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ATTENDANCE SYSTEM FOR BATUBARA DISTRICT GOVERNMENT EMPLOYEES USING WEB TECHNOLOGY

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ABSTRACT

The attendance system is an important component in employee performance monitoring, particularly in government agencies where data accuracy and timeliness are crucial. In Batubara District Government, the conventional attendance recording process often encounters issues such as delayed input, data manipulation, and ineffective reporting. This research aims to develop a web-based attendance system to improve efficiency, accuracy, and transparency in recording employee attendance. The system was built through several stages including problem identification, literature review, data collection, system analysis, design, implementation, and testing. The resulting application allows real-time attendance recording through web-based access, featuring user authentication, attendance logging, employee data management, and automated reporting. Testing using the black box method indicated all functions operated correctly, and user feedback confirmed increased convenience and transparency. Despite challenges related to internet dependency and user adaptation, the system shows great potential in supporting modern and accountable human resource management practices in regional government.

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INTRODUCTION

Employee attendance is an important aspect of the human resource management system, especially in government agencies[1][2]. The level of employee discipline is often measured by their attendance in carrying out administrative duties and functions[3]. In the Batubara Regency Government, the attendance recording system is still mostly done manually or semi-digitally, which is prone to recording errors, data manipulation, and delays in the attendance recapitulation process. This has a direct impact on the accuracy of personnel data and the employee performance assessment process[4][5].

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With the advancement of information technology, especially the development of web-based applications, various administrative processes can be improved in efficiency[6][7]. A web-based attendance system allows the recording of attendance data in real-time, integrated, and accessible from various devices with an internet connection. This system also supports transparency and accountability of personnel data, as all data is stored in a centralised database and can be audited at any time[8][9]. Therefore, the development of a web-based attendance system is a relevant and strategic solution in supporting bureaucratic modernisation in the regions[10][11].

This research aims to design and implement a web-based attendance system for government employees in Batubara Regency. The system is designed to fit the needs of local administration, paying attention to ease of use, data security, and work time efficiency. By adopting web technology, this system is expected to minimise delays and manipulation of attendance data, as well as contribute to improving overall organisational performance[12][13].

METHODS

This research will be conducted in phases that will help accomplish the research's goals. The phases of this activity can be characterized as follows.

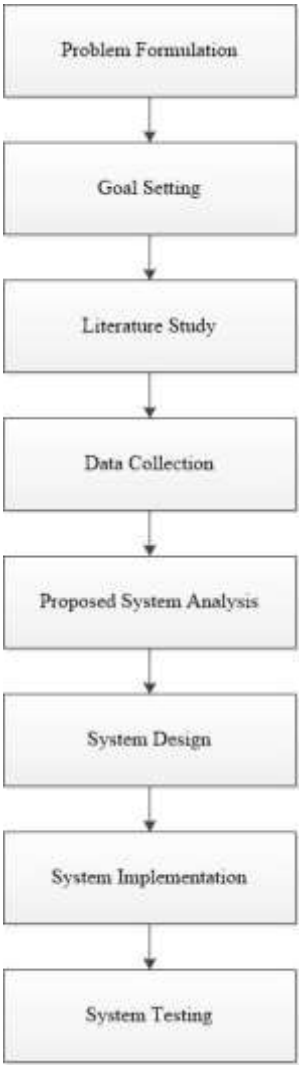

Figure 1. Research Stages

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The figure above illustrates the methodological stages used in the process of developing a web-based Batubara Regency Government employee attendance system. The stages are as follows:

1. Problem Formulation

   This initial stage aims to identify the main problems faced by government agencies related to the conventional employee attendance recording system. These problems are then formulated systematically to become the basis for designing technology-based solutions.

2. Goal Setting

   After the problem is formulated, the next step is to set the objectives of the research and system development. The goals include producing an attendance system that is accurate, efficient, and can be accessed online by employees and staffing administrators.

3. Literature Study

   A literature study was conducted to review various relevant scientific and technological references, including previous research on web-based attendance systems, supporting technologies, and personnel data management standards.

