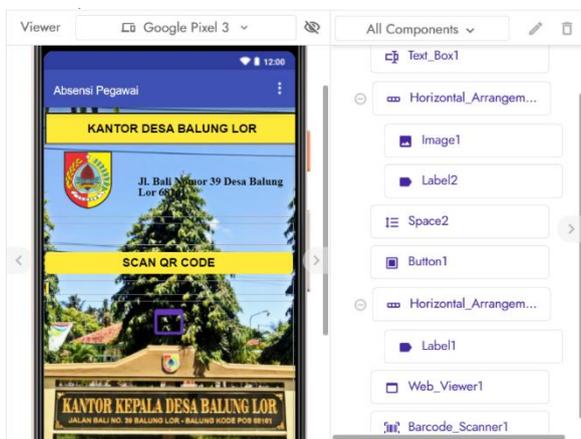*Layout for* creating aapplication *QR Code* with an image design as shown in Figure 4.

Figure 4. *Layout for* creating aapplication *QR Code* with an image design

Layout in Figure 4 simply illustrates the layout and featuresapplication *QR Code* that will be used. Thisapplication *QR Code* has 6 sections, namely *Text_Box1, Image1, Label2, Button1, Web_Viewer1,* and *Barcode_Scanner1*. Thesection *Text_Box1* is to display the text "OFFICE VILLAGE BALUNG LOR". Thepart *Image1* is to display the logo which is just below

text_box1. Thesection *Label2* is to display the text "Jl. Bali Number 39 Balung Lor Village 68161". Thesection *Button1* is used to scan barcodes. Thepart *Web_Viewer1* is to display a report that the attendance was successful. Thesection *Barcode_Scanner1* functions when we click the button1 button, we are directed to the camera so that we can scan the barcode.

To access thisapplication *QR Code* , you can use any type of web browser. So you don't need a special web browser to access it and to make the application you can use Kodular.

Result and Discussion

a. **System Implementation**

The initial stage of implementing the system that has been made at the design stage. Implementation aims to translate the design based on the results of the analysis in a language that can be understood by the machine.

Specification*(hardware)*to build a system of attendanceapplications *QR Code* based on Android are:
1. *Core Processori3-1005G1* speed1:20 GHz
2. 4 GB RAM capacity of
3. 256 GB SSD Capacity
4. 14 Inch HD LCD Monitor
5. *MouseUSB*
6. VGA: Geforce MX 330 2GB

Software specifications to build anattendance application system, *QR Code* Android-basednamely:
1. Operating System: *Windows 10 Home + OHS 2019*
2. Kodular as aapplication builder
3. Google Formas inputting
4. Google Sheet employee data as a recap of employee data
5. QR Explore as abarcode creation
6. Internet *Google Chrom*

b. **How to Install**

The initial step is to install the Scanner_Kehadiran application, where the admin must enter the coded website to export the project results first to be used as an android app. Next, the admin can share the results of the export to the user. The next step the user can install the

59

application is like installing applications in general. After all stages have been completed, the Scanner_Kehadiran application is ready to be used.

c. **Instructions for Use of the Program**

The display of the application program is a stage to explain the use of the application that has been made. This display aims to introduce to the *user* (users) to make it easier to run this application program.

Figure 5. Main Menu

The main page is a display when you just enter theapplication *QR Code*. The display of the *QR Code* Android-BasedApplication can be seen in Figure 5. The main page display contains the Scanmenu *QR Code*. The menu can be inputted by the user to perform attendance. On the display, thisscan *QR Code* functions for the user when doing attendance or scanning barcodes. Here's a view of the layout of this system.
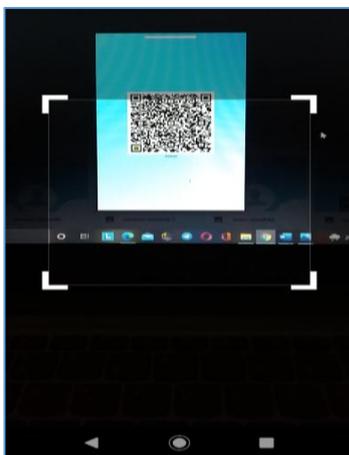

