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Design of a Website-Based Personnel Information System at PT Indiga Nusa Digitama (Inditama)

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ABSTRACT

This research focuses on the development of a personnel information system for PT. Indiga Nusa Digitama (Inditama), aimed at streamlining the management of attendance data, leave applications, and official travel documents (Surat Perjalanan Dinas or SPD). The primary objective is to enhance operational efficiency, minimize errors, and accelerate administrative processes, which were previously manual and prone to inefficiencies. A systematic approach using the waterfall methodology was employed, beginning with a thorough needs analysis conducted through observations, interviews, and literature reviews to identify existing challenges and requirements. The system design leveraged Unified Modeling Language (UML) for structural modeling and Figma for user interface design, ensuring a user-friendly and visually coherent experience. The resulting system effectively automated key processes, centralizing attendance, leave, and SPD data into a unified platform. This improved data organization, accessibility, and archival reliability, while fostering compliance with company policies and enhancing overall administrative transparency. The study also identifies potential future enhancements, including the integration of mobile-based features, payroll management, and recruitment modules, to broaden the scope of the system. These additions are expected to further optimize human resource management, deliver a more comprehensive solution for personnel administration, and contribute positively to the company's strategic growth. Through this research, PT. Inditama gains a scalable and efficient system capable of supporting its evolving operational needs.

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1. INTRODUCTION

Staffing or Human Resource Management (HR) is an important component in a company that requires good management. The Human Resource Information System (HRIS) is a system that provides information related to human resources to support decision-making. SISDM combines HR Management and Information Technology, helping HR departments automate documentation processes, reduce paper usage, and store data in databases to improve employee efficiency and performance [1].

Currently, PT Inditama uses *Microsoft Excel* to manage staffing and attendance, but this system has weaknesses in the management and storage of attendance data that can lead to data loss. Manual systems like this are prone to human error and data loss that can occur if files are corrupted or lost. In addition, the use of *flash drives* to move data to *Excel* also increases the risk of data loss or damage before it is moved. These weaknesses point to the urgent need to implement a more *efficient* and secure system.

To overcome this problem, companies can implement a network-based attendance system that stores data in real-time with live location and selfie features. This system will allow employees to perform attendance by taking selfies equipped with valid location detection, which can only be done at certain times, for example between 07.00 – 08.00. In this way, employee attendance can be monitored more effectively, and attendance data is instantly stored in centralized digital storage that is automatically backed up. HRD can manage and export monthly or weekly attendance data into *Excel* documents, thereby increasing security and efficiency in managing employee attendance data. In addition to the problem of attendance, employees at PT Inditama also face difficulties in applying for leave because they do not have access to information about the rest of their leave. Their leave history data is not well recorded, making it difficult to track the use of previous leave. The leave application process is complicated by the uncertainty of when managers and HRD will be available to review and approve leave requests. As a result, there are unwanted delays in applying for leave and creating uncertainty for employees in planning their vacations or personal needs.

To address this issue, it is important for PT Inditama to implement a leave information system that allows employees to access information about the rest of their leave, apply for leave online, and track the status of their leave requests. The system can also provide access to employees to view the remaining leave and leave history easily. Integrating an automated notification system will help speed up the leave approval process, with notifications sent through the system page for new leave requests, requests that need to be reviewed, or application status changes, reducing delays. In addition, employees at PT Inditama often do not have an Official Travel Letter (SPD) when they are going on an official trip, indicating a deficiency in the administrative arrangements for official travel. To improve the administration of official travel, PT Inditama can implement an SPD information system that allows SPD submission and approval to be carried out digitally. With this system, the SPD application and approval process can be done digitally, ensuring that each employee has the necessary documents before going on a business trip. This will speed up administrative processes, increase data transparency, and provide better visibility to management and HRD regarding employee travel.

With the design of this personnel information system, it is hoped that it can be a solution to the problem of data management that is not optimal. The use of website technology is expected to provide easier and faster access to employee information, including attendance, leave, and SPD. With these systems, PT Inditama is expected to improve the efficiency of personnel management, ensure accurate data, and provide better work experience for employees. The Resourcesthe website-based Human Resources Information System (SISDM) at PT Inditama will not only improve *efficiency* in personnel management but will also ensure that critical data for decision-making is always accurate and up to date. By automating various manual processes such as attendance, leave application, and official travel management, PT Inditama can reduce the risk of human error, increase the speed of administrative processes, and provide a more transparent and efficient work environment. This will provide long-term benefits for the company and employees, creating a more structured and productive work culture. This final project is entitled "Designing a Website-Based Personnel Information System at PT. Indiga Nusa Digitama (Inditama)".

2. METHOD

The final project system development methodology used by the author adopts from the *waterfall* method. An SDLC model that is commonly used in the development of information systems. This methodology is known for its systematic and sequential approach, likened to a flow that always flows downwards. In the process of developing this system, the author uses several phases, namely analysis and design. This approach provides clarity and structure that helps guide development steps in detail. By adopting this *waterfall* method, the author hopes to achieve success in completing this final project and the process carried out by the author, in the development using this method can be seen in the figure.

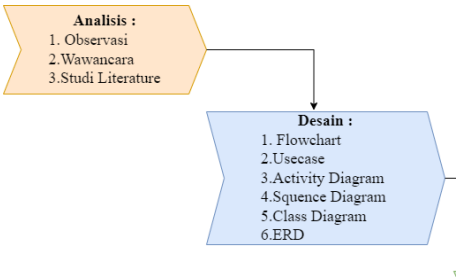

Figure 1 Research Methodology
Source: (Personal)

2.1. Analysis

In the first stage, the author analyzes the needs needed in designing the personnel system at PT Inditama. This needs analysis aims to help in determining solutions to problems faced by users. In the process of gathering needs, the author uses various techniques such as observation, interviews, and literature studies to find and collect the necessary data as the basis for system development. Observations and interviews are conducted specifically for the production department, especially those related to the employee staffing process.

