Design and Build a Website-Based Teacher Payroll Processing Information System at SMKTIK Yadika Cicalengka

Nova Indrayana Yusman[1*], Achmad Taufiq Kartaatmadja[2], Dimas Aprizon[3]

[1,2,3] *Information Systems, Ma'soem University, Indonesia*

*Corresponding author email: ozmadelonge@gmail.com

Abstract

The design of this teacher payroll processing information system was developed to make it easier to manage teacher salaries at SMKTIK Yadika Cicalengka so as to minimize duplication.for the system design using the OOAD (object Oriented Analysis and Design) while the model used is RUP (Rational Unified Process) where the development tools are UML (Unified Modeling Language) There is also an explanation of the information system design process. Website-based payroll processing that will be built, starting from the design of use case diagrams, activity diagrams, sequence diagrams, class diagrams, user interfaces, hardware design and in designing this hardware requires hardware configuration, hardware specifications, and software specifications.

Keywords: System, Information, Payroll Processing, Rational Unified Process

1. Introduction

Information systems are very influential in a field of education. At this time, every educational institution is competing to build an information system to provide the best service for all stakeholders (Joosten & Hita, 2023). An agency that does not use information technology in its work will be greatly affected where the work becomes slower and time consuming and also lacks accuracy in learning, therefore one of the benefits of information technology is to make work more efficient and more accurate (Irfan et al., 2019; Zulfikar et al., 2017).

SMKTIK YADIKA CICALENGKA is a private school located on Jl. Haji Darham no 122 Cikopo Cicalengka SMKTIK Yadika Cicalengka was established in 2008 July, Tenjolaya Village, sub-district. Cicalengka. Bandung Regency. Has a goal to educate the nation's children. In order to realize this, many efforts have been made by the school, including by preparing experienced and expert teaching staff in their field as well as adding internet facilities provided for teachers and students to facilitate the search for information needed to support the teaching and learning process.

Currently, SMKTIK Yadika Cicalengka has a number of personnel consisting of 30 educators and 4 education staff (tendik) with a work schedule every Monday - Friday from 07.00 to 14.00 WIB. payment of fixed salaries, teaching fees, face-to-face fees, transportation, position allowances, honorarium for picket honors for principals, honoraria for homeroom teachers, picket officers, and extracurricular tutors.

As for what is meant by a fixed salary, namely a nominal amount given to employees (both teachers and staff) who are permanent employees of the Foundation, it is given on the 1st. determined by the school which is calculated hourly, There are several types of discounts such as: BPJS discounts, Attendance discounts, Cooperative discounts, Goods discounts, etc.

Position allowances are given to employees who have positions or positions at SMKTIK Yadika Cicalengka, including the positions of school principals, assistant principals (PKS), heads of administration and homeroom teachers. The picket officers and extracurricular coaches who get a number of honorariums are calculated based on school rules and are given every month.

SMKTIK YADIKA CICALENGKA as one of the educational institutions that aims to advance itself in order to be able to survive in the current era of computerization and modernization. Currently, SMKTIK Yadika Cicalengka has less attendance, frequent payroll errors, still uses spreadsheet applications to manage teacher salaries, often accumulates data at the end of the month, payroll is not on time.

2. Literature Review

The literature reviews can see in the Table 1.

Table 1: Literature Riview

No	Writer's name	Title	Results	Difference
1.	Putri Imelda Sari (2018) Thesis for College of Informatics and Computer Management (STMIK) Gici Batam	Information System for Archiving Incoming and Outgoing Letters at Notary Debora Ekawati Lukman Dadali, SH	Designing a desktop-based information system for archiving incoming and outgoing mail using Microsoft Access 2007 and Visual Basic.net 2010 databases. The system was created to facilitate employees in archiving letters.	1. The location in the research is different, namely located at the Notary 2. The system used is different, Putri Imelda made a 2010 desktop-based system.
2.	Rita Lestari (2016) Thesis of UIN Alauddin Makassar	Design of Archives Management Information System at the Integrated Licensing and Investment Agency for the City of Makassar	Designing and building a website-based archive management information system that can streamline time in searching, data collection, and reporting incoming and outgoing mail.	1. Locations in different studies 2. Using the Waterfall method
3.	Rosalina Citra (2020) Ma'soem University Final Project	Design and Development of a Website-Based Archiving Information System for Incoming and Outgoing Letters at SMA Bina Muda Cicalengka	Designing a mail archive information system in the process of recording archives using the website programming language and Sublime as the programming software and MySql as the database.	1. The location of the research is different, namely at SMA Bina Muda Cicalengka 2. The system created by Rosalina cannot make dispositions through the website.
4.	Tri Yuli Nugrahanto (2019) Final Project at the University of Semarang	Letter Archiving Management Information System at the Fishing Center	Designing a website-based information system using the PHP programming language and Atom Text Editor as the software specifically for the fishing village hall office.	1 Research Locations are different 1. Using the waterfall method

