



IMPLEMENTATION OF PT KERTA GAYA PUSAKA PACKAGE DELIVERY RECEIPT NUMBER TRACKING GIS IN ASAHAN

Akmal Hudha Tanjung^{1*)}, Muhammad Amin²⁾, Santoso³⁾
¹²³Sekolah Tinggi Manajemen Informatika dan Komputer Royal

*Corresponding Email: akmalhudhatanjung12@gmail.com

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Abstract

PT Kerta Gaya Pusaka is one of the package delivery expedition services located on Jalan Cokroaminoto, Kisaran Train Station Complex, Asahan Regency. Geographic Information System (GIS) Geographic information system is a system that presents information in graphical form using a map as an interface, in addition to this geographic information system also can connect various data at a certain point. PT Kerta Gaya Pusaka does not yet have a system that makes it easy for couriers to find the location of the recipient of the package because the address given is incomplete so that when searched using google maps the intended address is not found so the courier gets lost which causes the delay in the package delivery process. This is detrimental to the courier because time is wasted on sending the package and the other packages are delayed in the delivery process. By implementing a Geographic Information System (GIS) it can make it easier for couriers in the package delivery process because the address search process becomes more accurate which can bring up information to the courier, namely the receipt number, sender name, recipient name, home address of the sender, recipient, weight and shipping costs and This system can be accessed by the sender and recipient of the package to know the status of the existence of the package.

Keywords: Geographic Information System, Package Delivery, Expedition.

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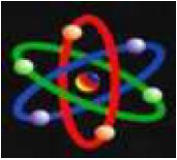
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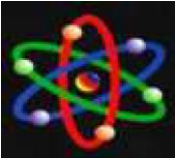


INTRODUCTION

The development of computerized technology has increased rapidly, this is indicated by the increasing number of functions on mobile devices. This is the beginning of an evolution of mobile devices, in this case it is marked by the birth of smart phone technology (smartphone) whose capabilities are increasingly equivalent to a personal computer. A Geographic Information System (GIS) is an organized collection of computer hardware, software, geographic data and personnel designed to efficiently obtain, store, update, manipulate, analyze and display all forms of geographically referenced information [1]. This research is strengthened by the previous research conducted by Iskandar and Muslim (2021-) with the title "Designing a Postal Package Delivery Tracking Application System Based on a Branch Website of PT. XWZ". The result is that the application can help ease and simplify the work process of the delivery officer so that it is more time efficient in data processing and package delivery and can reduce the risks faced in processing packet delivery data related to the problem of tracking the position of the package [2]. In dealing with the above problems, the right solution is needed in solving the problem, namely building a Geographic Information System (GIS) for the company PT Kerta Gaya Pusaka. The system will synchronize data from the courier and sender regarding the location of the package and document delivery as well as the delivery address which will be useful for the courier and sender. A GIS will also be made to provide information on the journey of goods from one area to another so that service

providers or goods owners can use this information (tracking), contain various latest shipping information, load tariff information, load profiles and provide other useful information. for the Sender. This can minimize the loss of goods, or other work accidents and the goods sent can arrive at their destination according to the initial delivery plan. The system is a framework of interrelated procedures arranged according to a comprehensive scheme, to carry out an activity or main function of the company [3]. The system is an orderly arrangement of interrelated activities and the arrangement of interrelated procedures, which carry out and facilitate the main activities of the organization/institution [4]. Information is a collection of data that has been processed both qualitatively and quantitatively and has a broader meaning. Data that is processed into a form that is more useful and more meaningful for those who receive it [5]. Information is data that has been processed/processed so that it has a useful meaning or benefit. Data are facts, figures, or statistics that can produce conclusions [4]. Geography is the science of the earth (earth science) by studying the surface of the earth as a human living environment which is an environment that affects human life and the environment where humans can change and build it. Geography pays attention to the main elements such as distance, elements of interaction, elements of movement, and elements of dispersion in analyzing [6]. Literally, understanding the concept of geography is the most important part in understanding a natural and social phenomenon or event and is always related to the relationship, distribution, pattern, form, function, and also the processes that





occur [7]. Geographic information system is a form of information system that presents information in graphical form using maps as an interface, besides that geographic information systems also have the ability to connect various data at a certain point on earth, combine them, analyze them and finally break the results [8]. Geographic information system is a computer-based system that has the ability to retrieve, store and process data both in the form of spatial data and textual data and can display the results of processing the data quickly, precisely, and in actuality and later presented geographically [9].