Figure 6. Scan QR Code The

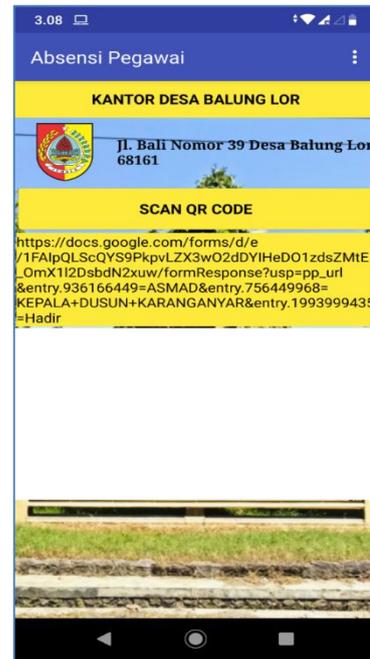menu after the user scans the barcode is as follows:

Figure 7. After scanning the barcode

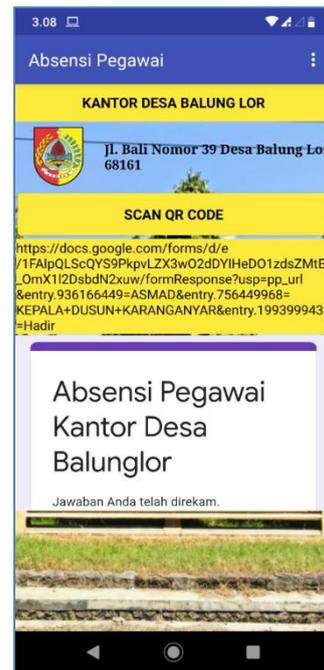This menu is a display when successfully performing attendance.

Figure 8. Display of successful attendance

System evaluation and testing aims to ensure that the application has been made correctly according to the needs and the functions that exist in the application have been running as expected. With this test, it is hoped that application deficiencies or

60

weaknesses can be corrected before being implemented in real terms.

d. Feature Testing

The application testing process is carried out by installing the application, then testing thescan application *Qr code* whether it can function properly or not.

Table 1. Test for attendance

Test Case	Purpose	Input	Expected output	Figure
1.	For scanning the barcode	Input Qr Code	Scan the QR Code successfully	Figure 6
2.	For bringing up the attendance link	Clicking on the link that appears after scanning the barcode	Successfully perform attendance	Figure 8

e. Analysis of Test Results

Analysis of the results of this test is used to determine the results of the feasibility of a system by conducting analysis. Analysis of test results on theattendance application *Qr Code* Android-basedis carried out on test analysis on the basic features of the system.

The basic features of the system are considered feasible if the overall results of this trial are in accordance with *output* the expected. From a series of tests that have been carried out on the basic features of the system, it is concluded that the overall testing of the application has gone well and there are no *errors*.

f. Maintenance Process

Information system maintenance is an effort to improve, maintain, cope with, develop the system. This maintenance is needed to increase the efficiency and effectiveness of application performance so that its use can be optimal. To carry out maintenance of the Android-based Qr Code attendance application, the party who performs the maintenance is not only the initial software developer but other parties who specialize in the field of software maintenance. The types of maintenance processes that can be carried out are as follows:

1) System Troubleshooting & Optimization
- Install, configure, and maintain Server computers, clients, and other computer network devices such as hub-switches, routers and internet modems.
- Support, monitor, and test troubleshooting hardware and software problems that intersect with all devices in the computer network system.
- Installing, troubleshooting, and repairing existing connections in the transmission and distribution system in the local work network / Local Area Network.
- Manage the installation, maintenance, support and upgrade of servers, desktops/laptops, software and operating systems.

2) Recovery & System Back-Up
- Monitor and manage data back-up in LAN network.
- Ensure the continuity of network systems, data security, and storage systems.

3) System Upgrade & Security
- Install new systems, supporting equipment, related to improving computer network performance.
- Install and periodically update anti-virus, anti-spyware, and other applications that function to protect the system and computer from damage caused by malicious programs such as viruses and others.

g. AndroiD Based Qr Code Attendance Application Maintenance The

-system maintenance steps consist of:

1) System usage: must be in accordance with their respective job functions for routine employee attendance operations.
2) System Maintenance: perform routine checks so that the system continues to operate properly. In addition, the system also maintains if at any time there is a change in the system environment or modification of the software design.
3) System Repair: performing operations, errors (bugs) in the program or design weaknesses were not detected during the testing phase of the employee attendance information system.
4) System Improvement: make modifications to the system when there is a potential for system improvement after the system has been running for some time, usually the potential for system improvement is then forwarded to an information systems specialist for modifications as desired.
5) Systems Audit: conducts formal use and research to determine how well the new system meets performance criteria. This is called a post-implementation review and can be carried out by

61

an internal auditor.

