TEKNOKOM : Jurnal Teknologi dan Rekayasa Sistem Komputer
Vol. 6, No. 2, September 2023, pp. 58 - 62
ISSN: 2686-3219, DOI: 10.31943/teknokom.v6i2.120

WEB-BASED LPG DISTRIBUTION MANAGEMENT INFORMATION SYSTEM AT PT BOY BAGUS WINDI

Dwi Silviana[1*], Samsudin[1], Raissa Amanda Putri[1]
[1]Department of Information System, Universitas Islam Negeri Sumatera Utara Medan, Indonesia

ARTICLE INFO

History of the article:
Received Marc 1, 2023
Revised June 20, 2023
Accepted June 23, 2023
Published July 8, 2023

Keywords:
Management Information System
LPG
Gas

ABSTRACT

PT Boy Bagus Windi is one of the LPG distributors in the Langkat Regency. Because Microsoft Excel is still used to hold distribution data, financial data, sales and purchase data, and personnel data, PT. Boy Bagus Windi faces a number of difficulties managing his data. The problem that businesses run into is that when they need to look for data, it takes a while since they have to access each folder or page in Microsoft Excel individually. Due to the current rapid growth of information technology, many businesspeople conduct their everyday activities online. In order to administer its business management information system, a company is compelled to adopt a web-based information system. Therefore, PT. Web-based Boy Bagus Windi developed a management information system. This system is intended to make it simpler for businesses to search data and handle human, financial, and products data management in one web for a more streamlined and orderly arrangement.

Correspondece:
Dwi Silviana,
Department of Information System,
Universitas Islam Negeri Sumatera Utara Medan, Indonesia,
Email : dwisilviana888@gmail.com

INTRODUCTION

In the current era, it is undeniable that information technology is needed in every company or organization. Information Technology continues to develop from time to time to facilitate human activities. Information technology can provide information that helps company or organization management make strategic decisions. A management information system is one that makes information accessible to all users and levels of an organization or business. This system includes computerized transaction processing with human-computer interaction[1].

PT Boy Bagus Windi is one of the distributors engaged in the distribution of LPG in Langkat Regency. Currently PT Boy Bagus Windi distributes LPG gas to 48 bases in Langkat Regency and its surroundings. PT Boy Bagus Windi himself has his address in Paluh Manis, Gebang, Langkat Regency, North Sumatra. PT. Boy Bagus Windi sometimes has problems processing his data which still uses a logbook which is then transferred to Microsoft Excel as a repository for distribution data, financial data, sales and purchasing data, and employee data. Obstacles that are often experienced by companies, the first is when you want to search for data and it takes quite a long time because you have to search one by one by opening each folder or sheets in Microsoft Excel, the second is that Excel does not provide a view of the data as a whole so it will spend hours to sort and analyze the data manually, the third is the vulnerability to loss and damage to the available logbooks.

Liquefied petroleum gas under air condition produces LPG gas. The gas turns into a liquid through a number of protracted processes, in particular by increasing the pressure and lowering the temperature. The main constituents are propane (C3H8) and butane (C4H10). Elpiji also contains small amounts of other light hydrocarbons, such as ethane (C2H6) and pentane (C5H12)[2].

Along with the rapid development of information technology today, many business people use the internet to carry out their daily operations. Therefore, a business is forced to adopt a web-based information system that can make it easier to manage the company's management information system[3]. Therefore, a management information system was created at PT. Web-based Boy Bagus Windi. This system is also expected to reduce the use of paper

(paperless). It is hoped that this system will make it easier for companies to search data and manage personnel management, financial management, and goods data management in one web so that it is more organized and neatly arranged[4].

The web is an application that contains multimedia documents (text, images, sound and video) in it that uses the HTTP (Hypertext Transfer Protocol) protocol and to access it uses software called a browser[5].

An organization's management information system processes and maintains data and information necessary to enable the completion of activities. The physical components of a system, such as computer hardware, software, such as general system software, commonly applied software, and application programs, are in a management information system[6].

This research uses the CodeIgniter framework which makes it easier for programmers or developers to create web-based applications without having to start from scratch by utilizing the MVC architecture (Model, View, Controller)[7].

