DELIVERY INFORMATION SYSTEM WEB-BASED DESIGN AT BANDUNG SPP POSTS

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ABSTRACT

Central processing post office in Bandung is a division of PT. Pos Indonesia is in charge of all postal shipments, from the sender to the intended recipient. The main issue raised by this study is the slow process of POS SPP Bandung receiving and delivering goods.This study uses a descriptive research method, from the research that has been done, there are factors that hinder the process of receiving and delivering goods at POS SPP Bandung, as they still use a system that we consider less efficient and less efficient, so it will Interfere with the process of receiving and delivering goods. Therefore, in this paper, a Goods Delivery Information System was designed using Unified Modeling Language (UML) and implemented using PHP programming language, Framework Code version 4 and MySQL database. With this application system, it is expected that employees can make it easier and speed up the process of inputting goods into and out of the Bandung SPP Post office.
Keywords: Information Systems; Receipt of Goods, Handover of Goods, Delivery of Goods, UML.

1. Introduction

Post SPP Bandung One of the divisions of PT. Pos Indonesia (Persero) is in charge of managing all forms of postal items from the sender to the intended party, and the Central Post Processing Post SPP Bandung manages, plans, and controls a series of special express postal processes from the time it is received from the Distribution Section to hand it back to the Distribution Section to be sent to their respective destination offices (Amelia, 2019).

At SPP Bandung, several data processing issues arise, including the recording of handover data using Microsoft Excel without the knowledge of the administrator, because the application used at SPP Bandung does not yet have this feature. It also makes it difficult for workers to summarize data on the transfer of goods, which will later be transferred again in the form of a report. This, of course, will slow down workers sorting goods because it is less efficient and will eventually disrupt the shipping process. Customers may have to wait too long for deliveries as a result of the disrupted sorting of goods.

Because the frequency of sorting goods at SPP Bandung is quite high, we require a system that improves the effectiveness and efficiency of goods handover. As a result, in this study, the delivery information system will be designed using Unified Modeling Language (UML) modeling.

UML (Unified Modeling Language) is a language standard that is widely used in industry to define requirements, perform analysis and design, and describe architecture in object-oriented programming (Josi, 2017). And codeigniter framework and My SQL database were used to implement it in PHP programming language (Betari, et al., 2017).

An information system is a collection of elements that work together, either manually or automatically, to perform data processing in the form of collecting, storing, and processing data to produce information that is meaningful and useful for decision-making at various levels of management (Heriyanto, 2018; Collins, et al., 2021).

The Goods Handover information system is a computer program designed to assist PT. Pos Indonesia's in the activities of sorting goods and reports required by PT. Pos Indonesia. This activity is to process data on delivery of goods, data on delivery of goods, data sorting of goods, and daily reports of goods that go to POS SPP Bandung.

The activity of distributing producer goods and services to consumers is defined as delivery. Delivery is an activity that allows products to be delivered from producers to consumers. According to the previous definition, the benefit of delivery is the transfer of ownership of goods or services. Marketing channel flows or delivery channel flows are created by delivery activities.

2. Research Methods
a. Method of data collection

The author employs qualitative research methods in the data collection process. Qualitative research is a research process that seeks to understand human or social phenomena by developing a comprehensive and complex picture that can be presented in words, reporting detailed views obtained from informant sources, and conducting the research in a natural setting (Fadli, 2021)

Descriptive research methods were also used in this study. Descriptive research aims to collect information about the status of an existing symptom, specifically the symptoms that existed at the time the research was conducted (Zellatifanny & Mudjiyanto, 2018). To accomplish this, the following data collection techniques are required for system design:

1. Observations are observations made about events that occur (Sutama et al., 2017).
2. Interviewing is a technique for gathering data or information from pre-determined "informants" and/or "respondents" using "one-sided but systematic question and answer" on the basis of the research objectives to be achieved (Rohmad & Supriyanto, 2015).

