

## **ONLINE ATTENDANCE SYSTEM WEBSITE-BASED AT THE VILLAGE HALL OFFICE PAYA BAKUNG USING THE WATERFALL METHOD**

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### **ABSTRACT**

*Attendance is a system for recording employee attendance which is carried out in every agency, including government agencies. The Paya Bakung Village Hall Office still applies a manual attendance system so that the recording of employee attendance activities is still relatively minimal. Performing the attendance process manually takes a long time to record incoming hours, outgoing hours, or recap employee attendance reports. From these problems, the author designs and builds a computerized attendance system that can record all attendance activities of employees. Each employee has their own account that can be accessed through the employee's device. Employees can do absent entry and absence every day. The admin records all absent data entered by employees. The web-based attendance system in this study was created using the waterfall method consisting of Requirement Analysis, System and Software Design, Implementation and Unit Testing, Operation and Maintenance. This attendance system provides great benefits for the Paya Bakung Village Hall Office.*

**Keywords:** *Attendance, Office, Information System*

### **1. Introduction**

Attendance is very important in monitoring employee attendance. Many employees or employees who often neglect their duties or often come late for work enter the office. Monitoring using manual attendance can cause falsification of attendance data such as hours of entry and exit hours so that it can harm parties agency (Bah & Ming, 2020; Bhatti et al., 2018; Salim et al., 2018; Hamzah et al., 2022).

The Paya Bakung Village Hall Office is one of the government agency offices that functions to regulate the village. This office has several employees whose work schedules have been determined. The use of attendance in this office is still using the manually by recording incoming and outgoing hours. The development of the attendance system currently has good technology that can take advantage of the website in conducting employee attendance (Zhao et al., 2022; Xun et al., 2022; Hamzah et al., 2021).

The author tries to design a website-based attendance system that will be used at the Paya Bakung Village Hall Office. By using their respective devices, employees can carry out the attendance process easily without having to use a PC computer provided by the agency. Attendance can record the date, time of entry, hour of exit and notes if employees experience delays or take attendance outside working hours determined by the Paya Bakung Village Hall Office. This is expected to maintain the comfort and honesty of employees during work absences. The website-based attendance process can be carried out to provide benefits to the Paya Bakung Village Hall Office.

Attendance is a data collection activity to determine the presence and absence of a company employee (Malah et al., 2022). Erna in Fadila & Septiana, (2019) revealed that attendance is a routine activity carried out by company employees to prove that the employee is present or not working for the company. Website-Based Online Attendance is Attendance that is used by most companies (Hamzah et al., 2022; Barokhah et al., 2022; Khairani et al., 2022; Hamzah & Irwansyah, 2021).

From previous research, similarities and differences can be found with the research conducted this time. The similarities are in the first researcher, previous and current researchers

are both building a website-based attendance system using the waterfall method. The difference with the second study is that previous research built an Android-based attendance system application. From the similarities and differences above, it can be concluded that, even though the attendance system is based on a website or based on Android, the researcher hopes that this research will be able to overcome the problem of the weakness of the manual attendance system that still uses books (Aryanti & Karmila, 2022; Febriandirza, 2020; Tambak et al., 2022).

## 2. Research Methods

### Research Stages

The author uses the stages of research based on the Waterfall method. There are several steps taken in this research, including:

#### Requirement Analysis

The author conducted several information collections consisting of discussions, surveys, interviews and direct field observations.

#### System and Software Design

The author does the design to provide a complete picture of the system to be built. Planning hardware requirements in manufacture the software system architecture is also prepared in this section in order to keep the system building running smoothly.

#### Implementation and Unit Testing

The author implements the system built in detail. Inspection and testing of the system as a whole is carried out in order to see the gaps in the failure and errors of the system being built.

#### Operation and Maintenance

The author performs system maintenance for repairing errors found on the system that has been tested. System maintenance consists of in-depth system unit repair and performance improvement of the system.