RESEARCH METHOD

Rapid Application Development (RAD), often known as rapid prototyping, is a software development process paradigm that is part of incremental (multilevel) technology[8]. Researchers used the RAD (Rapid Application Development) method as a system development method for making an LPG Gas Distributor Management Information System at PT. Nice Boy Windi. Short, concise, and fast linear sequential development cycles are prioritized by RAD. To address the demands of users or system owners, RAD emphasizes speed in system development. The reason for choosing RAD is because it fits the purpose of the application development period, which is around three months, and is characterized by significant user involvement in the application development process [9].

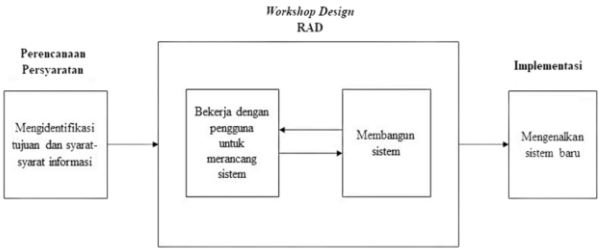

Figure 1. RAD Method

The three stages of the Rapid Application Development (RAD) development approach are prepared individually and interconnected, namely [10]:

1. Requirements Planning
   a. Users and analysts get together to discuss application or system goals.
   b. Focus on finding solutions to business problems.
2. Design Workshops
   a. Design and completion phase.
   b. Programmers and analysts build and present a visual representation of the user's design and work flow.
   c. The analyst changes the module in response to user input.
3. Implementation
   Applications or systems that have been built are implemented and tested.

RESULTS AND DISCUSSION

Proposed System Analysis

Administration of gas distributors should be tackled with the new system, according to researchers. The mechanism created should make it easier for PT Boy Bagus Windi to supervise gas distributors. An overview of the system to be built is as follows:

1. For ease of use, a web-based system is recommended.
2. Assisting PT Boy Bagus Windi in data processing, such as processing salary data, base data, distribution data including selling data buying data and employee data.
3. Data that has been obtained from the field can be directly input into the system.

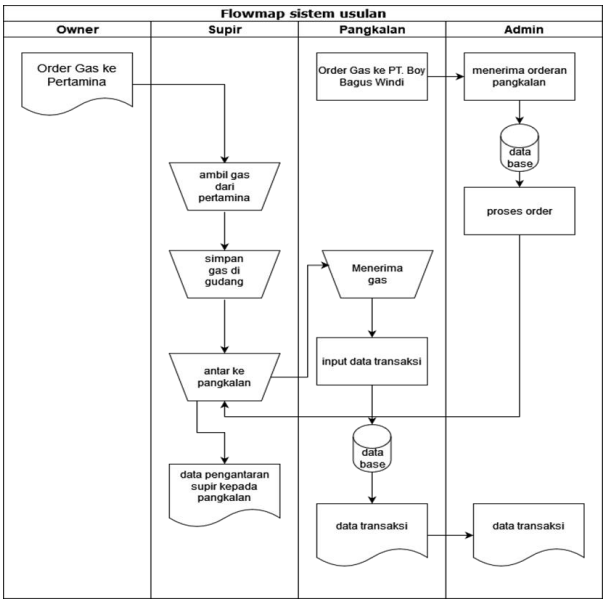

Figure 2. Proposed System for PT. Boy Bagus Windi

Design Process

To develop a system, use case diagrams, activity diagrams, sequence diagrams and class diagrams are used as tools for designing the

Unified Modeling Language (UML). UML is the preferred language for defining, visualizing, producing, and documenting the artifacts of object-based software systems [11].

1. Use Case Diagrams

The purpose of designing this use case diagram is to illustrate the process of admin, base and owner as actors involved in data management[12].