Figure 1. Components in Geographic Information Systems [10]

RESEARCH METHODS

The research method used in this study is qualitative research, which is research that only collects data and explains descriptively/narratively without having to be processed by statistical testing. This research will only utilize the data obtained from the research site and input it without changing anything. Data collection technique is a method that is systematic and objective with the aim of obtaining

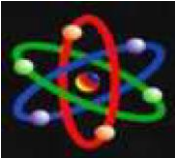
and collecting data and information that is examined in detail and correctly.

RESULTS AND DISCUSSION

System analysis is an analytical activity in describing any problems in the current information system. In this study the authors observed the process of shipping goods at PT. Kerta Gaya Pusaka does not yet have a geographic information system that can be accessed directly by the recipient regarding tracking the receipt number so that the recipient or shipper does not know where the package has been sent. With these problems, PT. Kerta Gaya Pusaka experienced problems in the process of shipping goods. To explain what kind of process the packet delivery mechanism is running on PT. Kerta Gaya Pusaka, the author explains in the form of an information system flow. In problem analysis, the authors analyze the problems that occur in the research location, namely in the process of sending packages or goods at PT. Kerta Gaya Pusaka does not yet have a geographic information system that can be accessed directly by the recipient regarding tracking the receipt number so that the recipient or shipper does not know where the package has been sent. With this problem, the sender or recipient who uses the services of PT. Kerta Gaya Pusaka experienced problems in the process of sending goods, namely not knowing where the package was and if the package had arrived, who would receive the package.

The new system is a system that the author proposes to overcome the problems described in the previous discussion. The





form of the proposed system in the study is as follows:

1. The sender gives the package either in the form of goods or in the form of documents to the administration.
2. The administration section checks the type of package to be sent. After checking the package, the administration inputs the sender's data into the tracking system.
3. The administration prints a receipt as much as two copies of the data that has been entered into the database.
4. The administration section prepares the package to be sent to be given to the courier.
5. Couriers receive packages that have been prepared by the administration.
6. The courier sends the package based on the address that has been filled in by the sender previously.
7. The courier delivers the package to the recipient.
8. The recipient can check the existence of the package by entering the receipt number and the recipient receives the package sent by the courier.
9. The sender can also see the existence of packages that have been or are being delivered by couriers and see the cost of sending packages.
10. The courier inputs data into the system that the package has been received.
11. The sender and recipient department can track the position of the package whether the package has been sent or received.



Figure 2. Use Case Diagram GIS

Interface design is a design that is used to describe the interface of the system to be created. Here is the design of the system that will be made.

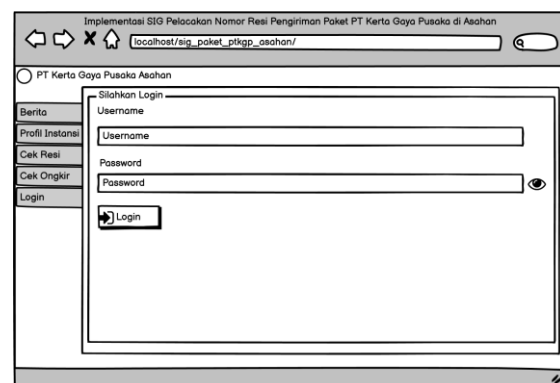


Figure 2. Login Menu Design

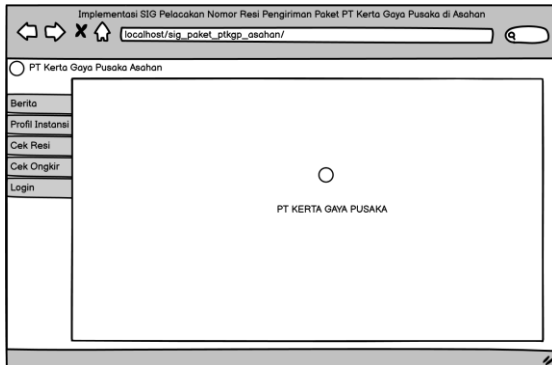
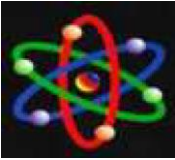