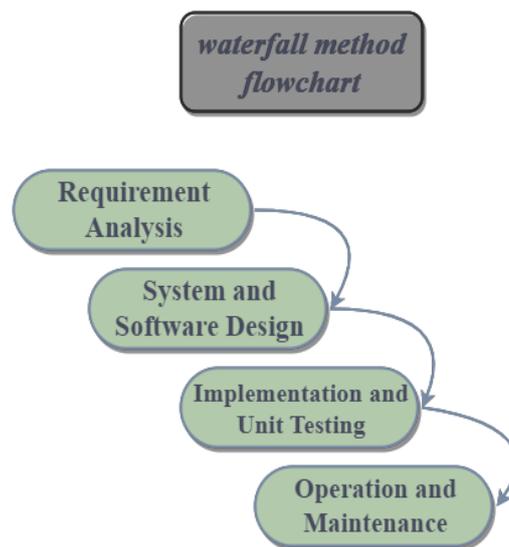


Fig. 1. Waterfall Model

## 3. Results and Testing

This section will explain the results of making an attendance system at the Paya Bakung Village Hall Office which consists of an admin and employee system. There are several interfaces that will be described in this section which is an important part of the system being built. The system consists of an admin system and an employee system.

### System planning

The following is a system design used in building an attendance system at the Paya Bakung Village Hall Office which is described in the form of a use case diagram.

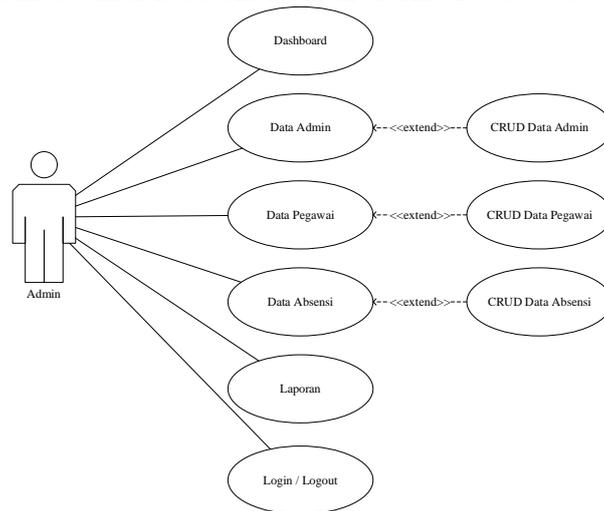


Fig. 2. Use Case Diagram Admin

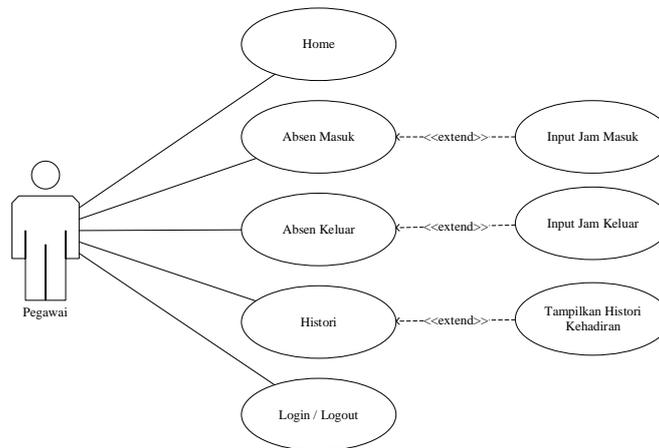


Fig. 3. Employee Use Case Diagram

**Database**

The database built will be used to store attendance data at the Paya Bakung Village Hall Office. This database design has several tables. Each table has a data structure with a predetermined number of fields. Tables 1 to 3 are tables that are used in the manufacture of freight forwarding applications.