During the interview, the author managed to identify several main problems faced by PT Inditama. One significant problem is the presence process that uses fingerprint and flash drive technology, which is susceptible to data loss or corruption before it is transferred to Excel. In addition, there are difficulties for employees in applying for leave due to lack of access to information about the remaining leave and leave history data that is not properly recorded. Another problem found was the absence of an Official Travel Letter (SPD) that should be owned by employees when traveling on official trips, indicating that there were shortcomings in the administrative arrangements for official trips.

The information obtained from this stage of analysis is used as a basis for developing solution ideas that suit the needs of the company. The authors suggest the implementation of several innovative systems to overcome these problems. First, a network-based attendance system that directly stores data to centralized digital storage to prevent data loss or corruption. Second, a leave information system that allows employees to apply for and track leave online, providing easy access to leave remaining information and leave history. Third, the SPD information system assists in the creation and management of SPDs digitally, ensuring a more orderly and efficient administration of official trips.

With the implementation of these solutions, it is hoped that PT Inditama can increase efficiency in personnel management, ensure data accuracy, and provide better work experience for all employees. The designed system not only serves to solve existing problems, but also builds a strong foundation for future system development and integration.

2.2. Design

In the second stage, the author develops an optimal system design with a modeling approach using Unified Modeling Language (UML). This modeling process aims to detail the design of the system by presenting clear flows and diagrams. Various types of UML diagrams will be generated, including use case diagrams, activity diagrams, class diagrams, entity relationship diagrams (ERDs), data dictionaries, and sequence diagrams. To support this process, the author chose the Star UML application as the main tool, ensuring accurate and efficient visual representation. The Website-Based Personnel Information System at PT Inditama is designed using UML to provide a structured and easy-to-understand representation. With use case diagrams, authors can illustrate various interactions between users and the system, including the management of attendance, leave, and Official Travel Letters (SPD). Activity diagrams will describe the workflow of each process, while class diagrams and ERDs will provide an overview of the data structure and relationships between the entities involved. Data dictionaries and sequence diagrams will detail the data flow and system interactions in more detail.

In addition, the author will also design a system interface by utilizing the Figma application. The process of designing this interface focuses on meeting the needs of users as well as creating a display that is in accordance with simple and aesthetic design principles. The use of a simple color palette will give an aesthetic impression that is clean and easy to understand. The designed interface is expected to provide an optimal user experience and make it easy to navigate and use the system. The design of the system includes several key components, such as a main dashboard that displays a summary of important information, an attendance module that allows real-time attendance recording, a leave module that allows for leave application and tracking, and an SPD module that makes it easier to manage official travel. Each module is designed with a focus on ease of use and operational efficiency.

With a combination of UML modeling and careful interface design, it is hoped that the resulting system can provide an optimal user experience and meet the desired functionality goals. PT Inditama can increase efficiency in

personnel management, ensure data accuracy, and provide better work experience for all employees. This design not only aims to solve existing problems but also to build a solid foundation for future system development and integration.

3. RESULT AND DISCUSSION

Design is the application of various techniques and principles with the aim of detailing a device, process, or system so that it can be realized physically. This process involves an in-depth analysis and a comprehensive understanding of the user's needs and technical specifications that must be met. The main goal of the design is to ensure that the resulting system not only meets the needs of the user, but also functions efficiently within the expected operational environment.

A system is an entity consisting of elements that are organized and interact with each other to achieve a specific goal. It also emphasizes the concepts of input, output, and control mechanisms in the system [2]

Information is the result of a data processing process that provides added value to its recipients, enabling informed decision-making, both for the present context and for the future. Thus, information is a more meaningful and useful form of data that has been processed for a wider benefit.

An information system, derived from the Latin word "*systēma*" and the Greek word "*sustēma*", is an entity made up of various interconnected components or elements, designed to facilitate the flow of information, matter, or energy more *efficiently* [3]

3.2. Planning

Designing is a systematic process of planning, modeling, and creating something with a specific purpose. It involves identifying needs, designing solutions, and implementing the results. This process considers factors such as objectives, user needs, resource availability, and technical constraints. Collaboration between disciplines and stakeholders is often involved to produce holistic and competitive solutions. Ideas are developed through modeling, prototyping, and testing before full implementation. The result can be a physical product or a non-physical solution that meets the needs and benefits the user or stakeholder concerned [4].

3.3. Staffing

Staffing includes all activities related to the needs and interests of human resources. Within this framework, the personnel section summarizes all aspects related to the position, responsibilities, rights, and development of employees. The function of the employee data management information system aims to support the implementation of duties in a part of the agency, with the intention of carrying out employee activities to achieve the goals that have been set [5].

3.4. Geotagging

Geotagging is the process of adding GPS location information, such as latitude and longitude, into a digital photo. By using the geotagging feature, the location of the photo can be easily identified. There are several methods that can be used to geotagging a medium. First, use a camera or device that has a built-in GPS to automatically add location data when the photo is taken. Second, using a special application that can add location information to photos that have already been taken. Third, match the location data from a separate GPS device with the time the photo was taken to manually add the location information [6]

3.5. Presence

Attendance is an activity that aims to record the level of attendance and discipline of employees in a company, or agency. Presence serves as a tool to monitor an individual's presence in an entity. Meanwhile, Absence means the absence of an employee on a working day. Generally, employees cannot attend for various reasons such as illness, permits, absences, or leave, which is a factor in assessing employee discipline in the company [7]

3.6. Leave

Based on Law no. 13 of 2003 Article 79 paragraph (2), only employees who have worked for at least 12 months are entitled to 12 days of annual leave. Therefore, the company is authorized to refuse leave requests from employees who have not worked for 1 year. If the company is willing to give permission, it is called "unpaid leave" and the company can deduct the worker's salary on a pro rata basis according to the number of absences. The law also regulates the provisions of leave, which includes annual leave, sick leave, major leave, joint leave, maternity leave, and essential leave.[8]

3.7. Letter

A letter is a written communication tool that comes from a party that is addressed to another party to convey the purpose of the letter. So, by definition, a letter is a tool or media used to communicate in writing that is carried out by a party to another party to inform something official or informal so that it is conveyed even though it does not have to be face-to-face [9]

3.8. Letter of Assignment

A Letter of Assignment, or abbreviated as ST, is an official document issued by an authorized official to an official or other employee who is given the responsibility to carry out a certain task. This document contains instructions regarding activities or tasks that must be carried out by the recipient of the letter within a specified time frame. One example is the use of a Letter of Assignment to organize and carry out official trips outside the city in the context of official activities [10].