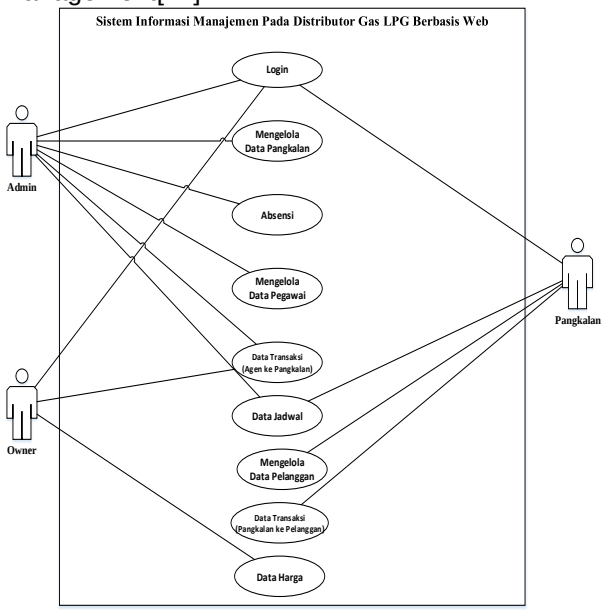

Figure 3. Use Case Diagram

2. Activity Diagrams

The activity diagram design is based on the completed use case diagram design. The complete flow of system activity from login to logout is depicted in this diagram [13].

After logging in, the admin can display the sales data menu, add, edit, delete and print sales data. Admin can also select the month and year of sales and select months and years of sales history which can also be edited and deleted. The system then processes the data so that it can be stored in the database and displayed in the system.

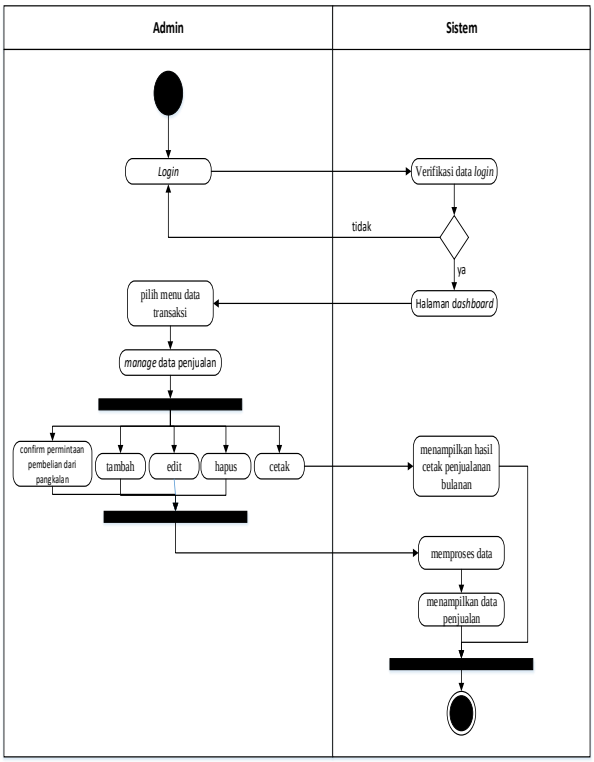

Figure 4. Activity Diagram Sales

3. Sequence Diagrams

Sequence diagrams show how messages move between classes by making use of class-specific functions[14]. The figure illustrates the interaction of items grouped in a period and the procedures to be followed in system development. The following is a sequence diagram display of sales data.

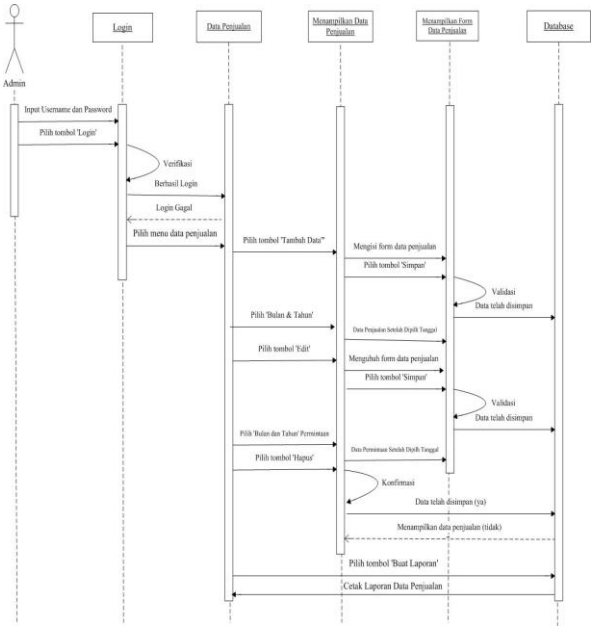

Figure 5. Sequence Diagram Sales

4. Class Diagrams

An explanation of the system database operations is shown in the class diagram [15]. The class diagram for a web-based LPG gas distribution management information system is shown below.