Table 1 - Admin Table Structure

No.	Field Name	Data Type	Field Size
1	id_admin	Int	11
2	nama	Varchar	32
3	username	Varchar	32
4	password	Varchar	32

Table 2 - Pegawai Table Structure

No.	Field Name	Data Type	Field Size
1	id_pegawai	Int	11
2	pegawai	Varchar	32
3	jabatan	Varchar	32
4	tempat_lahir	Varchar	32

5	tanggal_lahir	Date	
6	jenis_kelamin	Varchar	10
7	pendidikan	Varchar	10
8	telepon	Varchar	15
9	alamat	Varchar	50
10	username	Varchar	32
11	password	Varchar	32

Table 3. Attendance Table Structure

No.	Field Name	Data Type	Field Size
1	id_absensi	Int	11
2	id_pegawai	Int	11
3	tanggal	Date	
4	jam_masuk	Time	
5	jam_keluar	Time	
6	catatan	Varchar	200

### Admin System

The admin system is used to manage incoming attendance data which consists of admin, employee and attendance data processing. The following is the result of the implementation of the admin system.

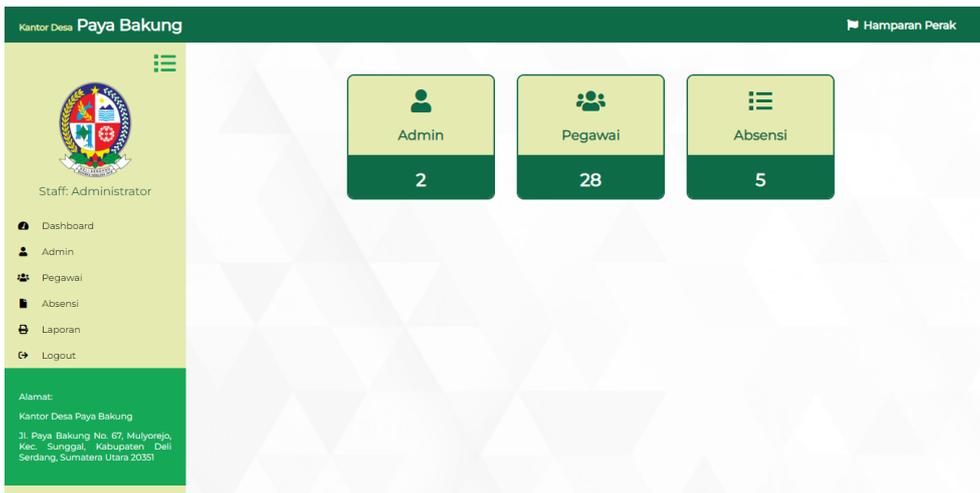


Fig. 4. Dashboard Page

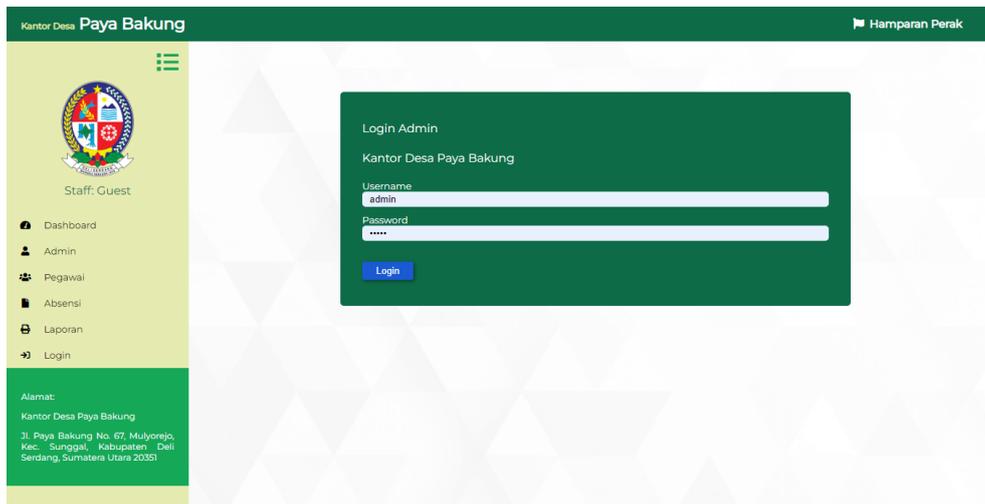


Fig. 5. Admin Login Page

### Employee System

The employee system is used directly by employees of the Paya Bakung Village Hall Office through their respective devices. The following are the results of the implementation of the employee system.