3.9. Official Travel Letter

An Official Travel Letter (SPD) is an important official document for an employee who will carry out duties outside the city. These tasks can be in the form of comparative studies, audits to company branches, or other activities carried out outside the city. For example, national work meetings or other tasks that require a presence outside the headquarters environment. The SPD serves as evidence that the employee has been given an order by his superiors to perform duties outside the city, as well as as a basis for bearing the necessary expenses during the official trip. [11]

3.10. Proposed Business Process

The proposed business process is the design of the system designed. The design is illustrated with *a flowchart* to make it easier for users to understand the picture of the system.

1. Proposed leave business process

   The following is a picture of the Leave process that is being proposed at PT Inditama.

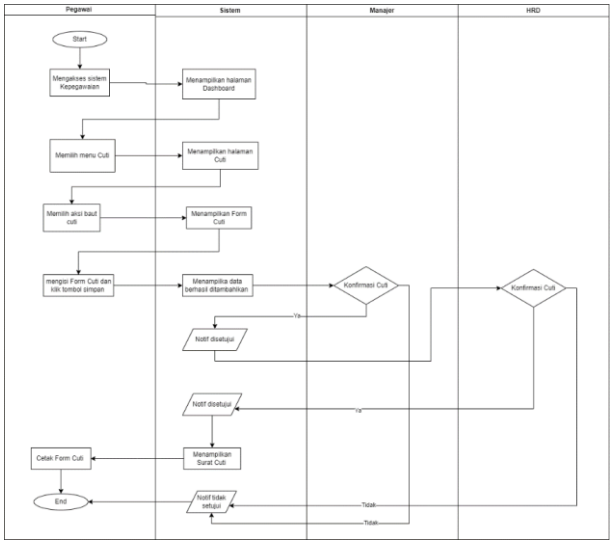

Figure 2 The proposed leave business process

2. The proposed SPD business process.

   The following is the outline of the SPD process that is being proposed at PT Inditama.

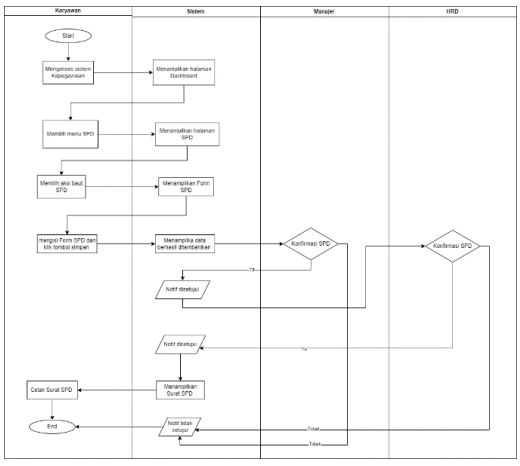

Figure 3 proposed SPD business process

3. Presence business process
The following is a picture of the attendance process that is being proposed at PT Inditama.

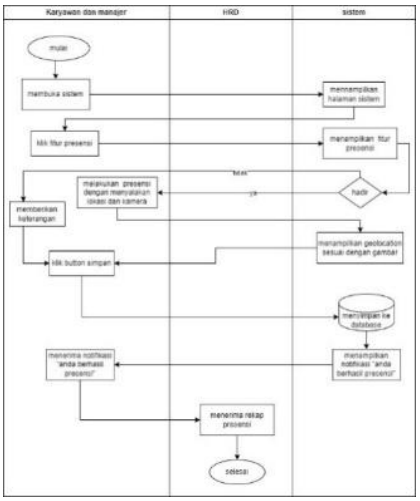

Figure 4 Proposed business processes of attendance

3.11. *Pemodelan Unified Modeling Language (UML)*

UML design is the design of modeling that will be used for the personnel information system that will be designed. UML design includes several diagrams, namely *use case diagrams*, *activity diagrams*, *sequence diagrams*, and *class diagrams.*

a. **Usecase Diagram**

Use case is one type of diagram in UML (Unified Modeling Language) that is used to describe the interaction between users (actors) and the system. The main purpose of a Use case Diagram is to provide a visual view of the functionality of the system from the perspective of the user or stakeholde [12].

