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TECHNICIAN ABSENCE INFORMATION SYSTEM DESIGN PT RPS TANGERANG WEB-BASED USING WATERFALL METHOD

[1*]Faidal Shahputra, [2]Afrizal Zein
Sistem Informasi, Universitas Pamulang, Tangerang Selatan, Banten, Indonesia
faidal651@gmail.com , dosen01495@unpam.ac.id ,

ABSTRACT

Because of the many jobs in the company using information technology to help office work. Employee attendance related to employee performance and discipline in the company is an important thing for the company. PT RPS is a company of various business units, including labor services. The problems that exist in the company are long absences that become long queues, leave applications that must use paper and meet HRD directly and there is no leave recording and employee absence processes that do not have an accurate system. The purpose of this absence and leave application can overcome the problem of absence and work report / report. The web-based attendance system requires PHP language and the WATERFALL method with stages such as needs analysis, system design, implementation, testing and maintenance to create a system as expected. The results of this study are that the attendance system with this website can help employees in attendance and can help the attendance recapitulation process. And the test results in the application show that this website-based attendance and work report application all functions run well without any problems or errors in the application so that it can be implemented in the organization.

Keywords: System, attendance, waterfall method, MySQL, website

INTRODUCTION

In the modern era, information is a crucial aspect in increasing knowledge and broadening perspectives on the outside world. Sari, Intan Permata (Jurnal Ilmu Data 2.2, 2022:1) explains that information is data that has been processed to have meaning and utility for the recipient. Furthermore, technological developments are also crucial for adapting to the dynamics of changing times.

The development of information technology, particularly the internet, has transformed various aspects of life, including the business and corporate sectors. The use of web-based attendance systems has become a primary requirement for many companies, seeking more flexible and accessible attendance management. The purpose of creating web attendance systems is to simplify the attendance administration process, improve accuracy and security, and provide convenience for users and management in managing and reporting attendance.

The development of an employee management system for submitting absences requires stages that include observation and interviews with stakeholders. The data obtained is then used to design an effective and systematic system. The design is described using UML (Unified Modeling Language), while the implementation uses the PHP (Hypertext Preprocessor) programming language with a MySQL database. With this background, the author determined the title of the thesis: "Design of a Website-Based Attendance Information System for PT RPS Technicians Using the Waterfall Method to Improve Employee Discipline at PT RPS Tangerang".

METHOD

The stages in the Waterfall model consist of the following steps:

a. Needs Analysis

The first stage is gathering and analyzing system requirements. This stage involves identifying user needs, system specifications, and conducting preliminary design work to determine the key features and functions the system must have.

b. System Design

Once the system requirements are determined, a comprehensive system design is performed. This stage includes system architecture design, database design, and user interface design to ensure the system functions effectively according to the specified requirements.

c. Implementation (Coding)

At this stage, the system begins to be developed based on the design that has been created. This process involves writing program code to implement the previously designed functions.

d. Testing

After implementation is complete, testing is conducted to ensure the system functions properly and without errors. This testing includes functionality, compatibility, and security testing to ensure the system operates as expected.

e. Maintenance

Once the system is implemented, a maintenance phase is carried out to fix bugs, optimize performance, and make system updates if necessary based on user feedback. The Waterfall method provides a systematic approach to software development, allowing each stage to be executed in a structured manner. This model allows for systems to be developed more consistently and in accordance with user needs.

RESEARCH RESULT

1. Current System Analysis

The current attendance system at PT RPS still uses a conventional method of manual recording using a timesheet. Technicians are required to complete the attendance register each morning before starting work and then record their departure time again in the evening. This process has several significant drawbacks for the company's operations.

The main problem faced is the difficulty of monitoring the attendance of technicians working in the field or at different project locations. This manual system is also vulnerable to data manipulation, such as leaving absences or inaccurate time recording. Furthermore, the monthly attendance data recapitulation process is quite time-consuming because it must be done manually by HR, resulting in frequent delays in the preparation of technician attendance reports.