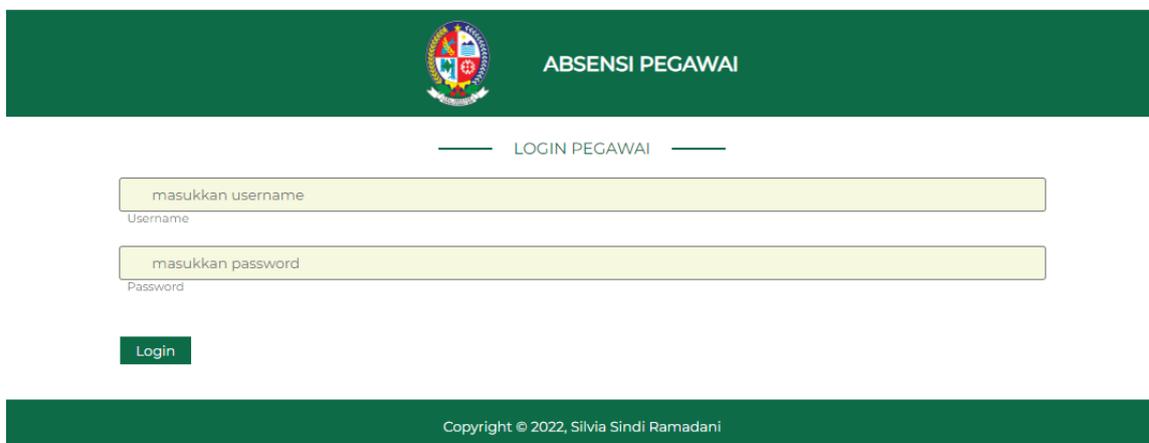


Fig. 6. Employee Login Page

Fig. 7. Attendance Page

No.	Pegawai	Tanggal	Jam Masuk	Jam Keluar	Catatan
1	Pariono	12 Aug 2022	08:00	16:21	Terdapat urusan keluarga yang mendadak
2	Abdullah	13 Aug 2022	08:09	17:01	Kondisi Perjalanan Sedikit Padat
3	Ermansyah	13 Aug 2022	07:57	17:12	
4	Pariono	13 Aug 2022	07:58	17:09	
5	Muhammad Fajar Syahputra	13 Aug 2022	10:17	17:07	Menghadiri vaksinasi ke 3

Fig. 8. Attendance Report

**System Test**

In the Online Attendance system in this study, testing was carried out using the *Blackbox Testing* method. Based on the tests carried out, it can be concluded that all the expected functionality requirements have met the criteria or run well as desired.

Table 4 - Testing

No	Testing	Empty Data Validation	Wrong Data Validation	Button Function
1	Login Admin	√	√	√
2	Login Employee	√	√	√
3	Attendance	√	√	√
4	Attendance Report	√	√	√

**5. Conclusion**

The Paya Bakung Village Office is one of the government agencies that has an obligation to provide and improve services to the community village as stated in Law number 6 of 2014. Attendance employees are very influential on work productivity in the agency government-related public services. Attendance is an important thing to do at the Paya Bakung Village Hall Office. The attendance process will be better using a computer system so that employee attendance data becomes more accurate and transparent. The system that was built can solve the problem of previous attendance that still uses the manual method. This attendance system provides great benefits for employees and the Paya Bakung Village Hall Office