4. Data Collection

   This stage includes the process of collecting primary and secondary data, both through observation, interviews with employees and the staffing department, as well as documentation of the attendance system previously used.

5. Proposed System Analysis

   Based on the data obtained, a needs analysis of the proposed system was conducted. This stage involves identifying the main features, user workflows, and technical specifications needed to support the effective operation of the attendance system.

6. System Design

   In the system design stage, the user interface design, database structure, and system architecture are developed. This design is made so that the system is easy to use and in accordance with the flow of applicable personnel administration.

7. System Implementation

   Once the design is approved, the system is developed using web technologies. This stage includes the programming process, component integration, and system configuration according to the agency's needs.

8. System Testing

   The final stage is system testing to ensure that all features run well, data is stored accurately, and the system can be used optimally in real conditions. Testing is done both functionally and in terms of performance.

Method Of Collecting Data.

There are three parts to the data collection method used by the author. This method is carried out with several steps for good results from research in producing a good information system. There are several stages of data collection carried out by the author to obtain information, including:

1. Literature Study

   Literature study is a way of collecting data, studying, reading and searching for various existing references, be it books, journals, papers, etc. to collect data. Sources can be obtained from cyberspace.

2. Interview

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The author conducted interviews with the human resources department of PT Telkom Indonesia to obtain data on technician employees who work at the shipping and goods delivery company which can be used as sample data for the research.

3. Observation

The author was able to make direct observations at PT Telkom Indonesia every day during the research because the author was working at the company. The author records employees who attend the company directly and employees who work outside. Observations were carried out to collect data used in research.

RESULTS AND DISCUSSION

The web-based employee attendance system developed in this research was successfully implemented in the Batubara Regency Government and showed satisfactory results. The system is able to record attendance in real-time through computer and smartphone devices, with main features such as user login, attendance recording, attendance history, employee data management, and automatic report generation running well. Based on testing using the black box method, all system functions work in accordance with the design without any critical errors. The response from users also showed a high level of satisfaction because the system is considered more practical, efficient, and transparent than the previous manual attendance method. Nevertheless, the system implementation still faces challenges such as dependence on a stable internet connection and the need for further training for users, as well as integration into the wider staffing system. Overall, the system proved to be able to improve efficiency, accuracy, and accountability in recording attendance of government employees.

