

Design And Build A Web-Based Asset Management Information System at Pt Thamrin Telekomunikasi Network

Muhammad Yusuf Effendy¹, Euis Nurninawati², Ahmad Ari Setiyawan³

University of Raharja, Indonesia^{1,2,3}

e-mail: yusuf.effendy@raharja.info¹, euis.nurninawati@raharja.info², ahmad.ari@raharja.info³



Author Notification
04 January 2022
Final Revised
25 January 2022
Published
28 January 2022

Effendy, Y., Nurninawati, E. ., & Setiawan, A. (2022). MANAGEMENT INFORMATION SYSTEM DESIGN WEB-BASED ASSETS AT PT THAMRIN TELECOMMUNICATION NETWORK. *Aptisi Transactions on Technopreneurship (ATT)*, 4(1).

DOI: <https://doi.org/10.34306/att.v4i1.233>

Abstract

Asset management is a series of activities related to identifying needed assets, identifying funding needs, acquiring assets, providing logistical support and maintenance systems for assets, deleting or updating assets in order to achieve effectively and efficiently. At PT Thamrin Telekomunikasi Network, data collection on each company's IT assets, such as laptops, servers, network devices, and other peripheral devices is done manually using Microsoft Excel. However, sometimes IT staff forget to update data such as expiration date of the asset warranty period and transfer of asset ownership, as well as marking on assets still using handwritten stickers manually. Through this research, the author aims to design and implement a web-based IT asset management information system at PT Thamrin Telekomunikasi Network. The methods used in this research are interviews, observation, and literature study. The analytical method used is the PIECES method and the system design that is made is described by the UML (Unified Modeling Language) method, for application development using the SDLC method with the Extreme Programming model, as well as the application testing method, will use Black Box method. The final result from this research is a web-based IT asset management system that is built with HTML and Javascript programming languages, with MariaDB as the DBMS and using Laravel and Bootstrap as a framework of PHP and CSS. It is hoped that with this application, the IT asset management process at PT Thamrin Telekomunikasi Network can run more effectively, organized, and more efficiently.

Keywords: Information Systems, Asset Management, Web

1. Introduction

Information technology is an important thing that can affect the development of a company, including the application of information technology to the management of assets owned by an institution or company. Asset management is a series of activities related to identifying needed assets, identifying funding needs, acquiring assets, performing asset maintenance, to deleting or updating asset data.



PT Thamrin Telekomunikasi Network is an industry engaged in IT Managed Services that provides several services such as Colocation Server, Internet Service Provider and Outsource IT, Engineer. This company has quite a lot of IT assets, so to maximize their management, IT staff need an integrated asset management information system to be able to manage IT assets more efficiently, precisely, and accurately. However, at this time, IT asset management is still carried out semi-computerized using Microsoft Excel. This often causes duplication of data or other problems such as data on the warranty period of IT assets and repair status of damaged IT assets that are not updated. In addition, because asset data is still stored in excel format, it is prone to changes or manipulation of data by unauthorized parties, both internal and external to the company.

Based on the above problems, the authors aim to conduct research by designing and building an IT asset management information system at PT Thamrin Telekomunikasi Network. So that it can facilitate IT, staff in maintaining and monitoring or supervising IT assets more effectively and efficiently. So in this study, the author took the title **“Rancang Bangun Sistem Informasi Manajemen Aset Berbasis Web pada PT Thamrin Telekomunikasi Network”**.

2. Literature Review

Tabel 1. Literature Review

No	Penulis dan Judul	Metode	Hasil Penelitian
1.	Diah Aryani, Muhamad Arif Nurdin dan Pandi Baskara (2017), “Sistem Informasi Pengelolaan Aset Kendaraan Bermotor Pada STMIK Raharja Tangerang”	The design method uses UML, the PHP programming language and the Yii 2 framework, the database uses MySQL Server, and Sublime Text as a text editor which is used in designing the motor vehicle asset management website in STMIK Raharja.	The final result achieved is a web-based motor vehicle asset management application that can run more efficiently and effectively compared to a system that is still running manually.
2.	Ardiyani Agus Prayogo, Sri Handoyo Prapto, (2020), “Perancangan Aplikasi Monitoring Data Aset IT Berbasis Web pada PT Gratia Prima Indonesia”	Design method using UML (Unified Modeling Language), with Codeigniter framework as well as MySQL databases. Using SDLC with the waterfall method as the application design stage and Black box testing as the testing stage.	Results of research this is a web-based asset monitoring application system that can run more effectively and efficiently.
3.	Sri Hardiyanti, (2018), “Perancangan Sistem Informasi Manajemen Aset Berbasis Web pada PD BPR Kerta Raharja Cabang Balaraja”	Design using UML (Unified Modeling Language), with Codeigniter framework as well as MySQL databases. Using SDLC with waterfall method as the application design stage and Black box testing as the testing stage.	Results of research This is in the form of recommendations and suggestions for developing information systems in accordance with user needs as stated in the information system elicitation.