## References

- Aryanti, U., & Karmila, S. (2022). Sistem Informasi Absensi Pegawai Berbasis Web di Kantor Desa Nagreg. *INTERNAL (Information System Journal)*, 5(1), 90-101.
- Bah, S. M., & Ming, F. (2020). An improved face recognition algorithm and its application in attendance management system. *Array*, 5, 100014.
- Barokhah, A., Hamzah, M. L., Saputra, E., & Muttakin, F. (2022, June). An Integration of End User Computing Satisfaction and Importance Performance Analysis on Website. In *2022 IEEE International Conference on Cybernetics and Computational Intelligence (CyberneticsCom)* (pp. 212-217). IEEE.
- Bhatti, K., Mughal, L., Khuhawar, F., & Memon, S. (2018). Smart attendance management system using face recognition. *EAI Endorsed Transactions on Creative Technologies*, 5(17).
- Fadila, R., & Septiana, M. (2019). Pengaruh Penerapan Sistem Absensi Finger Print Terhadap Disiplin Pegawai Pada Markas Komando Direktorat Pengamanan Badan Pengusahaan Batam. *Journal of Applied Business Administration*, 3(1), 53-63.
- Febriandirza, A. (2020). Perancangan Aplikasi Absensi Online Dengan Menggunakan Bahasa Pemrograman Kotlin. *Pseudocode*, 7(2), 123-133.
- Hamzah, M. L., Purwati, A. A., Sutoyo, S., Marsal, A., Sarbani, S., & Nazaruddin, N. (2022). Implementation of the internet of things on smart posters using near field communication technology in the tourism sector. *Computer Science and Information Technologies*, 3(3), 194-202.
- Hamzah, M. L., Rizal, F., & Simatupang, W. (2021). Development of Augmented Reality Application for Learning Computer Network Device. *International Journal of Interactive Mobile Technologies*, 15(12).
- Hamzah, M. L., Rahmadhani, R. F., & Purwati, A. A. (2022). An Integration of Webqual 4.0, Importance Performance Analysis and Customer Satisfaction Index on E-Campus. *Journal of System and Management Sciences*, 12(3), 25-50.
- Hamzah, M. L., & Irwansyah, M. D. (2021). Rancang Bangun Sistem Informasi Keuangan Berbasis Web Pada PT. Riau Samudera Mandiri. *INTECOMS: Journal of Information Technology and Computer Science*, 4(2), 456-470.
- Khairani, P., Hamzah, M. L., Megawati, M., & Jazman, M. (2022). Evaluasi Kinerja Sistem Informasi Elektronik Kinerja ASN (SI-EKA) Menggunakan Framework Cobit 5 Pada Kementerian Agama Kota Pekanbaru. *INTECOMS: Journal of Information Technology and Computer Science*, 5(1), 8-18.
- Malah, I., Sumual, H., & Rianto, I. (2022). Perancangan Sistem Absensi, Tracking Guru dan Siswa di Sekolah Menengah Kejuruan. *Edutik: Jurnal Pendidikan Teknologi Informasi dan Komunikasi*, 2(2), 159-171.
- Salim, O. A. R., Olanrewaju, R. F., & Balogun, W. A. (2018, September). Class attendance management system using face recognition. In *2018 7th International conference on computer and communication engineering (ICCCE)* (pp. 93-98). IEEE.
- Tambak, S., Hamzah, M. L., Purwati, A. A., Irawan, Y., & Umam, M. I. H. (2022). Effectiveness of Blended Learning Model Based on Problem-Based Learning in Islamic Studies Course. *International Journal of Instruction*, 15(2).
- Xun, H., Zou, B., & Duan, C. (2022). Design of the Student Attendance Management System Based on the Internet of Things Technology. *Mobile Information Systems*.
- Zhao, M., Zhao, G., & Qu, M. (2022). College smart classroom attendance management system based on internet of things. *Computational Intelligence and Neuroscience*, 2022.