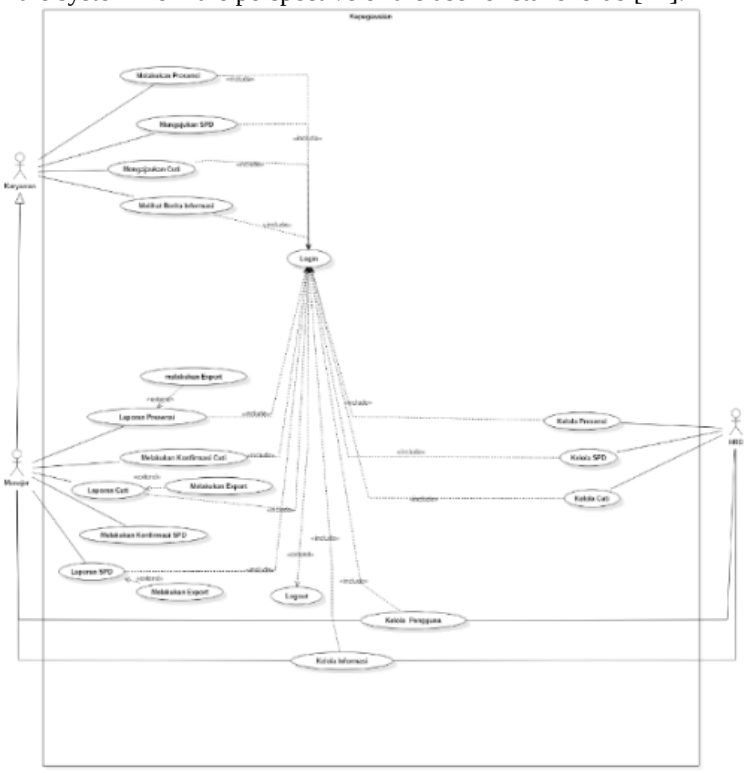

Figure 5 Personnel Diagram Use Case Drawings

b. **Activity Diagram**

Activity diagrams are used to illustrate the flow of users and responses from the system based on the *use cases* that have been created. The following *is an activity diagram* of a web-based personnel information system.

1. *Activity diagram Doing Presence*

The Activity Attendance chart can be seen in the image below:

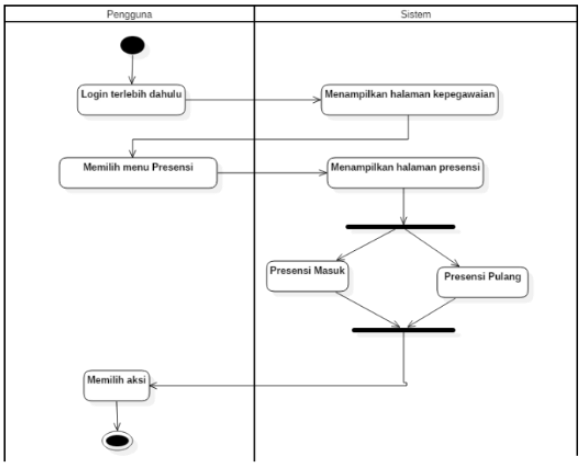

Figure 6 Activity Diagram performs presence.

2. *Activity Diagram* Applying for SPD

The activity diagram of the spd file can be seen in the image below:

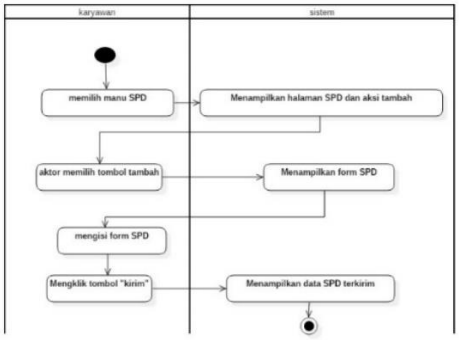

Figure 7 Activity Diagram Applying for SPD

3. *Activity Diagram* Applying for Leave

The activity diagram of the spd file can be seen in the image below:

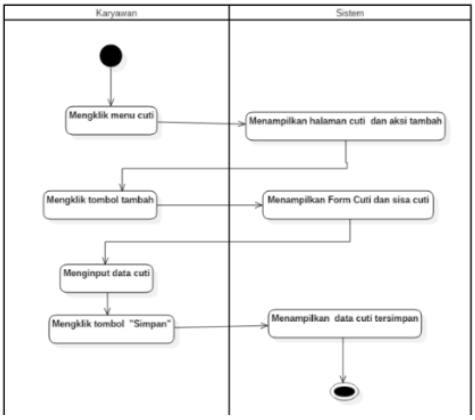

Figure 8 Activity Diagram Applying for Leave

b. Sequence Diagram

Sequence Diagrams describe the behavior of objects in Use cases by describing the lifetime of objects and the messages sent and received between objects [13].

1. *Sequence Diagram* Performing *Attendance*

The following *sequence of the Attendance diagram* can be seen in the image below:

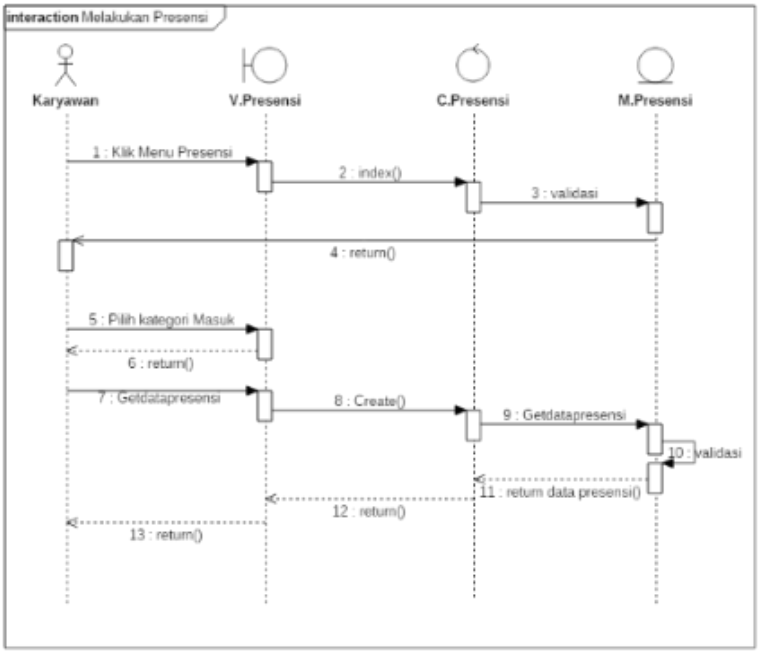

Figure 9. Sequence diagram Performing Attendance

2. *Sequence Diagram* Filing SPD

The following *sequence diagram* of applying for SPD can be seen in the figure below:

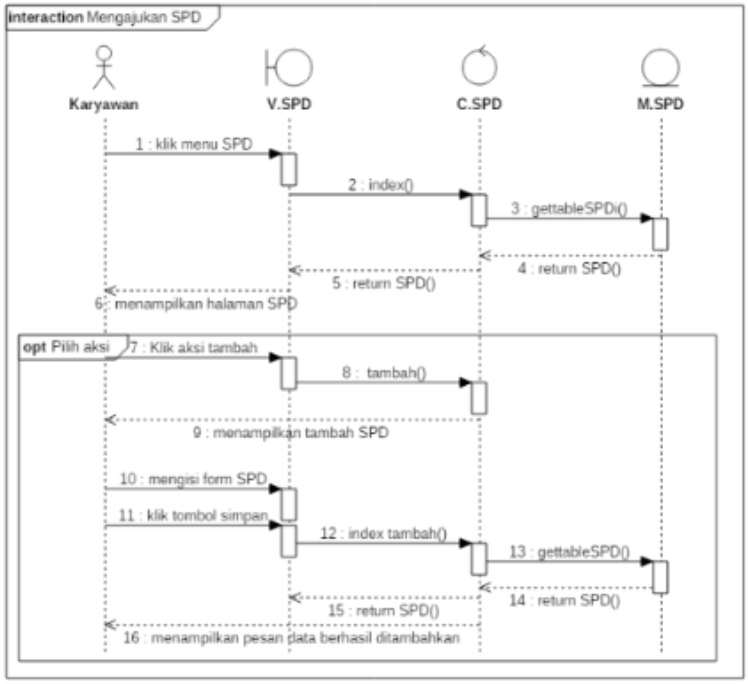

Figure 10 Sequence Diagram Filing SPD

3. *Sequence Diagram* Applying for Leave

The following *sequence diagram* of applying for leave can be seen in the image below:

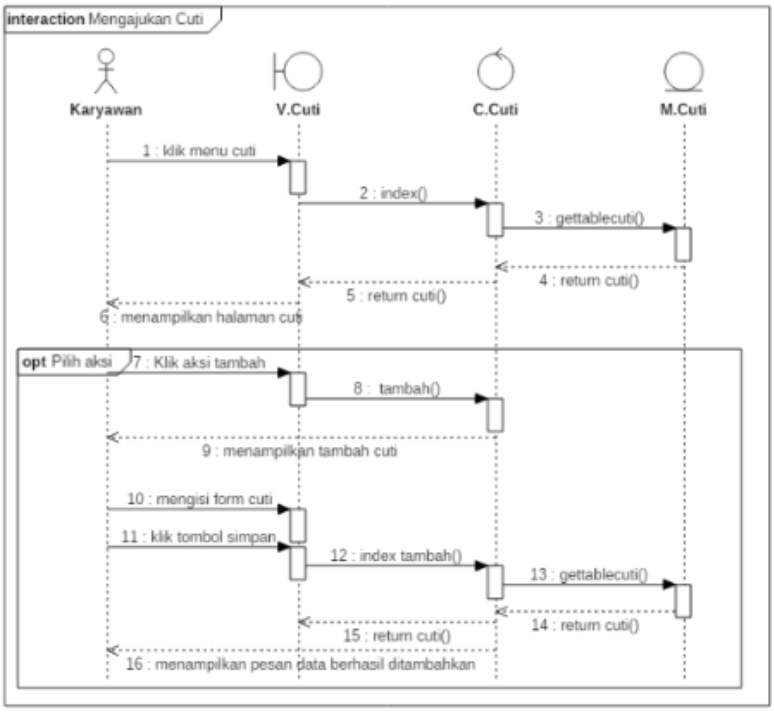

Figure 11 Sequence Diagram Applying for Leave

4. Sequence Diagram Logout

The following *sequence of the logout diagram* can be seen in the image below:

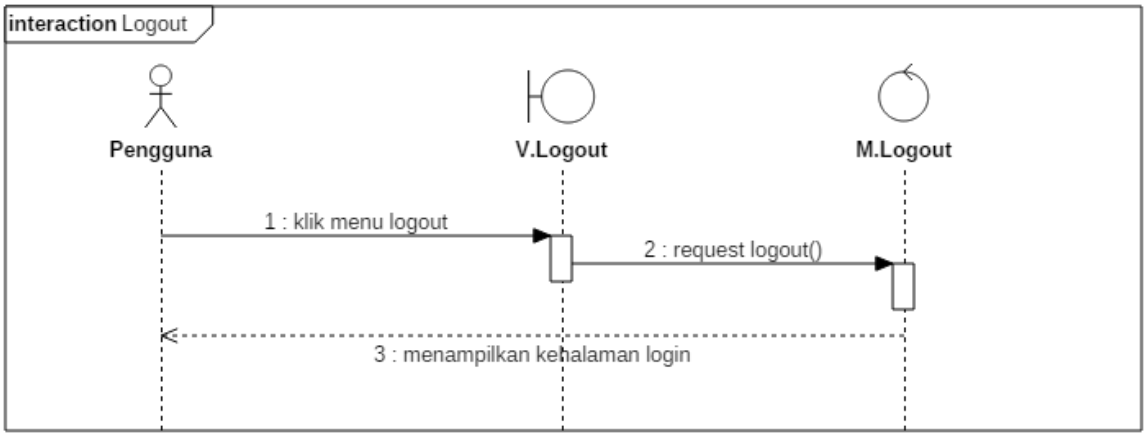

Figure 12 Sequence Diagram Logout

c. Class Diagram

Class diagrams on the staffing web portal use the MVC concept, where the Controller handles the requests and process logic, the Model manages the database data and access, and the View displays the data to the user. The controller sets the data flow between the Model and the View to ensure the data displayed is always accurate and up to date.