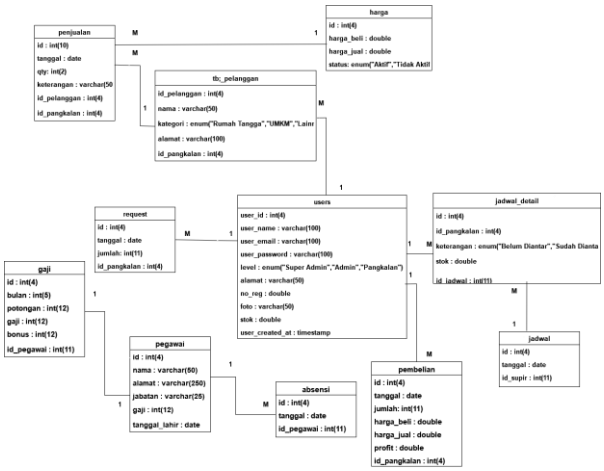

Figure 6. Class Diagram

Design Interface

1. Home Page (Login)

The first page that the admin, base and owner see when opening the website is the login page. Admin, base and owner must enter the password and username that has been registered, if entered incorrectly then the admin, base and owner will not be able to enter the next page. If successfully verified, the admin, base and owner will be taken to the dashboard page. If not, a pop up will appear stating that the username and password entered do not match or the login failed.

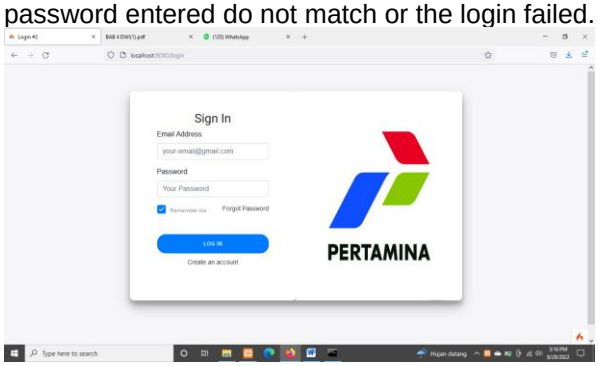

Figure 7. Login Interface

2. Admin dashboard page

The dashboard is the first page that appears after a successful login, there are menus that can be selected to run a management information system for web-based LPG gas distributors.

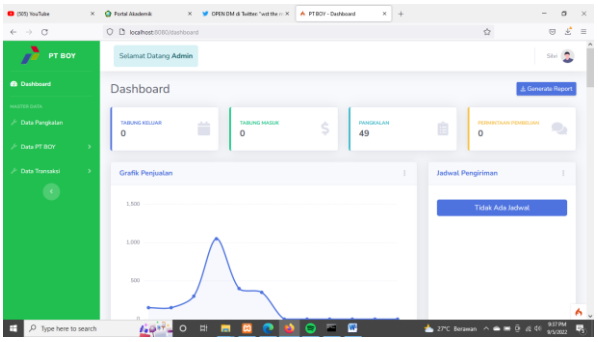

Figure 8. Admin Dashboard Page

2. Attendance Data Page

Admin can display attendance data. On this page, admins can also add, search and delete attendance data functions.

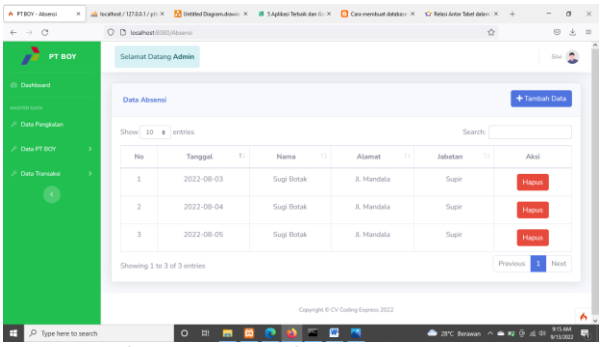

Figure 9. Attendance Data Page

3. Sales Data Page

Admin can display sales data and purchase requests. On this page, the admin can add, select, search, edit and delete sales data and purchase requests, the admin can also print sales reports.