b. Methodology for System Development

The author employs the method waterfall in the design of this system.method Waterfall is a sequential software development process in which progress is seen as continuously flowing downwards (like a waterfall) through the phases of planning, modeling, implementation (construction), and testing (Tristianto, 2018).
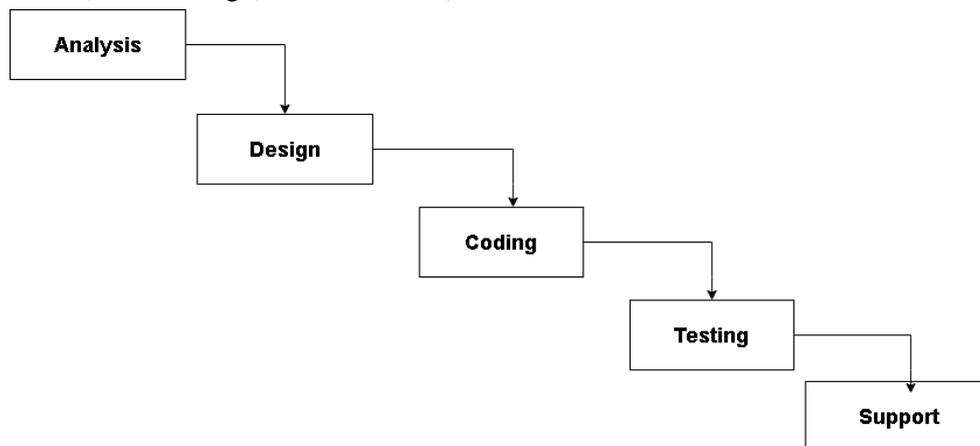

Fig. 1. Waterfall Method

1)   Analysis

The analysis is the intensive and focused process of gathering software requirements in order to understand the nature of the program being built and the needs of the software specification.

2)   Design

Software design is a multi-step process that focuses on data structure, software architecture, software representation, and algorithm details..

3)   Coding

Coding that is implemented in design results and entered into a code or language that computer machines understand using a specific programming language

4)   Testing

This test is used to validate previously created programs. This is done to ensure that the output is as desired, and it is also done to find errors (errors) in the program

5)   Support

When software is sent to the user, it will undergo changes because the software must adapt to the environment (new operating system).

c.   Basic theory

Design is an attempt to build a system in such a way that specification requirements can be met either explicitly or implicitly. An information system is a method of achieving goals by collecting, storing, managing, controlling, and reporting information (Abdussalaam & Badriansyah, 2021).

3. Results and Discussion

This system's design was created as a stage to prepare for the implementation process and to provide users with an overview of the system being developed. The purpose of the general description of the proposed system is to provide the user with a general description or the entire system regarding the new information system.

a.   Information System Design

1)   Diagram Use Case

A use case diagram is a model for the behavior of a future information system. A use case describes an interaction between one or more actors and the upcoming information system. In general, use cases are used to determine what functions exist in an information system and who has the authority to use those functions(Faulina, 2016). diagram Figure 2 depicts a use case for the admin's goods handover application.
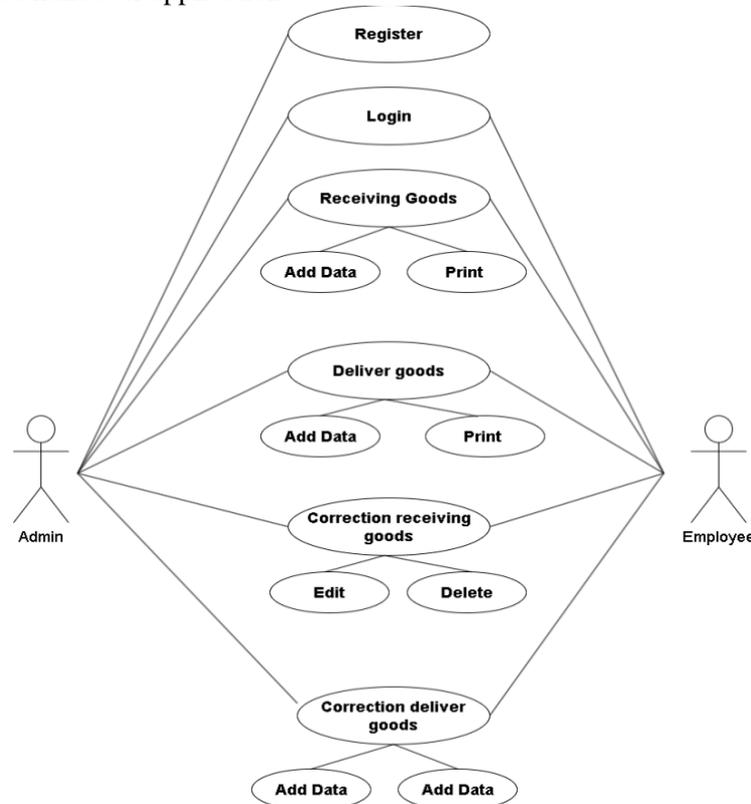

