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Analysis and Design of Attendance Information System and Payroll at PT. Carsurindo Siperkasa

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Abstract

The development of information technology that is growing rapidly has now affected various fields, technology and information are two things that cannot be separated. To process attendance data and employee salaries, it is still done manually by using notes in the attendance book which is carried out by HRD. Proof of absence for employees is still given in the form of physical documents stored in the cupboard, this can affect the salary that will be received by employees if the document is lost and damaged or an error occurs when making a presence report. in order to keep up with competition in the market with other companies. This design aims to design a simple and integrated website-based information system, if implemented computerized, it is expected to make it easier for employees to find out attendance and payroll reports in a structured way. The methodology used is System Development Life Cycle (SDLC). The tools used are Fishbone Diagram, Data Flow Diagram, PIECES, and Data Dictionary. This research produces a website design for the company which, if continued to the system development stage, can make it easier for companies to manage attendance data and manage payroll data. Accurate and automatic recording of employee attendance, reducing errors that affect salary calculations.

Keywords: *Presence, Payroll, Website, Information System, SDLC*

1. Introduction

PT. Carsurindo Siperkasa is a company engaged in wood management and producing wooden pallets located at Jalan Pulau Sumbawa II No.4 LOT 5- BPT Kawasan Industri Medan II Mabar Belawan. PT. Carsurindo Siperkasa has a total of 45 permanent employees and other non-permanent laborers, where these laborers only work when production increases. To carry out the process of processing employee attendance and salary data, PT. Carsurindo Siperkasa is still done manually by using records in the attendance book carried out by HRD. Proof of absence for employees is still given in the form of physical documents stored in the cupboard, this can affect the salary that will be received by employees if documents are lost and damaged or errors occur when making attendance reports. This will affect the preparation of allowance reports or bonuses from additional incentives if sales increase, THR bonuses for certain big days, and overtime bonuses that will be received by employees. In addition to bonuses, PT. Carsurindo Siperkasa also has compensation for salary deductions for employees if they are absent from work, late for work, for BPJS health and also for BPJS employment. By knowing that PT. Carsurindo Siperkasa still uses attendance and payroll by bookkeeping and there is no detailed report on employee payroll in the form of a pay slip containing deductions and bonuses received.

Employees are one of the important assets in a company. Therefore, attendance and payroll are two very important things in human resource management related to employee welfare, productivity and also in the production process, including in the service industry [1]. By using a good information system in the attendance and payroll system, it is expected to help in managing the work completion process, and meet regulatory changes faster so as to obtain results that are in accordance with the criteria and objectives set [2]. The need for fast and accurate information is an important thing that an agency wants to have. The use of information systems is one of the main factors in running business processes to improve the quality of company performance [3].

So the author took the initiative to help in making changes by designing an attendance and payroll information system entitled "Analysis and Design of Employee Attendance and Payroll Information System at PT. Carsurindo Siperkasa". With the hope that the author can help overcome existing problems and offer solutions to employee attendance and payroll problems, and can increase efficiency in making more structured, fast and accurate attendance and payroll reports, according to the company's needs.

2. Research Methods

SDLC (System Development Life Cycle) is a methodology used in software development. In general, there are seven stages commonly found in SDLC, namely, identifying problems, opportunities, and objectives, determining information requirements, analyzing system needs, designing recommended systems, developing and documenting software, testing and maintaining the system, and finally implementing and evaluating the system [4][5].

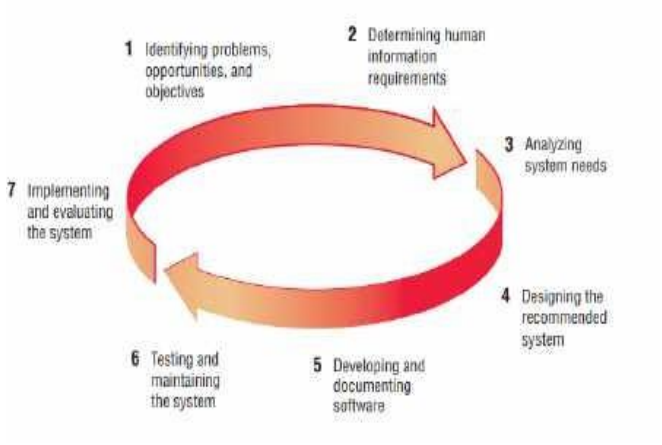

Fig. 1: SDLC Stages

However, in this study, the 4 stages of the SDLC cycle were carried out with activities in each activity as follows:

1) Identify problems, opportunities and goals
   Identification of problems in the attendance and payroll system at PT Carsurindo Siperkasa, such as obstacles in the process of recording employee attendance, the process of calculating the number of employee attendance, storing evidence of employee absence which is still in the form of physical documents, and failure to deliver salary information received by employees due to the absence of a pay slip report received by employees. Which is identified using a fishbone diagram.
2) Determine the information requirements
   At this stage, the author collects data by observing and analyzing the proposed application design. At this stage, data and information are collected as references that will be used in this study. The methods used to collect company information are interview methods and field observations.
3) Analyze system requirements
   At this stage, the author analyzes the functional needs of the information system related to the attendance system, payroll, permit approval, and proof of employee absence using a data flow diagram (DFD).

The process design of this system is as shown in the following image:

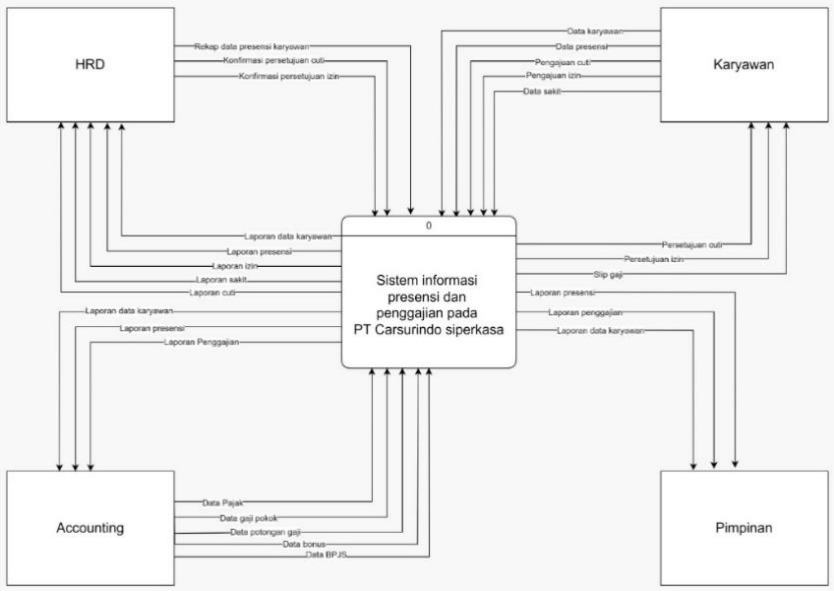

Fig. 2: Context Diagram of Attendance and Payroll Information System

Meanwhile, for non-functional needs, the PIECES framework (Performance, Information, Economic, Control, Efficiency, Services) is used. The PIECES framework is an approach to evaluation that consists of several aspects such as performance, information, economics, control, efficiency, and services. This framework can be used to identify and solve problems that occur in information systems, from this

analysis will produce identification of the main problems of a system and provide solutions to these problems so that they become a reference in the implementation process or further management[6].
The results of this analysis are as in the following table:

Table 1: PIECES

No	Aspect	System walk	System Proposal
1	*Performance*	As the process of calculating attendance and payroll is still carried out using the *Microsoft Excel application* and the checking and calculation process is still carried out manually.	This system is expected to be able to provide good performance in increasing accuracy and efficiency in managing attendance and payroll processes in order to increase employee satisfaction. employee to process presence And payroll.
2	*Information*	There are no pay slips and attendance information and payroll cannot be known in *real time.*	This system is expected to provide the necessary information, including daily attendance data, summary presence, information salary and also to prevent data loss.
3	*Economic*	The old system still uses physical documents such as books and paper as attendance recording forms and for submitting leave, permits, and sickness applications.	This system is expected to reduce costs for companies because it will carry out *online attendance* which only requires an internet network, no longer using paper. And can produce slip salary in form *soft file* Which can downloaded
4	*Control*	System long Still allows for fraud due to presence And his salary still using book recording And *Microsoft Excel.*	This system is expected to reduce And overcome error in management report presence, report payroll And provide accurate report results.
5	*Efficiency*	The old system was less efficient because it could eat too much time in preparing attendance reports and payroll reports.	This system is designed to automate the attendance and payroll process. Also to make it easier to identify areas where automation can reduce the time and administrative effort required, like processing manual or calculation wages.
6	*Services*	System Still not enough efficient because employee data management, attendance and payroll are still being carried out in a way manual with using physical documents or *Microsoft Excel applications.*	System This will easy used and assist companies in the process of data management, storage, and report creation quickly and in an integrated manner.