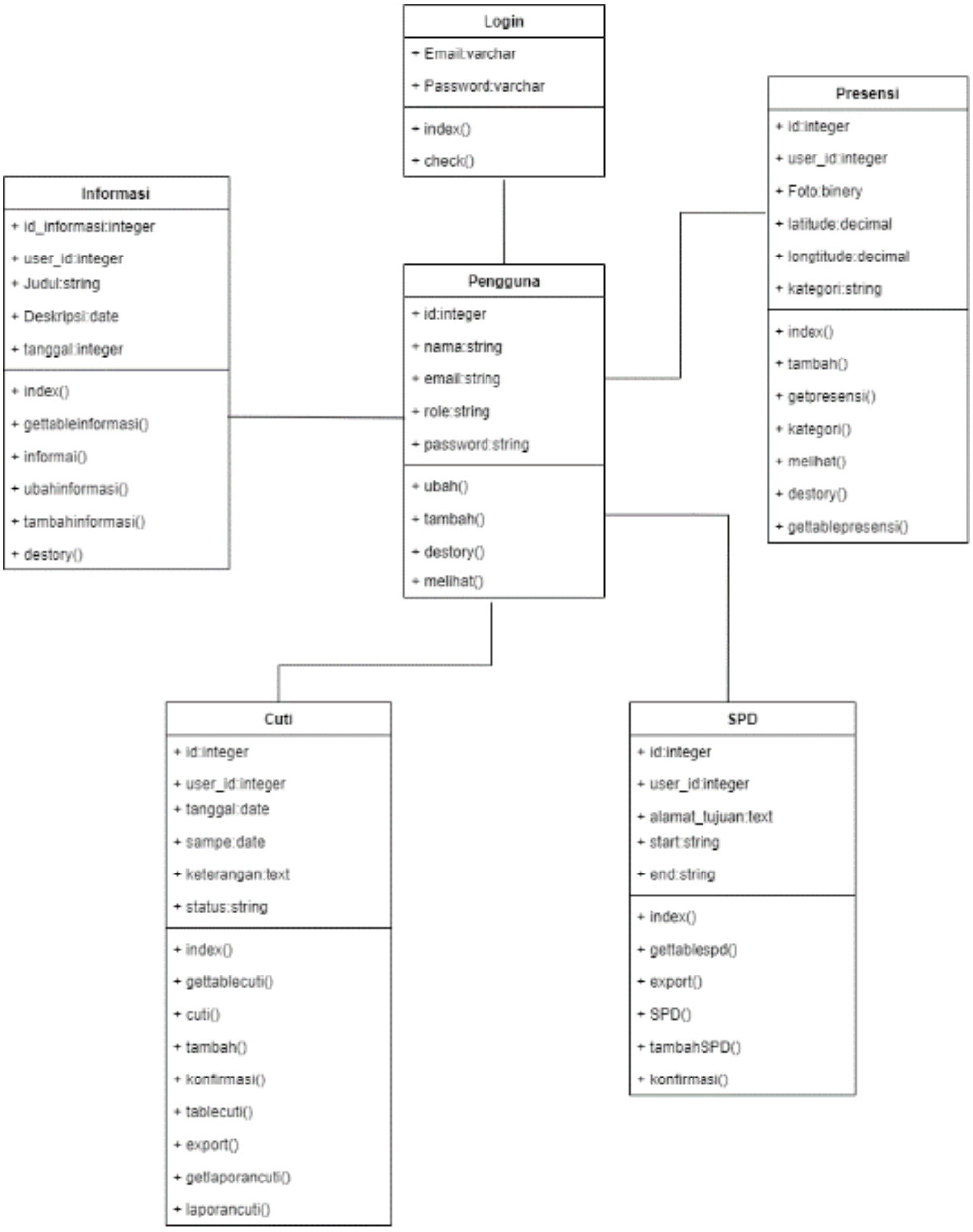

Figure 13 Class Diagram

The diagram class consists of 6 *classes* that are divided based on *the model* and *controller*. In the *class diagram of the* implementer management information system *(*case study: PT Inditama), it is used to make it easier to see the image of the system structure to be built and also classify to determine the value of a data used.

d. Entity Relationship Diagram (ERD)

Entity Relationship Diagram (ERD) is a diagram in the form of graphical notation that is in the creation of a database that connects data with one another. In ERD, there are 3 basic elements, namely entities, attributes, and relationships [14]