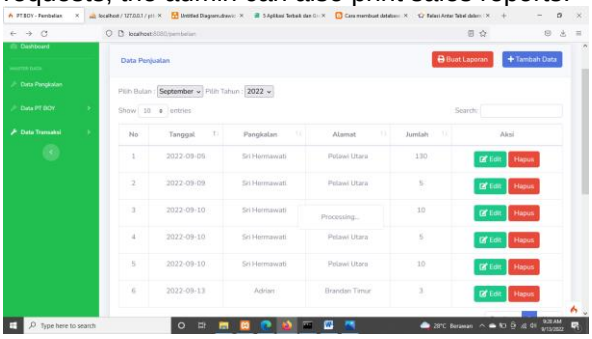

Figure 10. Sales Data Page

CONCLUSION

The research conducted resulted in a design and management information system for data processing at PT. Website-based Boy Bagus Windi. Users who carry out their duties in the company get convenience with this system. In addition, the system built makes it easier to manage data and facilitate the work of employees at LPG gas distributors at PT. Boy Bagus Windi.

REFERENCES

[1] A. Sudirman, M. Muttaqin, R. A. Purba, A. Wirapraja, dan L. A. Abdillah, *Sistem Informasi Manajemen*. Yayasan Kita Menulis, 2020.

[2] A. Wiyono, A. Sudrajat, F. Rahmah, dan U. Darusalam, "No Title," *KOMIK (Konferensi Nas. Teknol. Inf. dan Komputer)*, vol. 1, no. 1, 2017.

[3] J. Simarmata *et al.*, *Pengantar Teknologi Informasi*. .

[4] M. Imroni, B. Setiadi, dan I. Fikri, "Sistem Informasi Manajemen Persewaan, Keuangan dan Jadwal Armada Berbasis Web pada PT. Sadulur Karya Bersama (SKB Trans)," Universitas Islam Kalimantan MAB, 2021.

[5] P. Utomo, L. Sakuroh, dan F. Yulinar, "Perancangan Sistem Informasi Akademik Berbasis Web di SMP PGRI 174 Cikupa," *J. SISFOTEK Glob.*, vol. 8, no. 1, 2018.

[6] S. Hariyanto, "Sistem Informasi Manajemen," *J. Publiciana*, vol. 9, no. 1, 2016.

[7] M. Destiningrum dan Q. J. Adrian, "Sistem informasi penjadwalan dokter berbassis web dengan menggunakan framework codeigniter (studi kasus: rumah sakit yukum medical centre)," *J. Teknoinfo*, vol. 11, no. 2, 2017.

[8] J. R. Sagala, "Model Rapid Application Development (Rad) Dalam Pengembangan Sistem Informasi Penjadwalan Belajar Mengajar," *J. Mantik Penusa*, vol. 2, no. 1, 2018.

[9] D. Hariyanto, R. Sastra, dan F. E. Putri, "Implementasi Metode Rapid Application Development Pada Sistem Informasi Perpustakaan," *JUPITER*, vol. 13, no. 1, 2021.

[10] A. Ramelan *et al.*, *Prototipe LoRa Building Energy Management System (LOBEMS) : Perancangan Hardware dan Sistem Informasi*. Bandung: Media Sains Indonesia, 2021.

[11] M. Ikhsan, M. I. P. Nasution, dan A. Ikhwan, "Aplikasi Pendaftaran Siswa Baru Menggunakan Algoritma Best First Search pada SMP Negeri 1 Medan," *J. Manaj. Inform. dan Sist. Inf.*, vol. 3, no. 2, 2020.

[12] Susliansyah dan F. Handayanna, "Aplikasi Monitoring Proses Distribusi Makanan Beku Untuk Informasi Secara Realtime," *J. Sains Komput. Inform.*, vol. 2, no. 1, 2018.

[13] R. Amin, "Rancang bangun sistem informasi penerimaan siswa baru pada SMK Budhi Warman 1 Jakarta," *JITK (Jurnal Ilmu Pengetah. dan Teknol. Komputer)*, vol. 2, no. 2, 2017.

[14] F. Sulianta, *Teknik Perancangan Arsitektur Sistem Informasi (1st ed.)*. Yogyakarta: ANDI, 2017.

[15] A. Hendini, "Pemodelan UML sistem informasi monitoring penjualan dan stok barang (studi kasus: distro zhezha pontianak)," *J. Khatulistiwa Inform.*, vol. 4, no. 2, 2016.