Maintenance activities include the following:

1) Addition or repair of software products.
   a. Added new functions
   b. Improved display and interactive mode
   c. Updating external documents
   d. Updating performance and system characteristics
2) Adapting products to new operating environments (hardware, operating systems, etc.), such as:
   a. Software transfer to other hardware.
   b. Modifications to be able to use additional protocols etc.
3) Correction of problems that arise, namely correcting errors that arise after the software product is used by the user.

h. The Importance of Maintainance for Android Based Qr Code Attendance Applications

Software maintenance is a general process of changing or developing software after it is handed over to the user. Changes can be simple changes to correct coding errors or more extensive changes to correct significant design errors/fixes.

The maintenance phase is carried out after the development and implementation stages. In the maintenance phase, an evaluation process is also carried out which aims to find out what things need to be improved from a software. According to ISO 9126, good software must have maintainability characteristics, which means that it is easy to repair when needed. A system needs to be maintained for the following reasons: The

- system has errors that have not been detected before, so system errors need to be corrected.
- The system undergoes changes due to new requests from system users.
- The system undergoes changes due to changes in the external environment (business changes).
- The system is infected with active malware.
- File system corrupt.
- Hardware is weak.

There are several benefits of maintaining software in information systems, such as the following.

1) Ensure compliance with software technical functionality requirements.
2) Can improve the efficiency of the software as well as its maintenance activities.
3) Ensure the suitability of the needs of the manager regarding the schedule and budget.

In addition, there are other reasons that

underlie the importance of system maintenance or maintenance system, namely:

1) Fix *(Correcting* Errors)

   Maintenance done to overcome failures and problems arise when the system is operated. For example, maintenance can be used to reveal programming errors (bugs) or weaknesses during the development process that were not detected in system testing, so that these errors can be corrected.
2) Guarantee and Improve System Performance (Feedback Mechanism)

   Post-implementation review of the system is one of the maintenance activities that includes periodic system reviews. Periodic reviews or system audits are carried out to ensure the system is running well, by continuously monitoring the system for potential problems or the need for changes to

the system. For example, when a user encounters errors when the system is in use, the user can provide feedback or feedback to information specialists to improve system performance. This makes maintenance necessary to be carried out regularly, because system maintenance always ensures that the new system implemented is running well and in accordance with its intended use through a feedback mechanism.

3) Maintaining System Updates

   Apart from being a process of error correction and post-implementation studies, maintenance also includes the process of modifying systems that have been built due to changes in the organization or business environment. Thus, system maintenance maintains system updates (system updates) through system modifications carried out.

Conclusion

From all the activities that have been carried out, it can be concluded as follows:

1. The attendance application can change every manual activity to computerized so that it is easier and more modern.

2. Attendance applications can record detailed attendance activities in hourly calculations.

3. Recording attendance by this application can reduce the risk of losing attendance data.

References

Jogiyanto, H. M, (1999), Analisis dan Desain Sistem Informasi, Yogyakarta: Andi.

Kadir, Abdul, (2003), Perancangan Sistem Informasi, Yogyakarta: Andi.

Komputer, Wahana, (2013), Mobile Web Development with Adobe Dreamweaver CS6, Yogyakarta: Andi.

Marlinda, Linda, (2004), Sistem Basis Data, Yogyakarta: Andi.McLeod, R., (1998), Sistem informasi Manajemen Jilid I, Prenhallindo, Jakarta

Rahman, MF, & Yaqin, MA (2019). Qr Code Attention Based On E-Confirmation (Telegram Bot) And E-Notification With Google Access Technology. Teknika: Engineering and Science Journal, 3(1), 7. https://doi.org/10.51804/tesj.v3i1.402.7-12

Supendi, Y., Supriadi, I., & Isto, AAW (2019). Utilization of QR-Code Technology in Mobile-Based Student Attendance System. National Seminar, p.550–558.

Tiko, Dwi, (2014), 10 Manfaat Dan Keutungan Memiliki Website Bagi Perusahaan, diakses 10 April 2021, dari website: www.blog.riauhost.net.

Wijaya, Causa, (2012), Perancangan Sistem Pemesanan Tiket Travel Berbasis Web, diakses 25 April 2021, dari Website Universitas Diponegoro: www.ejurnal.undip.ac.id.

Yakub, (2012), Pengantar Sistem Informasi, Yogyakarta: Graha Ilmu.