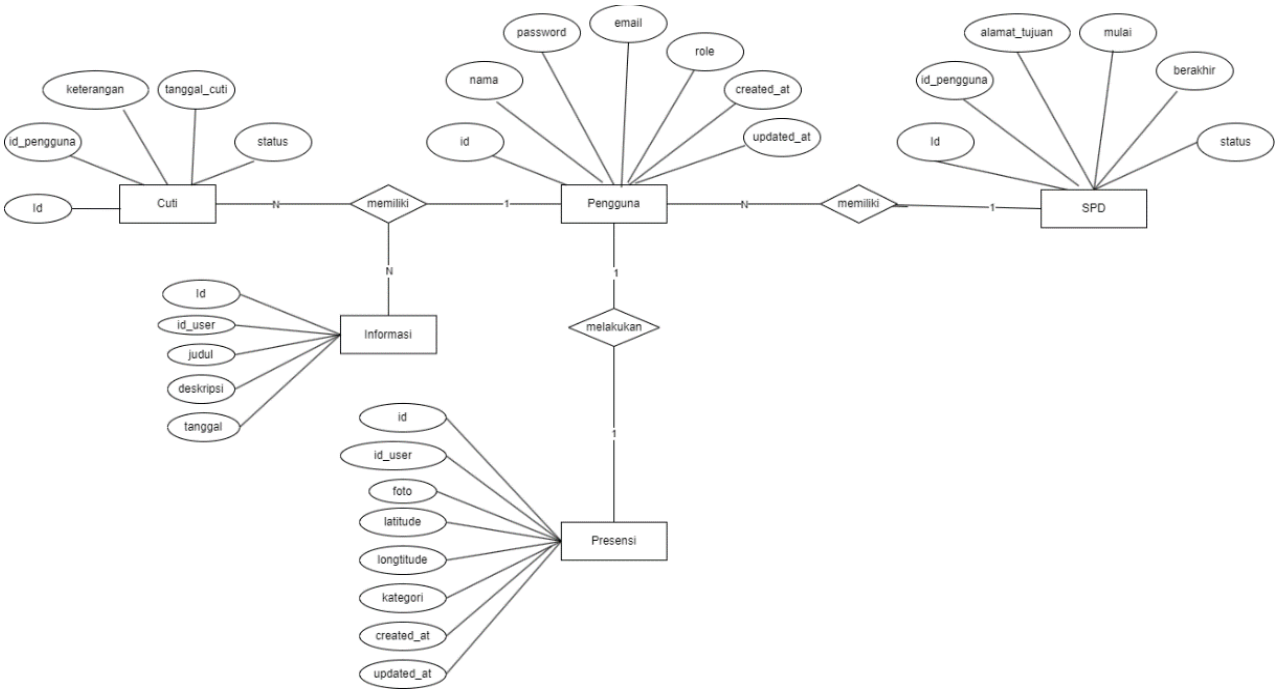

Figure 14 Entity Relationship Diagram

e. ***Interface Design***

1. ***User Login Interface (Employee, Manager, and HRD)***
   The following is the login display on the Personnel System as follows.

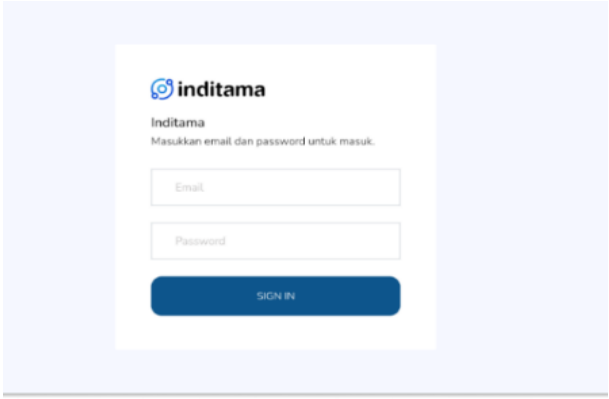

Figure 15 User Login Interface Display

The login page view will allow users (employees, managers, or HRD) to access the system by entering their credentials, such as username and password, before being able to use the available features according to their access rights.

2. **Presence Interface**
   The following is a display of *Attendance* in the Personnel System as follows.

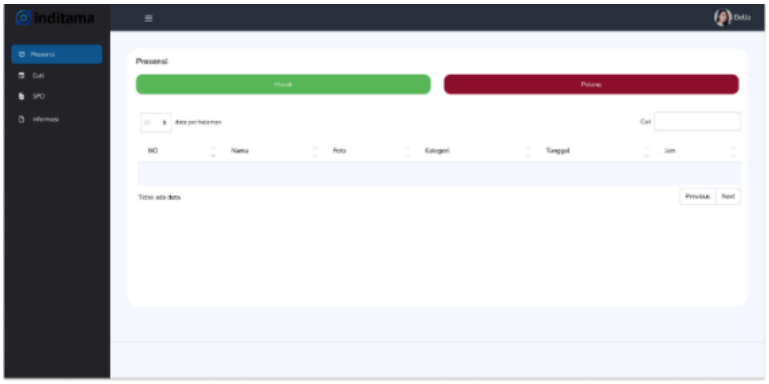

Figure 16 Presence Conducting Interface

On the Attendance page on the PT personnel portal, there are two main categories, namely "Entry" and "Return". The "In" category is used to record the employee's arrival time, while the "Leave" category is used to record the employee's departure time. Both of these categories are designed to make it easier to accurately monitor and manage employee attendance.

3. **Interface Performs Incoming Category Presence**

The following is a view *when going to make attendance* The Personnel System is as follows.

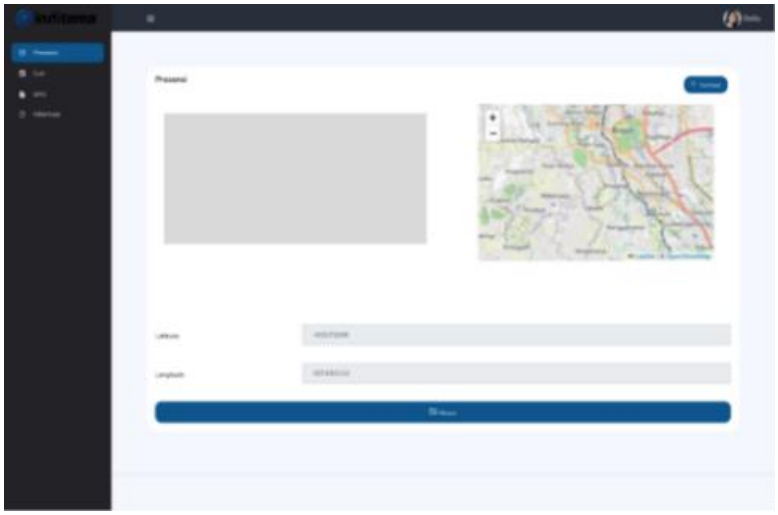

Figure 17 Login Attendance Interface

On the Attendance page on the PT personnel portal, there are two main categories, namely "Entry". The "Entry" category is used to record the employee's arrival time, employees are required to take a selfie first as part of the attendance verification.

4. ***Interface Filing SPD***

The following is a view *SPD* The Personnel System for employees is as follows.

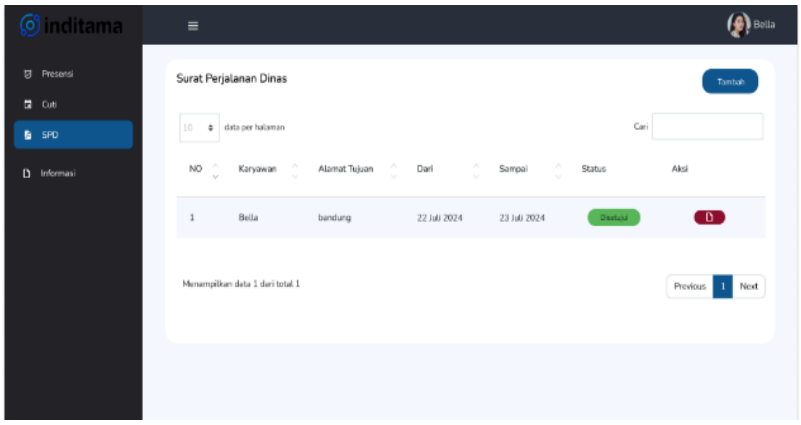

Figure 18 Interface Display of Filing SPD

On the SPD page, employees can easily make an application for an official warrant. This feature allows employees to fill in official travel details, such as destinations, and dates. In addition, after the application is approved by the manager and HRD, employees can quickly and easily download the approved official travel letter.