Fig. 2. Use Case Diagram Handover Application

There are two types of actors: administrative and employee. Admin is capable of managing. Account registration, login, input incoming and outgoing goods, edit and delete items, and print item reports are all available to admins, while actors are nearly identical to admins except that they cannot register accounts or print reports..

2)   Activity Diagram

Diagram Activity modeling is a type of system modeling that describes the activities of the system while it is running. Activity diagrams are used to explain program activities without requiring a knowledge of coding or display(Kurniawan et al., 2020). Figure 2 depicts the activity diagram for the goods handover application.
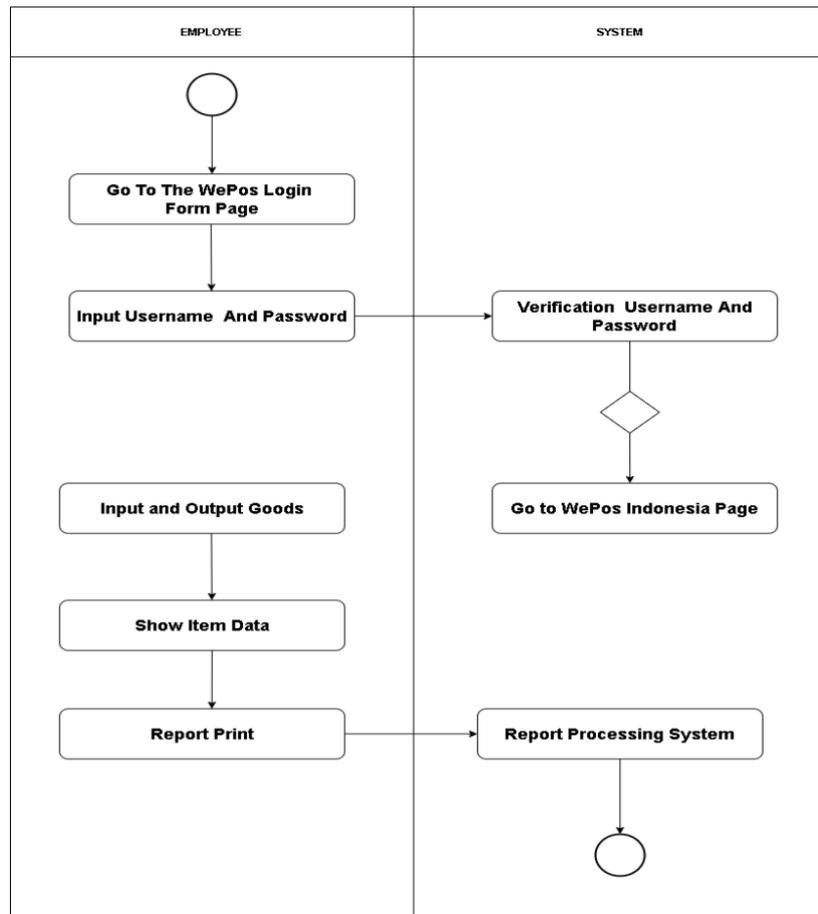
Fig. 3. Activity Diagram Goods Handover Application

There are several activities are proposed in the diagram above, beginning with logging in by entering a username and password, inputting incoming and outgoing goods, displaying incoming and outgoing goods data, and printing reports.