4.	Muhammad Rifki Alwafa, (2021), "Aplikasi Manajemen Aset PDAM Bandarmasih Kota Banjarmasin Berbasis Web"	The research method is interviews, observations, and literature review. Analyze and build applications using the waterfall method and for the application approach method using UML, as well as for making web-based programs using the PHP and PHP programming languages MySQL databases.	The final result of this research is an asset management application for PDAM Bandarmasih The city of Banjarmasin is web-based, it is hoped that this application can make it easier to manage data
5.	Febby Varezki dan Kondar Siahaan, (2021), "Analisis Dan Perancangan Sistem Informasi Manajemen Aset Pada SMA Negeri 4 Kota Jambi"	The method used is UML (unified modeling language), namely use case diagrams, class diagrams and activity diagrams.	This research produces a prototype that can be studied further to produce an asset management information system that can be implemented in SMA N 4 Jambi City

The results of this literature study demonstrate a solid foundation and strong reasons for developing a better information delivery system with careful consideration. The gaps have been identified properly so there is no reinventing the wheel. The review has been carried out carefully, so that it is certain that it will produce maximum final results, be more effective, and make it easier for users to provide information and manage asset data on PT Thamrin Telekomunikasi Network.

2. Research Method

In order to produce works that are in accordance with scientific theory and are effective, then in their preparation, there are several methods applied, including

2.1 Observation

In this method, researchers make observations to the company PT Thamrin Telekomunikasi Network so that the authors can get the data needed to conduct research

2.2 Analyze

Stages of analysis of a system or application is carried out before the design stage is carried out. The purpose of applying analysis to a system is to find out the reasons why the

system is needed, formulate the needs of the system to reduce excess resources, and help plan the scheduling of system formation, minimizing distortions that may exist in the system so that the functions in the system works optimally. The analytical method used by the researcher here is to use the PIECES method, namely:

A. Performance

Tabel 2. Performance Parameter

Parameter	Result
Throughput	Performance is less effective because the process of requesting new assets, collecting asset data, updating and deleting asset data until the preparation of asset data reports is still done manually.
Response Time	Response times in asset data collection and report generation are long because they have to make comparisons between incoming, outgoing asset data, and assets that are being repaired.

B. Information

Tabel 3. Information Parameter

Parameter	Result
Accuracy	The information presented is still not accurate, because the data is still stored in several different excel files. So errors often occur in the process of delivering data information.
Punctuality	Response times in asset data collection and report generation are long because they have to make comparisons between incoming, outgoing asset data, and current assets. repairs were made.
Relevant	The information provided is still less relevant due to errors that occur in asset data collection which are often not updated.

C. Economy

Tabel 4. Economy Parameter

Parameter	Hasil Analisa
Fee	Performance is less effective because the process of requesting new assets, and asset repairs are still done manually using paper forms, which require additional costs every month.

D. Control

Tabel 5. Control Parameter

Parameter	Hasil Analisa
Accessibility	Data dapat diakses oleh setiap orang selama mereka mengetahui lokasi file excel atau data aset IT, sehingga tidak mudah mengontrolnya karenarawan terjadi perubahan data oleh pihak yang tidak bertanggung jawab.

2.3 Design Method

The design method in this study uses the SDLC (Software Development Life Cycle) Extreme Programming (Agile) method. Then to provide an overview and design of the system development to be made, the author uses the UML (Unified Modeling Language) model using the Visual Paradigm application which consists of Use Case Diagrams, Activity Diagrams, Sequence Diagrams, and Class Diagrams. In this design, the author also uses the Javascript programming language with the help of the Visual Studio Code application as a code editor. In addition, the author also uses Laravel as a PHP framework and Bootstrap as a CSS framework to support the appearance and performance of the website so that it can be better, attractive, and dynamic. For database design, the author will use MariaDB as the DBMS and Laragon as the webserver which will later be used in the design and development of the proposed application.