4) Designing the recommended system
The information system interface design uses the Figma application while the database design uses Microsoft SQL Server.

3. Results and Discussion

Some designs for this information system are as follows:
1. Employee master data input form

Fig. 3: Employee master data input form

The image above is a display for HRD to manage employee data. This page has an important role in a system because there are features to manage employee data, financial data, job data, education history data. Access rights for this form are only given to HRD. This is done to ensure data integrity

2. Employee Presence

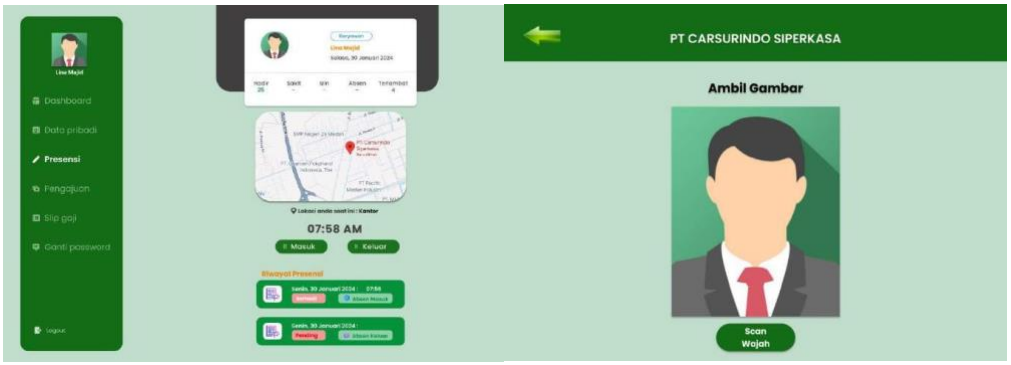

Fig. 4: Employee Presence

The employee attendance data feature is used to capture employee attendance record information every day.