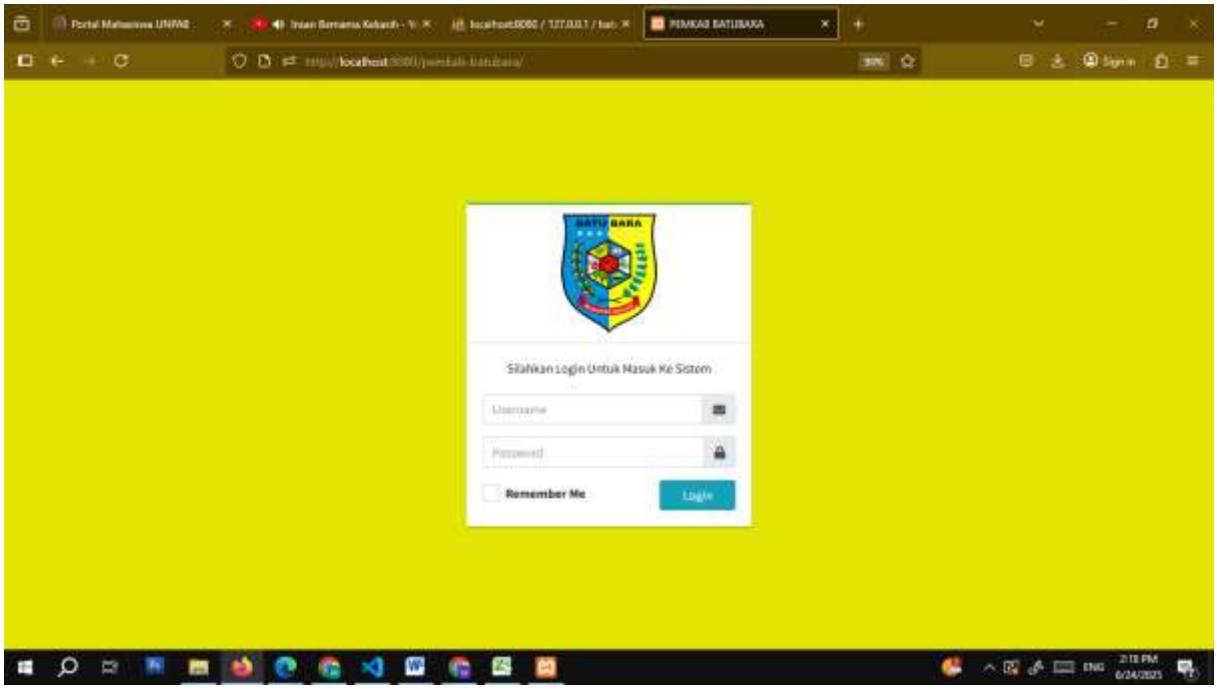

Figure 2. Login Page

Web pages or user interfaces that need users to provide identifying information, like a username and password, in order to access a system or service are known as login pages. Username: This is the section where users can enter their email address or username. The box where users enter their password is called "password." After a user inputs their username and password, the login button is used to email them their login details. Making sure that only authorized users can access a specific system or service is the goal of the login page.

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Consequently, this page's design prioritizes security and usability. To further improve account security, some login pages may additionally include extra security features like two-factor authentication.