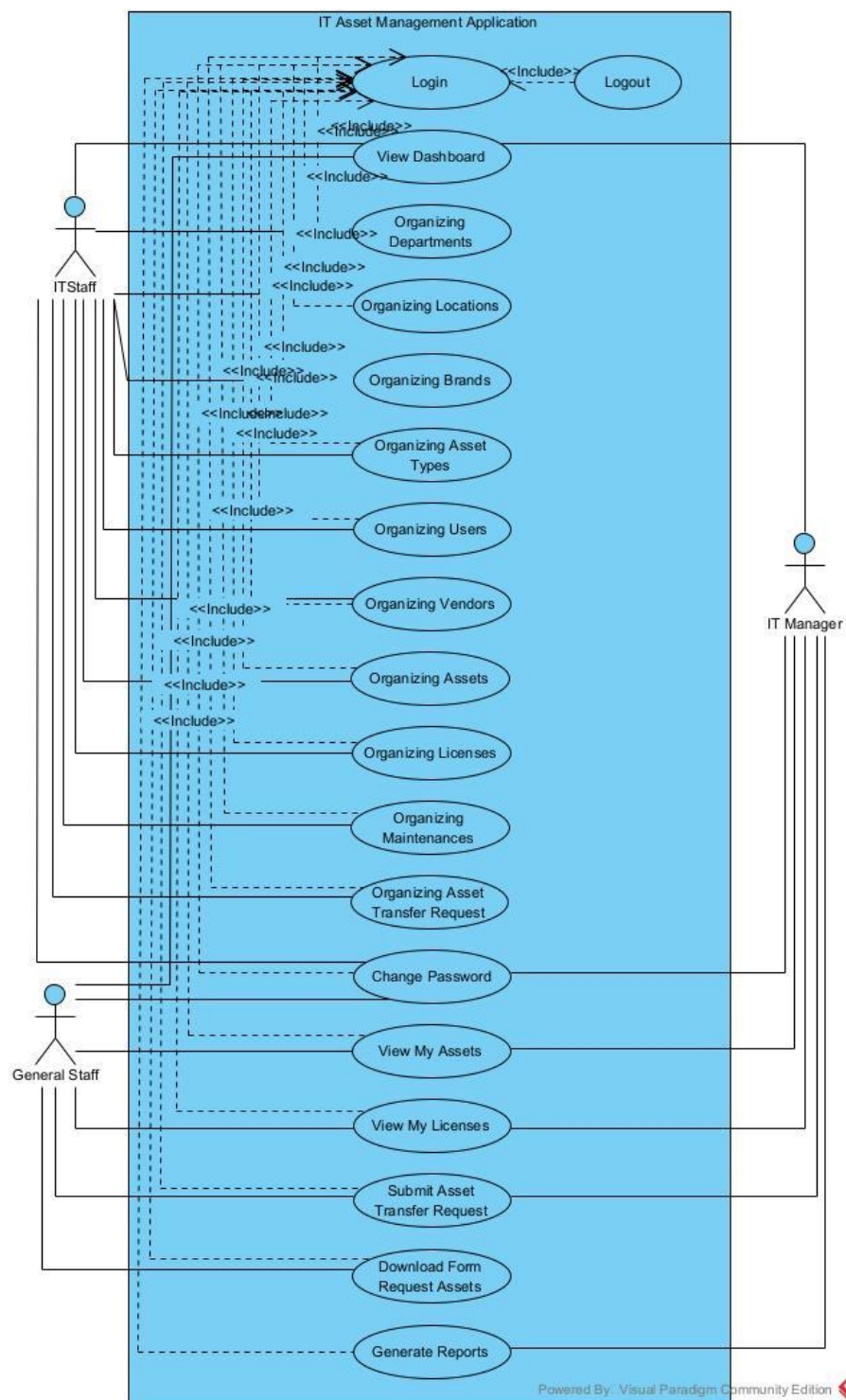


Figure 1. Use Case Diagram of the Proposed System

- Based on the Use Case Diagram of the proposed system above, there are
- A. 3 actors, namely IT staff, IT manager and non-IT staff
 - B. 19 use cases carried out by actors, including logging in, viewing dashboards,

managing departments, managing locations, managing brands, managing asset types, managing user lists, managing vendor lists, managing assets, managing licenses, managing devices being repaired, manage asset transfer requests, change passwords, view a list of assets owned, view a list of licenses owned, submit an asset transfer request, download an asset request form, withdraw a report or log out.

4. Result and Discussion

In the research that has been done, at this stage will display the results obtained from the proposed use case diagram that is suitable as a proposal in this study.