3)   Class Diagram

A class diagram is The core of object-oriented development and design , which is a specification that, when instantiated, produces an object."(Aghniya & Pinjam, 2019). Figure 3 depicts the class diagram for the Goods Handover application.
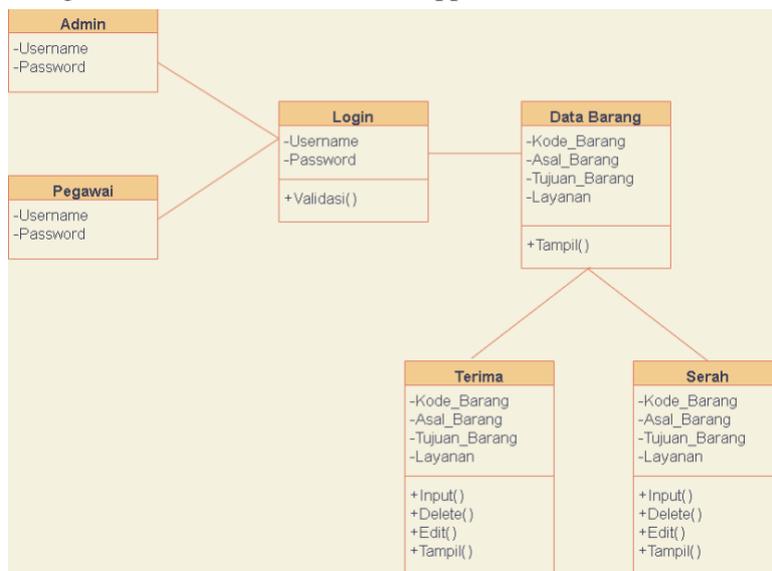

Fig. 4. Goods Handover Application Class Diagram

There are several classes in class diagram, including adminclass, employeeclass, loginclass, goodsdataclass, receivingclass, and deliveryclass. Login class has a username and password, as does Employee class. A username and password are required for class login. Item code, origin of goods, destination of goods, and services are all attributes of the item data class. The receiving class has item code, origin of goods, destination of goods, and services attributes, while the delivery class has item code, origin of goods, destination of goods, and services attributes.

b.   Information System Implementation

1)   Login Display

Form login is used to validate the user who has been granted access rights to the application for goods handover at PT. Pos Indonesia, as shown in Figure 5 below.

Fig. 5. Form Login

Form Login input is the username and password entered in the textbox. When you click the Login button, your account will be validated.

2)   Main page
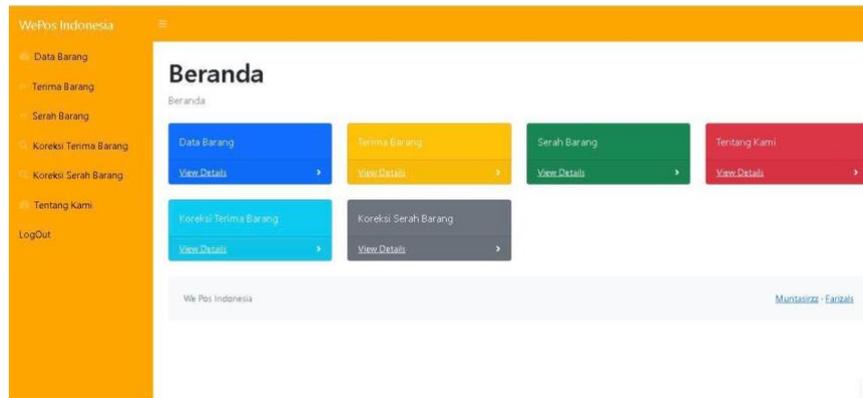
Figure 6 depicts the Main Page Form.