Figure 3. Receiver Main Menu Design

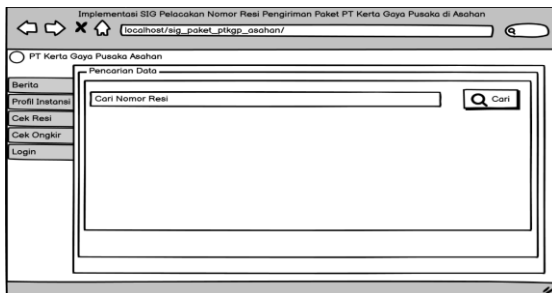


Figure 4. Check Receipt Menu Design

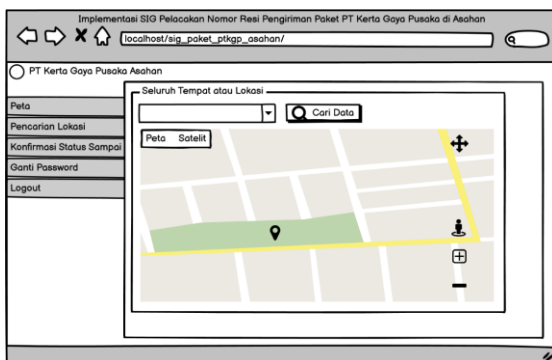


Figure 5. Place or Location Menu Design

Implementation is an action or plan that has been designed and prepared in detail. At this stage the focus is on implementing a system that has been designed and built with the appropriate programming language in order to obtain results that can

be manipulated and used according to user needs. The purpose of implementing this system is to test and record procedures from system design documents that have been designed to ensure that users can operate the system and train users to consider that the system meets user requirements, namely through testing the entire system. The design of the database (database) was built using MySQL. Implementation of the database on the tracking number tracking system at PT. Kerta Gaya Pusaka Buses 6 (six) tables.

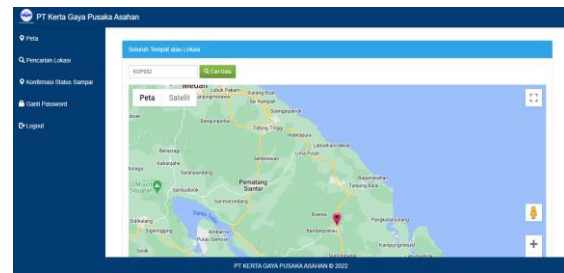
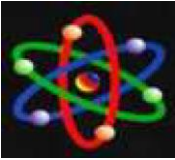


Figure 6. Implementation of the Place or Location Menu

Testing is an important part of the software development cycle. This test is carried out to see the quality and also find out the weaknesses of the software that has been built. The purpose of this test is to find out the software that is built, is as expected or not. This software testing uses the black box testing method, this black box test does not need to know what is happening in the system or software, what is tested is the input and output. The following is a black box test on the tracking system for parcel delivery receipt numbers at PT. Kerta Gaya Pusaka.