A. Procedure Difference Between Current System and Proposed System

Based on the analysis and design that has been done, there are several differences between the current system and the proposed system. Namely as follows:

Tabel 6. Performance Parameter

No.	The running system	Proposed system
1.	Using Ms. Excel to input IT assets	It's fully computerized using a local server and web-based system
2.	Report processing is still done manually	Reports can be automatically generated by the system
3.	The asset monitoring process by IT managers is carried out by looking at the master excel data	The monitoring process can be carried out through a web-based application by adding the role of IT Manager and given access to generate report
4.	Labeling of IT assets is still done by writing assets tag on label	Labels can be generated using a qr code, then printed and pasted on related IT assets

B. Prototype Design

1. Login Page



Figure 2. Login Page

2. Dashboard Page View

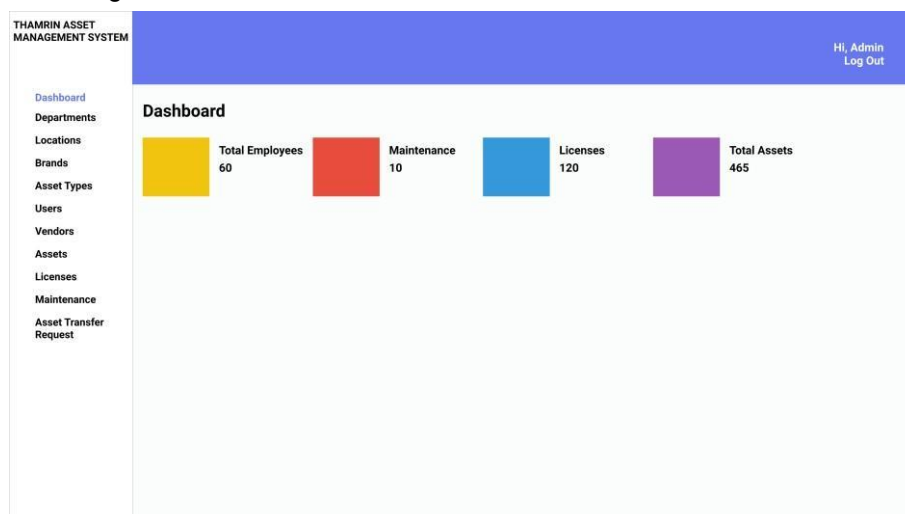


Figure 3. Dashboard Page View

3. Assets Page View



Figure 4. Assets Page View

4. Add Assets Halaman Page View

THAMRIN ASSET MANAGEMENT SYSTEM

Hi, Admin
Log Out

Dashboard
Departments
Locations
Brands
Asset Types
Users
Vendors
Assets
Licenses
Maintenance
Asset Transfer
Request

Create New Asset

[Back](#)

Form New Asset

Asset Name

Owner

Brand

Location

Serial Number

Asset Type

Cost

Purchase Date

Warranty

Description

[Submit](#)

Figure 5. Add Assets Page View

5. Licenses Page View

THAMRIN ASSET MANAGEMENT SYSTEM

Hi, Admin
Log Out

Dashboard
Departments
Locations
Brands
Asset Types
Users
Vendors
Assets
Licenses
Maintenance
Asset Transfer
Request

Licenses

[Create New License](#)

License Lists

No	Name	Brand	License ID	Owner	Action
1	Adobe Acrobat X	Adobe	023RD342383	Anggi	Edit Delete

<< | >>

Figure 5. License Page View

5. Conclusion

The current IT asset management system at PT Thamrin Telekomunikasi Network is semi-computerized, using excel format. For each new asset that is received, details will be recorded, then the asset tag will be attached using a label on the asset. The same thing happens to damaged assets. Any damaged assets that cannot be repaired will be auctioned off and removed from the excel master data. The obstacle faced by the current system is that the process of submitting and requesting IT asset repair is still done manually using paper forms as the medium, which is less efficient because users and IT staff have to meet the IT Manager and Purchasing directly to seek approval. In addition, prone to damage or lost form. The process of managing incoming and outgoing assets is still done using an excel file, so it is prone to happen.

Through the proposed use case diagram, it is easier for IT staff to manage existing assets at PT Thamrin Telekomunikasi Network. So that data can be stored in a database and centralized in an application, and minimize the possibility of duplication, manipulation, and data loss.