Fig. 6. Form Main Page

3)   Incoming and Outgoing Goods Input Page

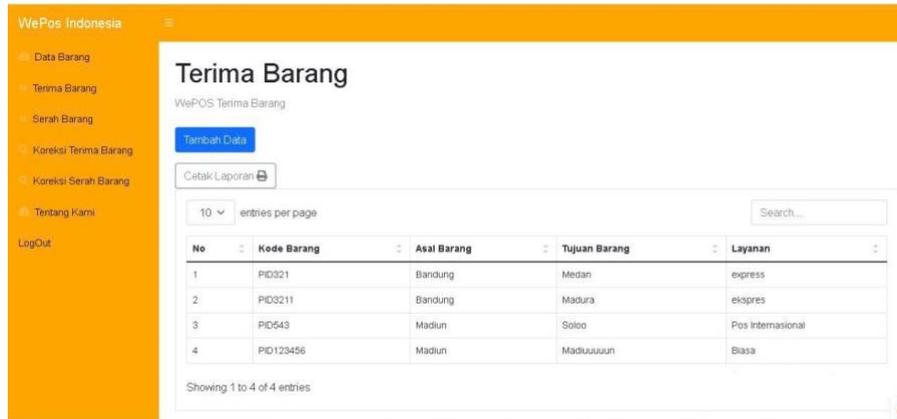Figures 7 and 9 depict the input forms for incoming and outgoing goods.

Fig.7. Form Receipt of goods

Figure 7 depicts the screen that appears when an employee or administrator selects the option to receive goods from the main page. Employees or users can add data on goods received in this view and print reports based on data on goods received.

Fig. 8. Form Data Input Receive Goods

Figure 8 depicts what happens when an employee or administrator chooses to add data from the goods receipt page.
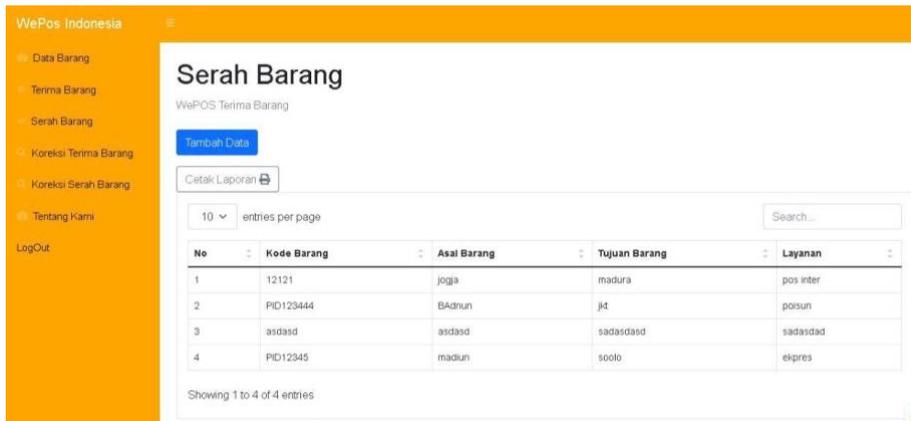

Fig. 9. Form Delivery of Goods

Figure 9 depicts what happens when an employee or administrator selects the delivery option on the main page. Employees or users can add data on goods to be sent and print reports based on data on goods to be sent in this view.

Fig. 10. Form Data Input Receive Goods

Figure 10 depicts what happens when an employee or administrator chooses to add data from the delivery page.