3. Materials and Methods

3.1. Materials

The method used in the preparation of this thesis is a descriptive method where through this method the author describes the current website-based Payroll system and analyzes its shortcomings so that solutions can be found to overcome OOAD (Object Oriented Analysis and Design). or a linear sequential model (Maylawati et al., 2018). The stages of RUP work include: business modeling, requirements, analysis and design, implementation, test, and deployment (Lasando et al., 2022; Setiawan, 2004; Borzacchiello et al., 2009; Zhang & Cui, 1999). While the modeling tools use UML (Unified modeling language), the programming language uses the PHP web (Hyper Preprocessor) and the database uses MySQL.

3.2. Methods

Application needs in the Design and Build of a Website-Based Teacher Payroll Processing Information System at SMKTIK Yadika Cicalengka, starting from processing goods data, and sales reports are needed in the needs of this application including purchase transactions, sales transactions and reports including transaction reports, daily sales reports and income statement.

A. Problem Analysis

The problem analysis was carried out on the work unit that had the most impact in the grocery store, following analysis of the problems obtained from the results of interviews and observations with the manager:

a) How to anticipate calculations to avoid mistakes?
b) How to anticipate the occurrence of data duplication and data deletion?
c) How to anticipate payroll reports so that they can be on time?

B. Hardware Requirements Analysis

Hardware Requirements Analysis Definition of system requirements are the factors needed by the system and required for software design, so that the software is in accordance with the intent and purpose of its manufacture as Table 2.

Table 2: Hardware Requirements

No	Device Name	Needs
1	PC/Laptop	1 Unit
2	Printer	1 Unit
3	Wifi	1 Unit

C. Functional Needs

Functional requirements are requirements that functionally must be fulfilled by the software that will be built. These needs will be described in the form of a Table 3 until Table 7:

Table 3: Admin Functional Requirements

No	Requirement Code	Description of Needs
1	ADM-1	Login
2	ADM-2	User
3	ADM-3	Position
4	ADM-4	Teacher
5	ADM-5	Invaler
6	ADM-6	Attendance
7	ADM-7	Cut Type
8	ADM-8	Piece
9	ADM-9	Payroll
10	ADM-10	Payroll Report
11	ADM-11	Cut Report
12	ADM-12	Attendance Report
13	ADM-13	Invaler Report

Table 4: Functional Needs of TU Staf Staff

No	Requirement Code	Description of Needs
1	ST-1	Login
2	ST-2	Teacher
3	ST-3	Invaler
4	ST-4	Attendance
5	ST-5	Cut Type
6	ST-6	Piece
7	ST-7	Payroll
8	ST-8	Payroll Report
9	ST-9	Cut Report
10	ST-10	Attendance Report
11	ST-11	Invaler Report

Table 5: Teacher's Functional Needs

No	Requirement Code	Description of Needs
1	GR-1	Login
2	GR-2	Teacher
3	GR-3	Attendance
4	GR-4	Payroll
5	GR-5	Payroll Report
6	GR-6	Cut Report
7	GR-7	Attendance Report
8	GR-8	Invaler Report

Table 6: Invaler Functional Requirements

No	Requirement Code	Description of Needs
1	IR-1	Login
2	IR-2	Invaler
3	IR-3	Attendance
4	IR-4	Payroll
5	IR-5	Payroll Report
6	IR-6	Cut Report
7	IR-7	Attendance Report
8	IR-8	Invaler Report