3. Leave, permit and sick leave application form

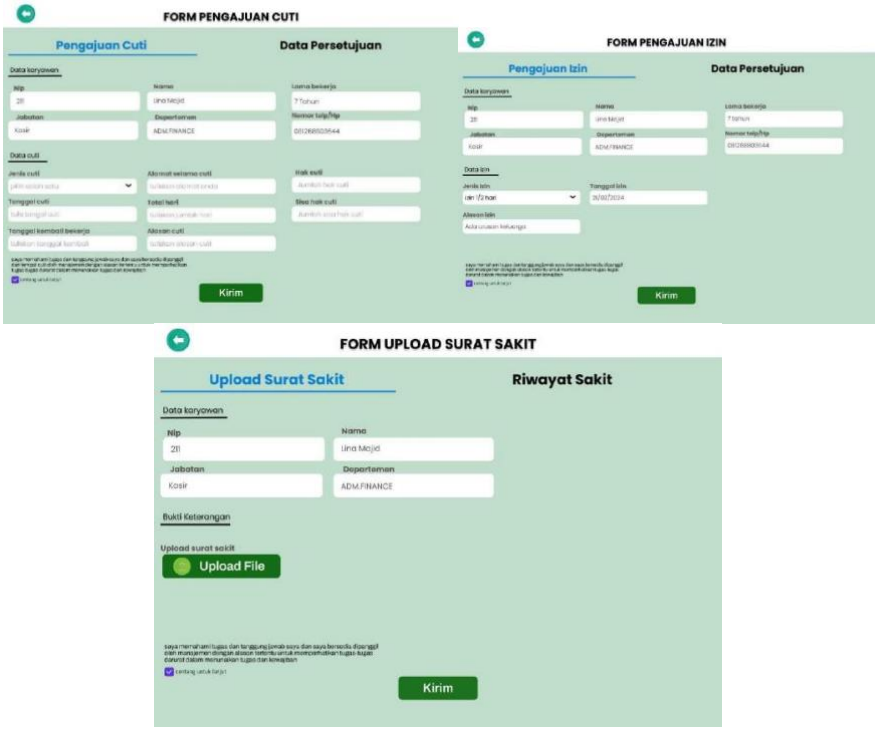

Fig. 5: Leave, Permit and Sick Leave Application Form

This form is used for leave, permit and sick leave applications by employees which will later be verified by HRD and the deputy manager.

4. Dashboard on Accounting account

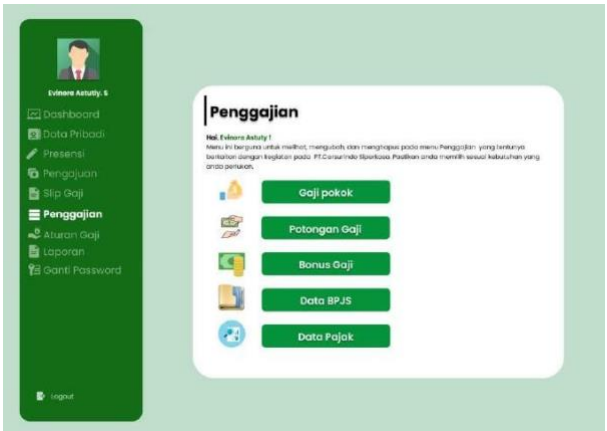

Fig. 6: Dashboard Image on Accounting account

For the Accounting section interface, there are several features, namely basic salary to access and find out the basic salary data for each employee, salary deductions to access and find out the salary deduction data for each employee, salary bonus to access and find out the bonus data received by each employee, BPJS data to access and find out the BPJS data for each employee, and tax data features to access and find out the tax data for each employee.
There are also output displays that have been designed for this company, for example as in the following images:

1. Employee Attendance Report

Fig. 7: Employee attendance report

This report is used as a recapitulation of employee attendance every month.

2. Employee salary report

Fig. 8: Employee salary report

The display contains data on salary recipients, details of deductions, details of income, total salary received and information on salary transfers to the account stated on the pay slip.

3. Employee pay slip view

Fig. 9: Employee pay slip

This display contains data on salary recipients, details of deductions, details of income, total salary received and information on salary transfers to the account listed on the pay slip.

4. Conclusion

Based on the results of the design that has been designed by the author, there are advantages and disadvantages obtained by using the attendance and payroll website, which are as follows:

1) Excess
   a. This website-based attendance and payroll information system design helps companies in the process of recording attendance and payroll which will be carried out automatically.
   b. This system can improve data accuracy by reducing the risk of human error in recording and calculating. Data entered by employees or taken from attendance devices such as facial scans are directly stored in the system.
   c. This attendance and payroll website can be used to monitor employee attendance in real-time, so that HR can immediately find out who is present, late, or absent.
   d. The automatic reporting feature also makes it easy to create regular attendance and payroll reports, which can be customized as needed.
2) Lack
   a. Although many systems are equipped with advanced security features, the risk of data leaks or cyber attacks still exists. Employee master data, employee attendance and payroll data are sensitive information that must be well protected.
   b. While it can save money in the long run, the initial cost of implementing a time and payroll information system can be quite high. This includes the cost of purchasing hardware, software, and employee training.

The things that can be suggested are:

1) Implement strict security measures to protect sensitive employee data, such as personal information and payroll details. The use of data encryption, two-factor authentication, and regular data backups are highly recommended.
2) Create a mechanism to collect feedback from app users on a regular basis. This could be a user satisfaction survey or an in-app issue reporting feature. This feedback is invaluable for further improvement and development.
3) Ensure that the application complies with applicable employment regulations and internal company policies. This includes regulations on data privacy, payroll calculations, and employee rights.
4) Provide responsive technical support to assist users when they encounter technical issues. Also, perform regular maintenance and application updates to ensure optimal performance and the addition of new features as needed.

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