4)   Correction Page
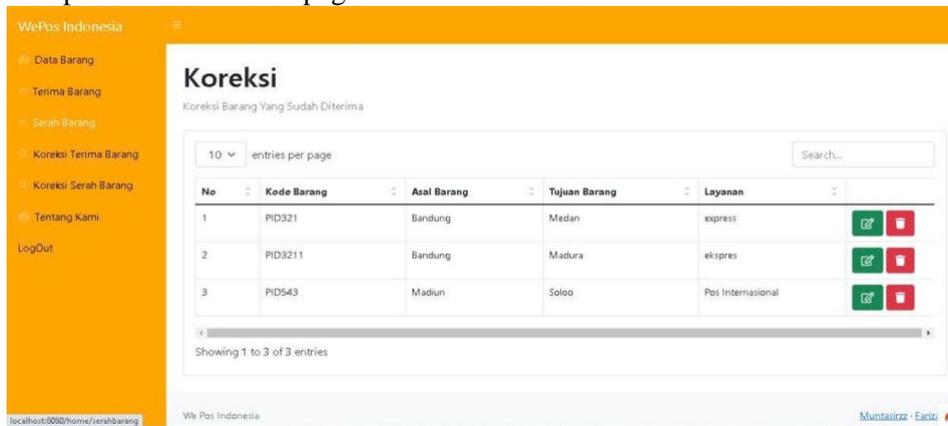
Figure 11 depicts the Correction page.

Fig. 11. Form Correct

Figure 11 depicts a screen where employees or administrators can delete incorrect item data.

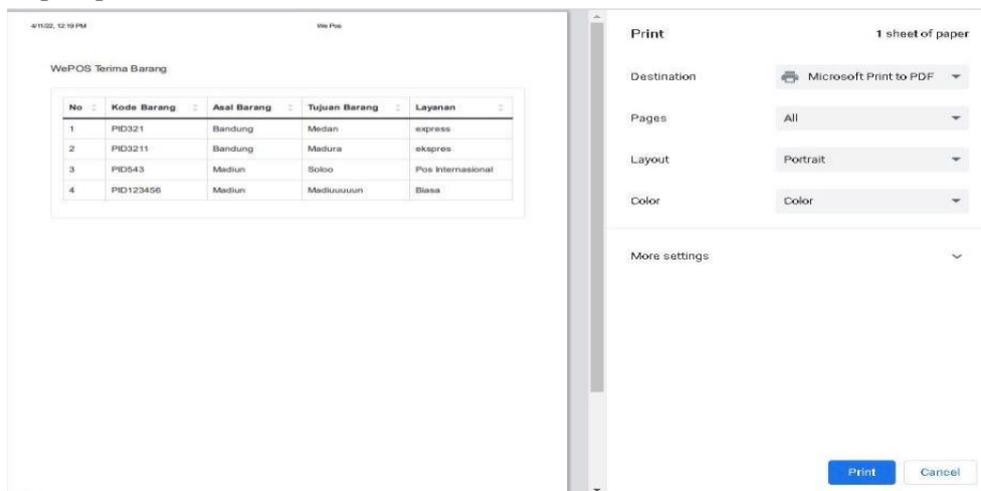5)   Report Print Page

Report print form

Fig. 12. Print Report

Figure 12 shows a report that appears when an employee or administrator chooses to print a report on the goods receipt or delivery page. Only administrators can print reports from this page and save them to a folder on our computer.

c.   Hardware and Software Specifications

1)   Hardware

Hardware specifications required to ensure the proper operation of the Handover information system. Here are the recommended specifications:

Table 1 - Hardware Specification

Hardware	Hardware Example
Processor	Intel ® Pentium (R) CPU Core i3
RAM	2 GB or higher
Hardisk	320 GB or higher
Keyboard	Compatible with Ms. Windows
Mouse	Compatible with Ms. Windows

2)   Software

The web-based Goods Handover information system requires software to support program needs. The following are the software specifications for constructing the designed system:

Table 2 - Software Specification

Software	Software Example
Operating system	Ms Windows 7 or higher
Programming	PHP
Database Processing	My SQL
Web Server	XAMPP

4.   Conclusion

This research resulted in a delivery system implementation design at PT.-based post Web using the PHP programming language, the Codeigniter framework version 4, and the database My SQL. This application includes a login, data items, and input for incoming and outgoing goods. Those who can use the web-based goods handover application system are admins and employees. Website This can help employees work faster with customers, especially when it comes to receiving and sending goods.