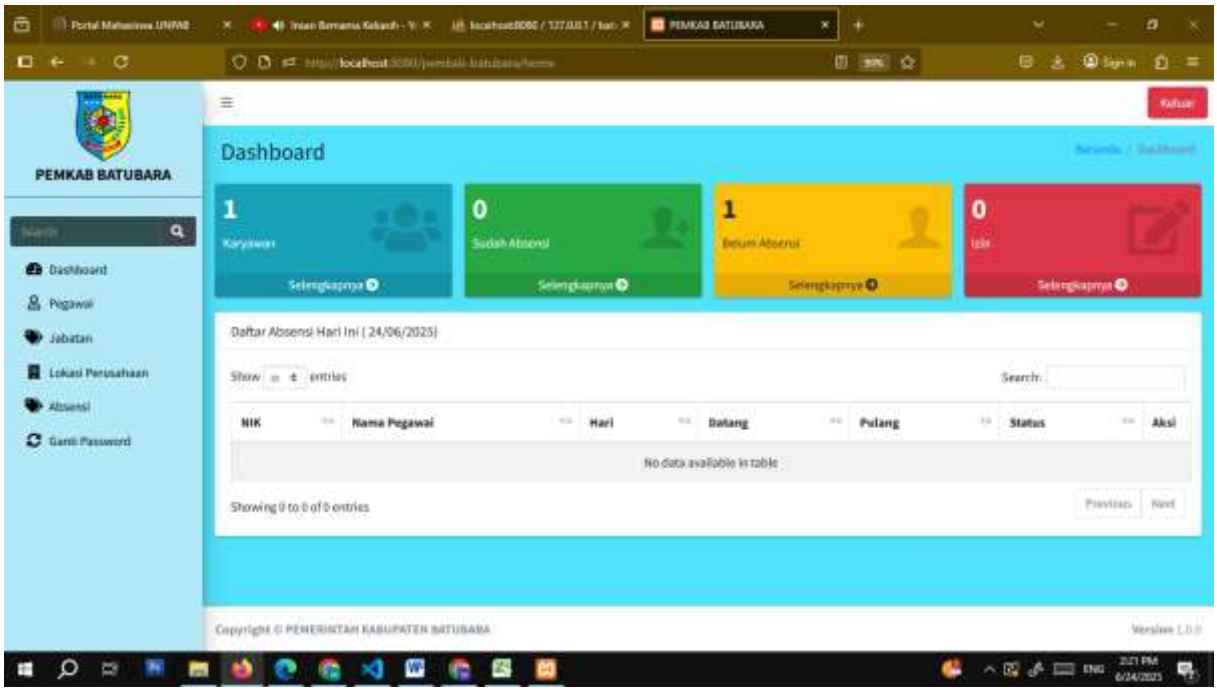

Figure 2. Dashboard Admin Page

A dashboard page is a type of user interface that uses graphics or visuals to show information in an easily comprehensible and central manner. Dashboards are frequently used in systems or applications to give a brief summary of the state or performance of a certain entity or process.

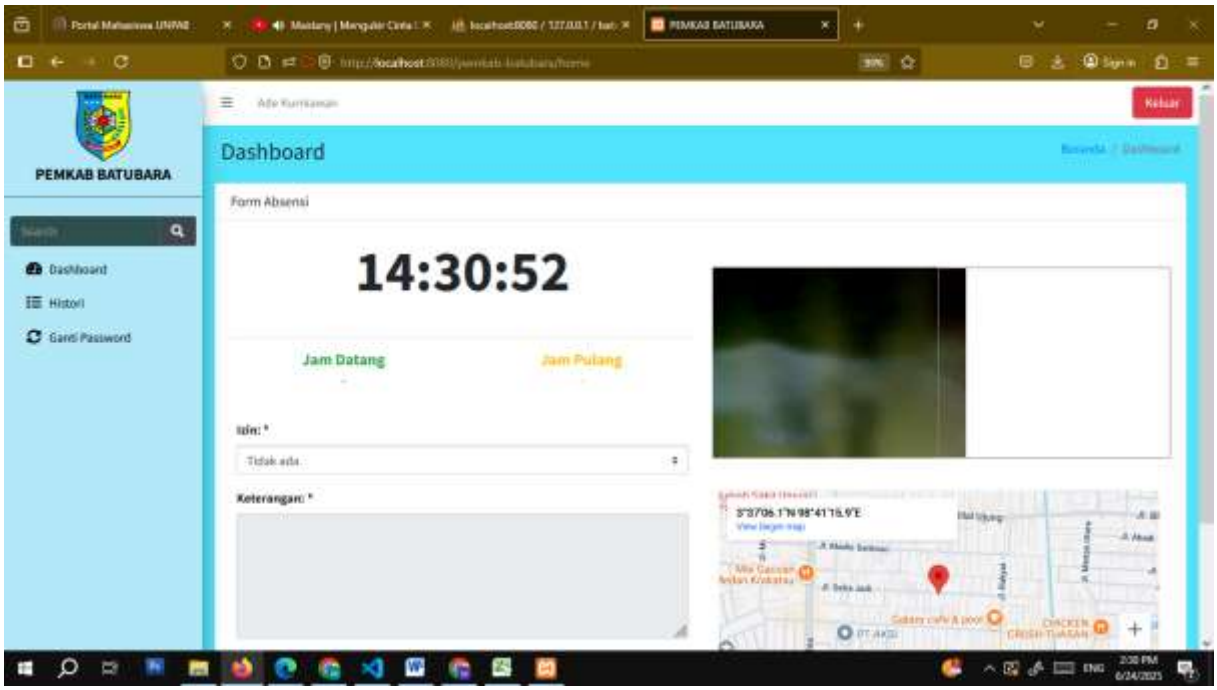

Figure 3. Employee Absence Page

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CONCLUSION

Based on the results of design and implementation, the web-based employee attendance system for the Batubara Regency Government was successfully developed and was able to fulfil the needs of more efficient, accurate, and transparent attendance recording. This system facilitates the process of monitoring employee attendance in real-time and provides convenience in making reports automatically. System testing shows that all main features function optimally and get a positive response from users. Although there are still challenges such as the need for a stable internet connection and the need for user training, this system has great potential to support the improvement of personnel administration performance and modernisation of bureaucratic services at the regional level.

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