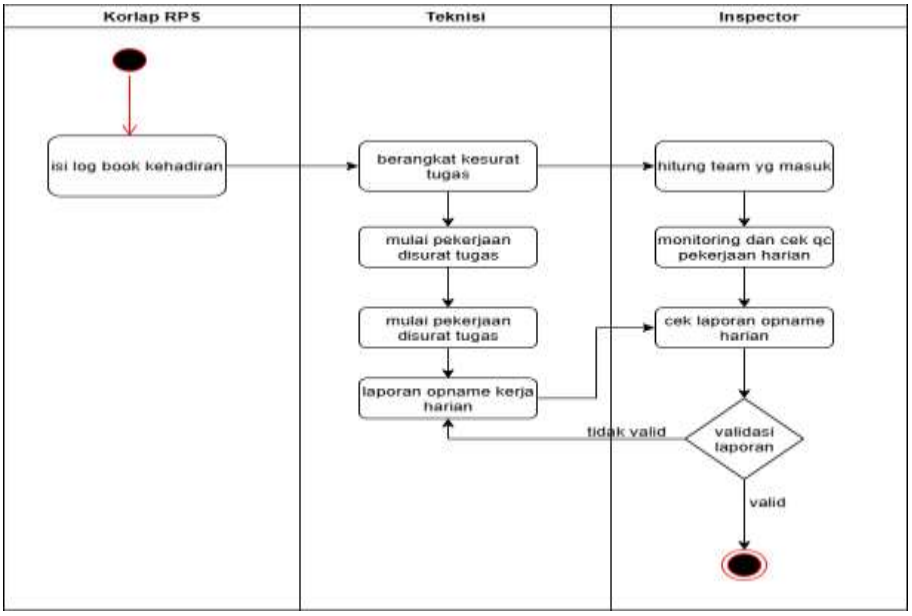


Figure 3.1Current System Analysis

2. Proposed System Analysis

Based on an analysis of the existing system, PT RPS requires a digital attendance system that can accommodate the company's needs in managing technician attendance. The proposed system must be capable of recording attendance in real time using technology that is easily accessible to all technicians. Functional requirements include automatic check-in and check-out features, GPS location recording, automatic notifications for late arrivals, and an integrated reporting system.

From a non-functional requirements perspective, the system needs to be designed with high security to protect employee data, reliable performance for concurrent users, and a user-friendly interface. Given that the majority of technicians work in the field, the system must also support access via mobile devices.

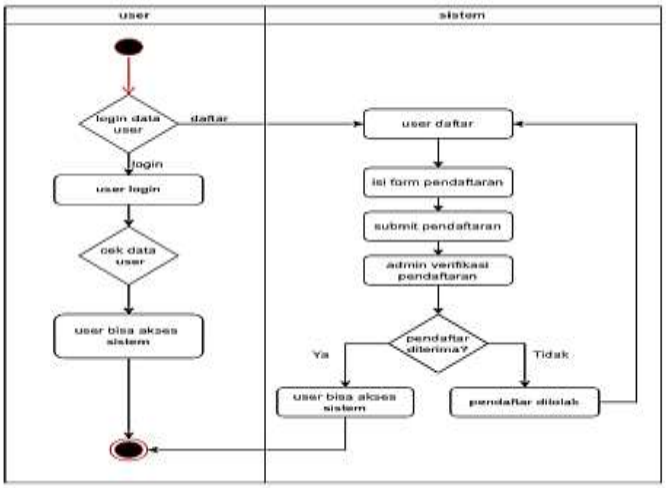


Figure 3.2Analysis of the proposed system

Design

The next design creates a use case diagram with the aim of making it easier for users to map access for each actor. *Use case diagram*is a tool that describes scenarios or actions that can be performed by users or actors when interacting with a system. This diagram shows the relationships between actors, use cases (system functionality), and the connections between the two.