Name Test	Input Data	Testing Expectations	Result Testing	Conclusion
Form Login	Fill in the login field and click the button "Login"	Enter the main menu.	User can login into sistem.	[√] Succeed
Form Input News	Fill in the news/information field and click the "Save"	data saved in the database.	News and information can be stored in the database after clicking the button "Save".	[√] Succeed
Form Input Data Category Packet	Fill in the package category field by clicking the button "Save"	data is saved in the database.	Package categories can be saved in the database after clicking the button "Save".	[√] Succeed
Form Input Data Delivery	Fill in the package delivery data input field by clicking the button "Save"	delivery data can be stored in the database.	Package delivery information is stored in the database after clicking the button "Save".	[√] Succeed
Package Check Form	Enter the receipt number in the search field by clicking the search button "Search"	Packet data can be found by the sender or recipient of the package	The data appears after entering the receipt number	[√] Succeed
Form Check Shipping cost	Input sub-district data in the search field	There is a package delivery fee	The data appears after entering the	[√] Succeed
Form Input Status Package Paket	Input the package data that has been delivered by clicking the button "Change"	package status data can be stored in the database.	Package status information is stored in the database after	[√] Succeed

Print Resi	Select receipt menu click button "Print"	the print and the	View selected resi	clicking the button "Change". Admin can view and print resi number	[√] Succeed
Report	Select report and click button "Print"	menu and the	View the delivery report	Admin and Owner can view and print a report	[√] Succeed
Change Password	Fill in the change password field click button "Change"	change user and the	Get the field change password	User can change their password	[√] Succeed
Logout	Users exit system by clicking the button "Logout"	can the system	Logout system	User exit from a system	[√] Succeed

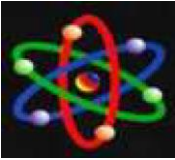
Table 1. Black Box Testing Table

CONCLUSION

Based on research that has been done at PT. Paper Gaya Pusaka, then the author can draw the following conclusions:

1. This geographic information system makes it easier for couriers to deliver packages because the address search process becomes more accurate.
2. This geographic information system can display information to couriers, namely receipt number, sender's name, recipient's name, home address of the sender or recipient, weight and shipping costs.
3. This geographic information system can be accessed by the sender and recipient of the package to find out the status of the existence of the package





BIBLIOGRAPHY

- [1] De Deken, J., & Clasen, J. (2011). Tracking caseloads: the changing composition of working-age benefit receipt in Europe. Regulating the risk of unemployment: National adaptations to post-industrial labour markets in Europe, 297-317.
- [2] Song, J., Haas, C. T., Caldas, C., Ergen, E., & Akinci, B. (2006). Automating the task of tracking the delivery and receipt of fabricated pipe spools in industrial projects. *Automation in construction*, 15(2), 166-177.
- [3] RECEIPT, T., & EQUIPMENT, D. O. (1908). POLICY NUMBER 2008-01 May 27, 2008. *Policy*, 2008, 01.
- [4] Ahmed, M., Anderson, C., & Stuewe, C. (1993). A Computer System for Requesting and Reporting Radiologic Examinations, Verifying Receipt of Reports by Referring Physicians, and Tracking Patients with Significant Abnormal Findings. In *Computer Assisted Radiology/Computergestützte Radiologie* (pp. 179-184). Springer, Berlin, Heidelberg.
- [5] Nishimoto, R., Weil, M., & Thiel, K. S. (1991). A service tracking and referral form to monitor the receipt of services in a case management program. *Administration in social work*, 15(3), 33-47.
- [6] Boykin, R. F. (2001). Enterprise resource planning software: a solution to the return material authorization problem. *Computers in Industry*, 45(1), 99-109
- [7] Lizar, M., & Hodder, M. (2014, September). Usable consents: tracking and managing use of personal data with a consent transaction receipt. In *Proceedings of the 2014 ACM International Joint Conference on Pervasive and Ubiquitous Computing: Adjunct Publication* (pp. 647-652).
- [8] Bruni, A., Drewsen, E., & Schürmann, C. (2017, October). Towards a mechanized proof of selene receipt-freeness and vote-privacy. In *International Joint Conference on Electronic Voting* (pp. 110-126). Springer, Cham
- [9] Jung, D. H. (2016). Differences in receipt of three preventive health care services by race/ethnicity in Medicare advantage plans: tracking the impact of pay for performance, 2010 and 2013. *Preventing Chronic Disease*, 13.
- [10] Menetrey, M. M. A., Menetrey, D. M., Shepherd, M., & Shepherd, M. H. (2004). FedEx Tracking# 840946637234 & 840946637267 Return Receipt Requested.