References

Abdussalaam, F., & Badriansyah, B. (2021). Perancangan Sistem Informasi Pemeriksaan Barang Berbasis Web Menggunakan Metode SSAD. *EXPERT: Jurnal Manajemen Sistem Informasi dan Teknologi*, *11*(2), 174. https://doi.org/10.36448/expert.v11i2.2167

Aghniya, I. R., & Pinjam, P. S. (2019). Implementasi Metode Waterfall Pada Program Simpan Pinjam. *Jurnal Interkom*, *14*(1), 44–53.

Amelia, S. (2019). Rancang Bangun Sistem Penilaian Artikel Menggunakan Metode Weighted Product (Wp) Pt Pos Indonesia (Persero). *Jurnal Ilmiah Informatika, 7*(02), 67-75.

Betari, O., Erramdani, M., Roubi, S., Arrhioui, K., & Mbarki, S. (2017). Model transformations in the MOF meta-modeling architecture: from UML to codeIgniter PHP framework. In *Europe and MENA Cooperation Advances in Information and Communication Technologies* (pp. 227-234). Springer, Cham.

Collins, C., Dennehy, D., Conboy, K., & Mikalef, P. (2021). Artificial intelligence in information systems research: A systematic literature review and research agenda. *International Journal of Information Management*, 60, 102383.

Fadli, M. R. (2021). Memahami desain metode penelitian kualitatif. *Humanika*, *21*(1), 33–54. https://doi.org/10.21831/hum.v21i1.38075

Faulina, S. T. (2016). Sistem Informasi Penjadwalan Petugas Sholat 5 Waktu Dan Jum' at Pada Masjid Jami ' Hujjatul Islam Berbasis Web Mobile. *Jusim*, *1*(1), 53–62.

Heriyanto, Y. (2018). Perancangan Sistem Informasi Rental Mobil Berbasis Web Pada PT.APM Rent Car. *Jurnal Intra-Tech*, *2*(2), 64–77.

Josi, A. (2017). Penerapan Metode Prototyping Dalam Membangun Website Desa (Studi Kasus Desa Sugihan Kecamatan Rambang). *Jti*, *9*(1), 50–57.

Kurniawan, H., Apriliah, W., Kurniawan, I., & Firmansyah, D. (2020). Penerapan Metode Waterfall Dalam Perancangan Sistem Informasi Penggajian Pada SMK Bina Karya Karawang. *Jurnal Interkom: Jurnal Publikasi Ilmiah Bidang Teknologi Informasi dan Komunikasi*, *14*(4), 13–23. https://doi.org/10.35969/interkom.v14i4.58

Rohmad, H., & Supriyanto. (2015). Pengantar Statistika Panduan Praktis Bagi Pelajar dan Mahasiswa. *Pengantar Statistika Panduan Praktis Bagi Pelajar dan Mahasiswa*, 131.

Sutama, S., Sandy, G. A., & Fuadi, D. (2017). Pengelolaan Penilaian Autentik Kurikulum 2013 Mata Pelajaran Matematika di SMA. *Manajemen Pendidikan*, *12*(1), 105. https://doi.org/10.23917/jmp.v12i1.2967

Tristianto, C. (2018). Penggunaan Metode Waterfall Untuk Pengembangan Sistem Monitoring Dan Evaluasi Pembangunan Pedesaan. *Jurnal Teknologi Informasi ESIT*, *XII*(01), 7–21.

Zellatifanny, C. M., & Mudjiyanto, B. (2018). The type of descriptive research in communication study. *Jurnal Diakom*, *1*(2), 83–90.