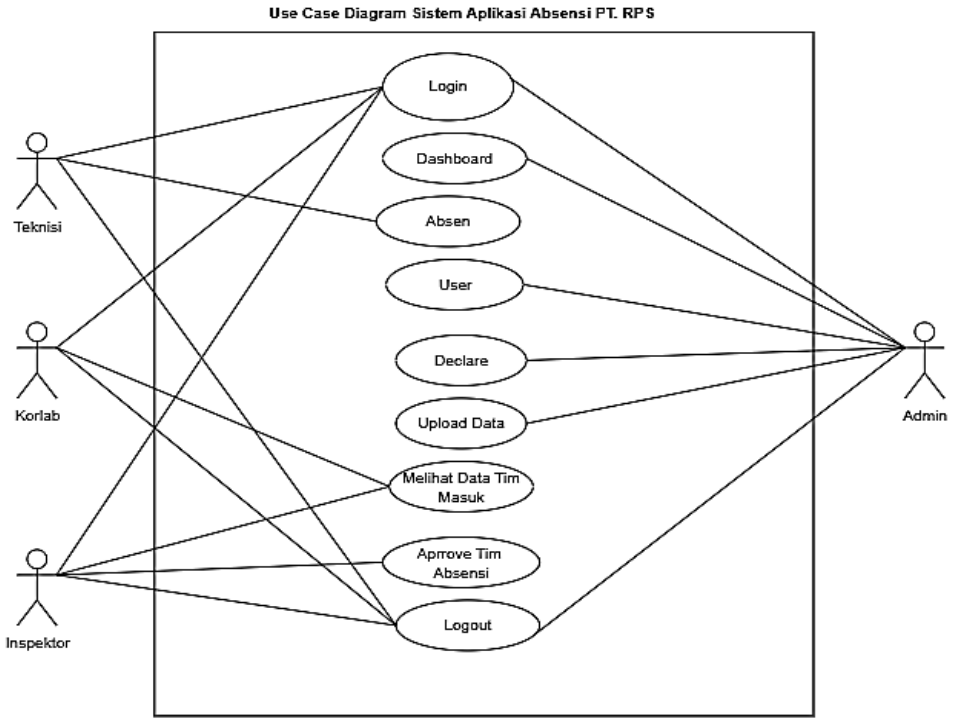


Figure 3.3 Use Case Diagram

*Class diagram*is to describe the structure and relationships between classes in an object-based system. This diagram provides an overview of the entities that play a role in the system, as well as the attributes and methods that each class has.

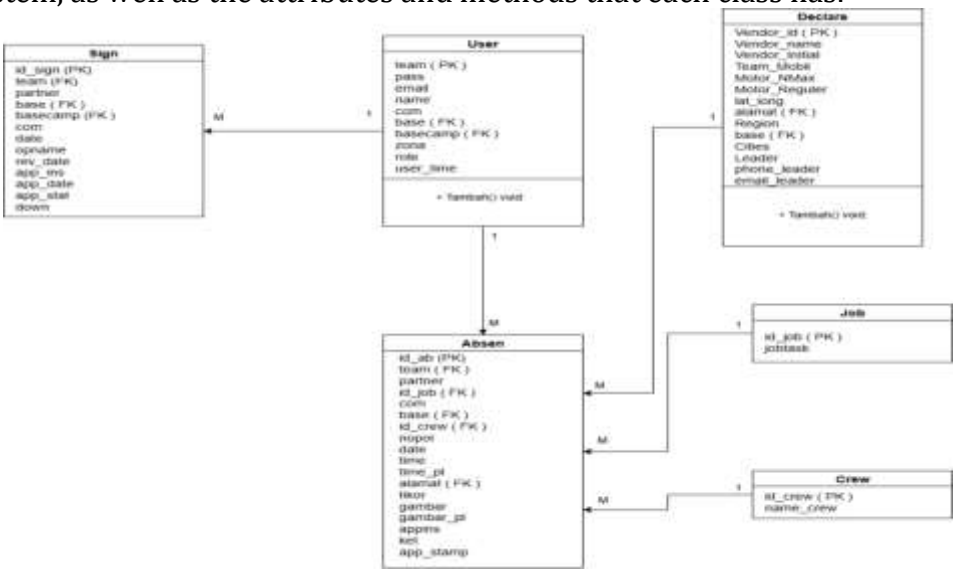


Figure 3.25 Class Diagram

3. User Interface

The interface implementation will display the application program's appearance, built according to the design. The following is an implementation of the interface from the previously created interface design:

4.2.1 Login Page View

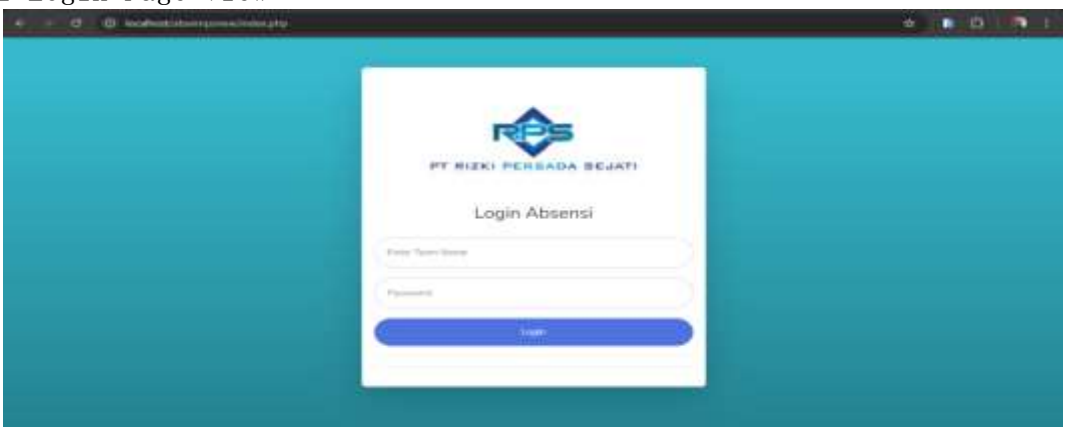


Figure 4.1 Page Views*Login*

This page display is the main page, namely the dashboard of the PT RPS attendance application which consists of a number of menus including the profile menu, and on this dashboard page there is a menu for logging in.

4.2.2 Admin Dashboard Page View

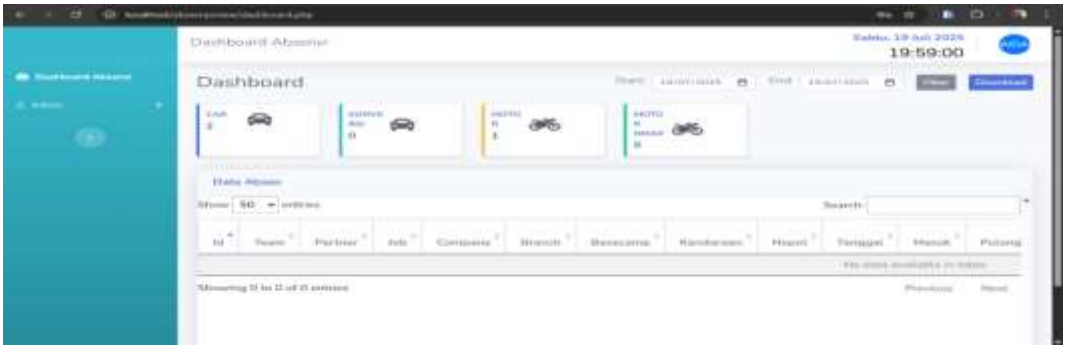


Figure 4.2 Admin Dashboard Page View

This Admin Dashboard page is used by both users and admins. It contains a form for entering a username and password. If the login is successful, the admin and user will be directed to the main page. If the username and password entered are incorrect, the admin and user will be unable to access the main page and will be prompted to re-enter the correct, registered username and password.

a. The appearance of the coordinator dashboard after being checked by the inspector