References

- [1] Febriyanto, E., Naufal, R. S., & Sulistiawati, S. (2020). Planning of the Web-based E-Raport Assessment System. *Aptisi Transactions On Technopreneurship (ATT)*, 2(1), 48-58.
- [2] Balazinska, M., Deshpande, A., Franklin, M. J., Gibbons, P. B., Gray, J., Hansen, M., ... & Tao, V. (2007). Data management in the worldwide sensor web. *IEEE Pervasive Computing*, 6(2), 30-40.
- [3] Gonzalez, H., Halevy, A. Y., Jensen, C. S., Langen, A., Madhavan, J., Shapley, R., ... & Goldberg-Kidon, J. (2010, June). Google fusion tables: web-centered data management and collaboration. In *Proceedings of the 2010 ACM SIGMOD International Conference on Management of data* (pp. 1061-1066).
- [4] Chu, X., & Fan, Y. (1999). Product data management based on web technology. *Integrated Manufacturing Systems*.
- [5] Deus, H. F., Stanislaus, R., Veiga, D. F., Behrens, C., Wistuba, I. I., Minna, J. D., ... & Almeida, J. S. (2008). A semantic web management model for integrative biomedical informatics. *PloS one*, 3(8), e2946.
- [6] Fauzan, R., Siahaan, D., Rochimah, S., & Triandini, E. (2019, July). Use case diagram similarity measurement: A new approach. In *2019 12th International Conference on Information & Communication Technology and System (ICTS)* (pp. 3-7). IEEE.
- [7] P. A. Sunarya, U. Rahardja, and D. I. Desrianti, "Development Assessment Module Portfolio E-Imei Students With Learning To Improve The Quality Of Concentration Case Study Mavib," vol. 13, no. 8, pp. 3597–3606, 2016.
- [8] Williams, A., & Dolan, E. (2020). Application of Blockchain Technology in e-LoA Technopreneurship Journal. *Aptisi Transactions On Technopreneurship (ATT)*, 2(1), 98-103.
- [9] Arora, K., & Bist, A. S. (2020). Artificial intelligence based drug discovery techniques for covid-19 detection. *Aptisi Transactions On Technopreneurship (ATT)*, 2(2), 120-126.
- [10] T. Hariguna, U. Rahardja, Q. Aini, and Nurfaizah, "Effect of social media activities to determinants public participate intention of e-government," *Procedia Comput. Sci.*, vol. 161, pp. 233–241, 2019, doi: 10.1016/j.procs.2019.11.119.
- [11] N. F. Rozy, R. Ramadhiansya, P. A. Sunarya, and U. Rahardja, "Performance Comparison Routing Protocol AODV, DSDV, and AOMDV with Video Streaming In Manet," in *2019 7th International Conference on Cyber and IT Service Management (CITSM)*, 2019, vol. 7, pp. 1–6.
- [12] Yuniva, Ika, and Dany Hestiyanto. 2018. Perancangan Web e-Commerce untuk penjualan sepatu dengan pendekatan model Classic Life Cycle. Tangerang: Journal CERITA Vol.4, No.1, 24-33.
- [13] L. Laguna, S. Fiszman, P. Puerta, C. Chaya, and A. Tárrega, "The impact of COVID-19 lockdown on food priorities. Results from a preliminary study using social media and an online survey with Spanish consumers," *Food Qual. Prefer.*, vol. 86, p. 104028, 2020.
- [14] S. A. Zope, R. A. Zope, G. A. Biri, and C. S. Zope, "Sudarshan kriya yoga: A breath of hope during covid-19 pandemic," *Int. J. Yoga*, vol. 14, no. 1, p. 18, 2021.
- [15] I. U. Rahardja and S. Raharja, "Artificial informatics," *2009 4th IEEE Conf. Ind. Electron. Appl. ICIEA 2009*, pp. 3064–3067, 2009, doi: 10.1109/ICIEA.2009.5138764.
- [16] Panjaitan, A. R. S., Rahardja, U., Aini, Q., Santoso, N. P. L., & Apriliasari, D. (2022). The Management Innovation of Kuliah Kerja Praktek (KKP). *APTISI Transactions on Management (ATM)*, 6(1), 62-73.

- [17] H. Yang *et al.*, "Difficulties and Countermeasures in Hospital Emergency Management for Fast-Lane Treatment of Acute Stroke During the COVID-19 Epidemic Prevention and Control," *Front. Neurol.*, vol. 11, p. 1476, 2020.
- [18] Sanni, M. I., & Apriliasari, D. (2021). Blockchain Technology Application: Authentication System in Digital Education. *Aptisi Transactions on Technopreneurship (ATT)*, 3(2), 37-48.
- [19] A. S. Bein, Y. I. Graha, and A. P. Pangestu, "Pandawan Website Design Based Content Management System As Media E-commerce Transaction," *Aptisi Trans. Technopreneursh.*, vol. 2, no. 1, pp. 87–97, 2020.
- [20] Vachharajani, V., & Pareek, J. (2020). Effective Structure Matching Algorithm for Automatic Assessment of Use-Case Diagram. *International Journal of Distance Education Technologies (IJDET)*, 18(4), 31-50.