Table 7: Principal Functional Needs

No	Requirement Code	Description of Needs
1	KS-1	Login
2	KS-2	Payroll Report
3	KS-3	Cut Report
4	KS-4	Attendance Report
5	KS-5	Invaler Report

D. Use Case Diagram

Use case diagrams show a set of use cases and form an orderly system that is carried out by an actor. This diagram is very important for organizing and modeling the behavior of the system that users expect. The functional requirements that will be described are the functional needs of admin, tu staff, teachers, invalers, and principalsas follows in this image:
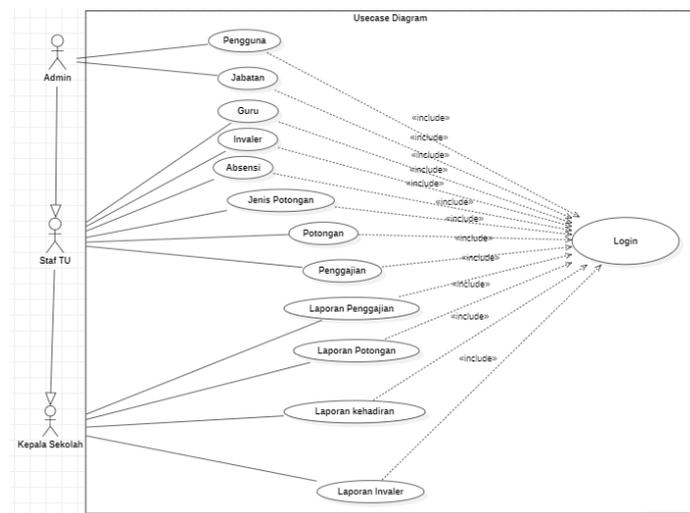
**Figure 1:** Use Case Diagram of Teacher Payroll
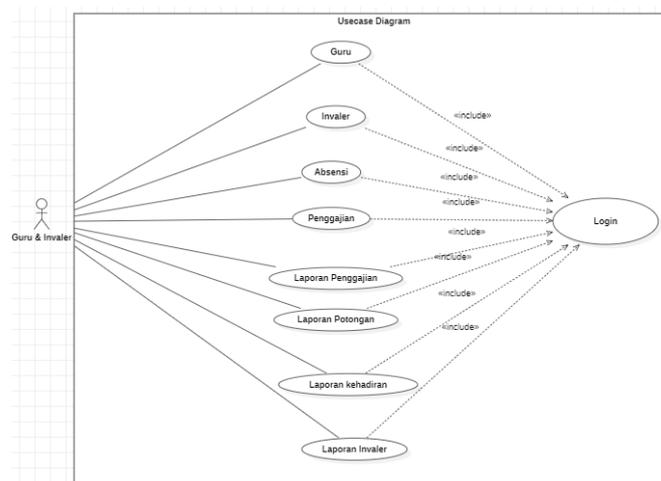
Figure 2: Use Case Diagram of Teacher Payroll

4. Results and Discussion

4.1. Testing and Implementation

White Box Testing is a test to check the details of the program created. This testing is focused on detecting inappropriate conditions in the system or detecting logical errors in program writing.

Table 8: Testing

No	Case Test	Test Step	Expected results	Accurate Results	Information
1	Login Button	Fill in the form and login button	Show Admin Page	Admin Dashboard Show	In accordance
2	User (Admin)	Click View User Data	Display user data, from add, edit and delete	Show user data	In accordance
3	Attendance (TU staff)	Click View Attendance Data	Display attendance data from add attendance	Show attendance data	In accordance
4	Payroll (Teacher)	Click Payroll Results	Show payroll	Show payroll	In accordance
5	Payroll (Invaler)	Click Payroll Results	Show payroll	Show payroll	In accordance
6	Report (Principal)	Click Report Results	Viewing Report	Show Report	In accordance