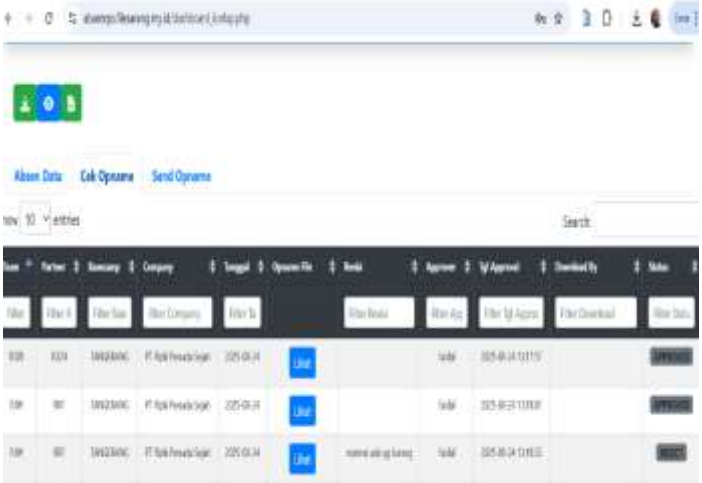


Figure 4.3 Display of the coordinator dashboard after being checked by the inspector

b. The attendance results of the incoming team can be downloaded by

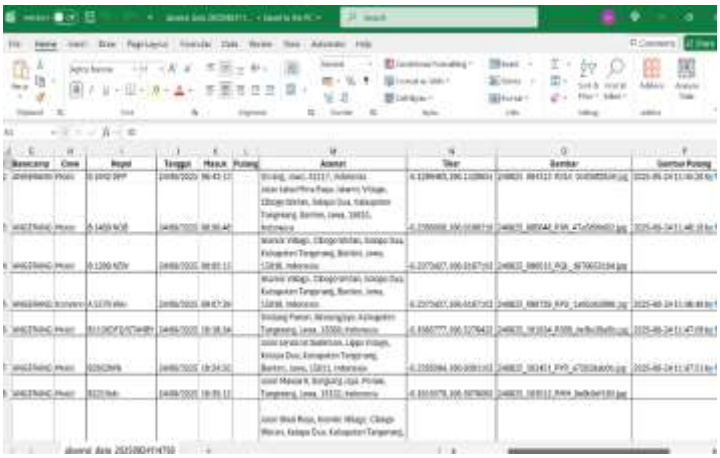


Figure 4.4 The team attendance results can be downloaded by the coordinator

c. The technician is absent and has gone home.

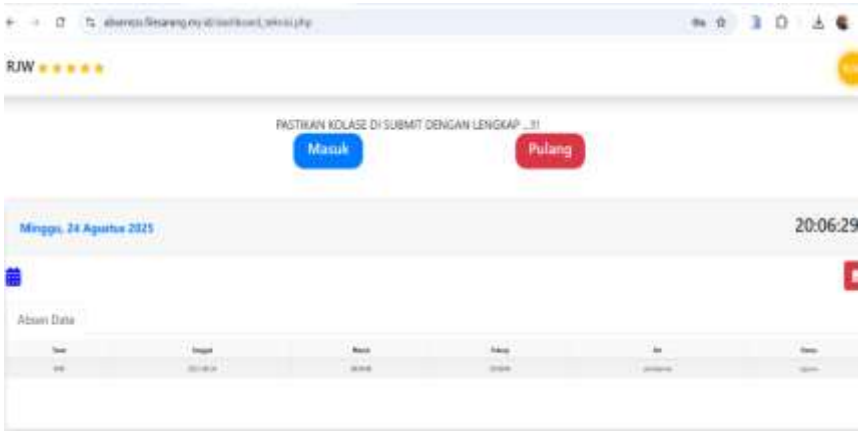


Figure 4.5 The technician has already checked in and gone home

CONCLUSION

Based on the results of research, analysis, and development of a web-based PT RPS Tangerang technician attendance information system using the Waterfall method, the following conclusions can be drawn:

1. Designing a good attendance system to minimize manual errors can be achieved by building a web-based attendance system integrated with a database. This system reduces human error because the process of recording attendance and departure is automated and stored directly in the database, making it more accurate than manual methods.
2. The creation of an easy-to-understand user interface was achieved by applying user-friendly principles through simple design, clear navigation, and the use of familiar visual elements. This makes it easier for stakeholders and inspectors to record attendance and validate teams without requiring specialized technical expertise.
3. The attendance system can operate in real time and without interruption by utilizing web-based technology that is always connected to the server. With data validation and direct synchronization to the database, the attendance process can be monitored quickly and accurately, supporting the smooth operation of the company without any significant disruptions.

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