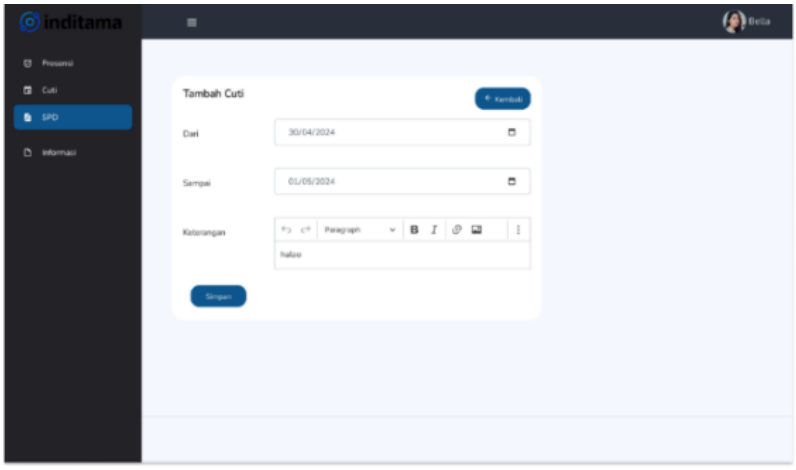

Figure 19 Interface Display Filing SPD (Add)

On the service order application interface (SPD), employees are asked to fill out the service application form that has been prepared. This form includes various details required for official travel, such as destination, departure and return dates.

5. **Leave Filing Interface**

The following is a view *Leave* the Personnel System for employees is as follows.

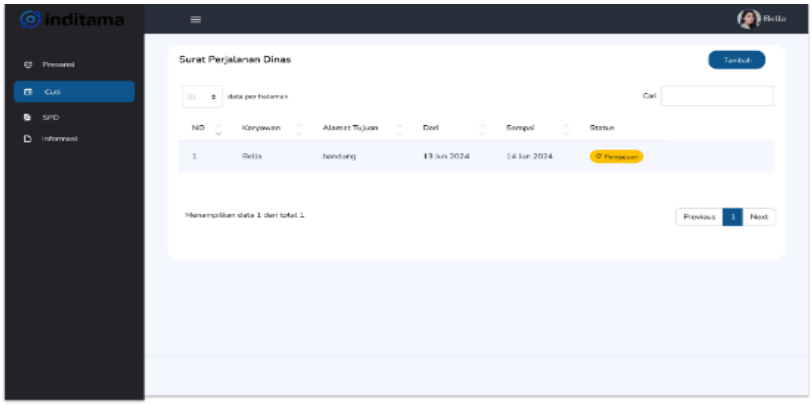

Figure 20 Leave Filing Interface Display

On the leave page, employees can easily make leave requests. This "add" feature allows employees to fill in leave details. In addition, after the submission is approved by the manager and HRD, employees can quickly get the information that has been approved.

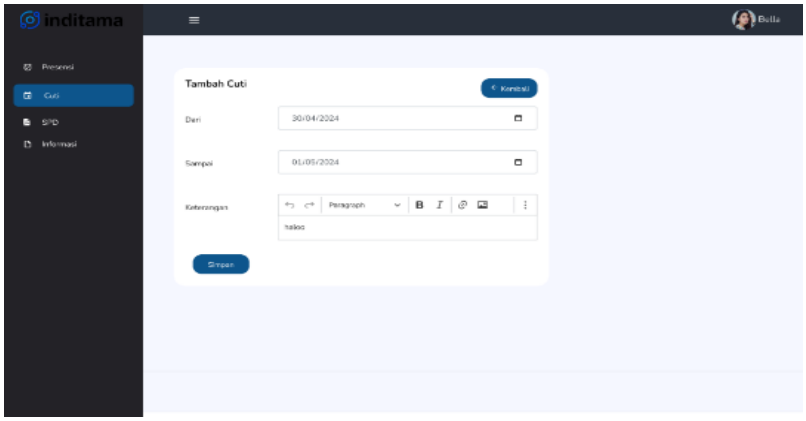

Figure 21 Leave Request Interface Display (Add)

On the leave application interface, employees are asked to fill out the service application form that has been prepared. This form includes various details required for leaving, such as Description, leave start date and leave end date.

4. CONCLUSION

The design of a website-based personnel information system at PT. Indiga Nusa Digitama (Inditama) has presented several significant innovations in leave management and Official Travel Letters (SPD). The leave information system allows employees to access the remaining leave information, apply for leave online, and monitor the status of their leave requests efficiently. Thus, the leave application process becomes more structured, reduces the risk of errors, and minimizes approval time. Furthermore, the integrated SPD information system optimizes the process of applying for official trips. Employees can apply digitally and receive SPDs without the time-consuming manual process. This not only increases employee productivity but also the operational efficiency of the company by shortening the approval time.

These two systems provide additional benefits in the form of more effective monitoring capabilities for employee travel status. Managers and HRD can easily access official travel data, monitor application status, and analyze expenses more accurately, supporting more effective budget management. Overall, the design of this personnel information system not only improves efficiency and accuracy in the management of leave and official travel, but also strengthens compliance with company policies and increases transparency in personnel management. Recommendations for further development include the addition of mobile-based features, payroll management, and recruitment modules to support the company's operations holistically and contribute positively to future growth.

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