4.2. Implementation

Implementation is a stage in the design of a software. The implementation stage is carried out after the analysis and design process is completed. At the implementation stage, things that are directly related to the device will be discussed.
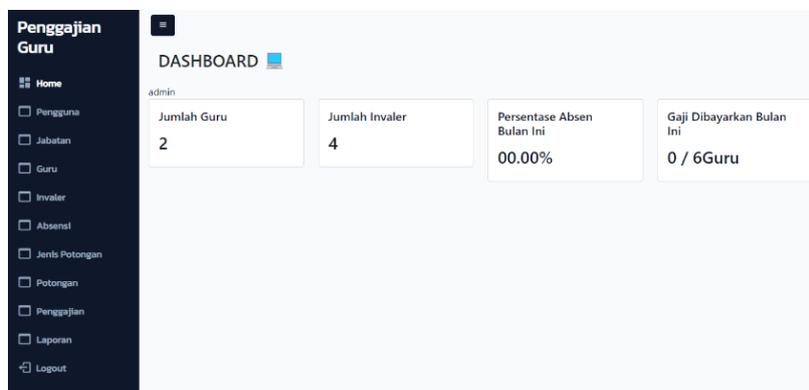
Figure 3: Dashboard Pages
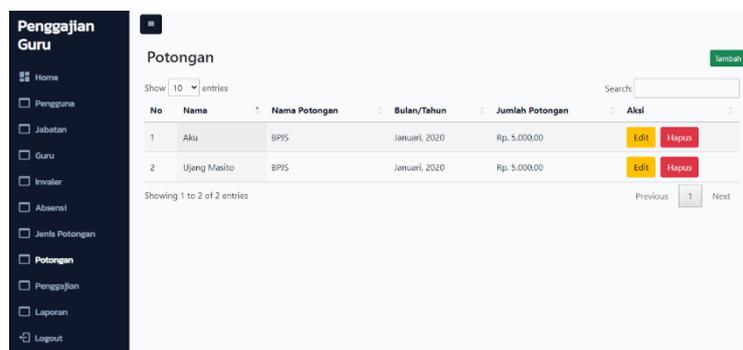
Figure 4: Snippet

Figure 5: Payroll page

Figure 6: Payroll Report Page

5. Conclussion

Based on the analysis of the system that the author made, namely the Design of a Website-Based Teacher Payroll Processing Information System at SMKTIK Yadika Cicalengka, there are several conclusions drawn from this research, including the following:
a) This program can make payroll calculations easier
b) Payroll information systems can simplify and minimize the occurrence of data duplication and data deletion.
c) This program can make it easier to make payroll reports

References

Borzacchiello, M. T., Torrieri, V., & Nijkamp, P. (2009). An operational information systems architecture for assessing sustainable transportation planning: principles and design. *Evaluation and Program Planning*, *32*(4), 381-389.

Irfan, M., Putra, S. J., & Ramdhani, M. A. (2019). The readiness model of information technology implementation among universities in Indonesia. In *Journal of Physics: Conference Series* (Vol. 1175, No. 1, p. 012267). IOP Publishing.

Joosten, J., & Hita, H. (2023). Operational Information System Design at Sigar Jaya FotoCOPY. *Jurnal Sistem Informasi dan Ilmu Komputer Prima (JUSIKOM PRIMA)*, *7*(1), 1-7.

Lasando, N., Hulukati, W., Ilham, A., & Rahmat, A. (2022). Perceptions About the Implementation of Holistic Integrated Early Childhood Education in Gorontalo Province. *Journal of Pedagogical Inventions and Practices*, *7*, 92-101.

Maylawati, D. S., Aulawi, H., & Ramdhani, M. A. (2018). The concept of sequential pattern mining for text. In *IOP Conference Series: Materials Science and Engineering* (Vol. 434, No. 1, p. 012042). IOP Publishing.

Setiawan, G. (2004). Implementation in the Development Bureaucracy. *Balai Pustaka, Jakarta*, 39.

Zhang, X. S., & Cui, J. C. (1999). A project evaluation system in the state economic information system of china an operations research practice in public sectors. *International Transactions in Operational Research*, *6*(5), 441-452.

Zulfikar, W. B., Irfan, M., Alam, C. N., & Indra, M. (2017). The comparation of text mining with Naive Bayes classifier, nearest neighbor, and decision tree to detect Indonesian swear words on Twitter. In *2017 5th International Conference on Cyber and IT Service Management (CITSM)* (pp. 1-5). IEEE.