4th ConCEPt

Vol. 4, No. 1, (2024)

Received: January 30, 2024
Accepted: February20, 2024
Published: April,2024

Conference on Community Engagement Project
https://journal.uib.ac.id/index.php/concept

Delivery and Inventory for Industrial Support Company Using Web-based Application

Yuki Estrada[1], Tony Wibowo[2]
Affiliation
Email of correspondence: 2131141.yuki@uib.edu&tony.wibowo@uib.ac.id

Abstract

With the growing economic industry, companies are striving to be able to attain their client's trust with their services. By improving their system and operational activities, this may be able to decide and lead a company's future success. PT XYZ is a gas company that lacks an integrated and efficient system for their delivery operations. This problem resulted in data inconsistencies and time-consuming checking on their admins. Making an integrated information system is one of the methods to assist in solving this problem. Hence, a website for inventory and delivery was developed for PT XYZ aiming to be more efficient and facilitate organized documentation. The website was uploaded to hosting and its access was given out to PT XYZ.

Keywords:*Website, Delivery, Inventory, System*

Introduction

PT XYZ is an industrial gas company that was established in 1996 in the city of Batam, Kepulauan Riau. The main headquarter of PT XYZ is strategically located in Tanjung Uncang, which benefits from proximity to the shipping industry and centralized offshore operations. Aside from being a supplier company, PT XYZ offers products and services in the field of shipbuilding, oil and gas, health, etc. One of their integral services which is product delivery is their main operational focus to support their client's productivity and efficiency. This is one of the reasons why PT XYZ attained their client's trust to be a reliable supplier.

PT XYZ's delivery service is one of the most important components in business as many similar companies are competing to deliver the best delivery services (Rahmatuloh & Revanda, 2022). To respond to the growing industry, PT XYZ desired to advance their inventory and delivery system. One of the problems being in question is that there is no integrated system between the admins that are responsible for delivery and order documentation.

There are 3 admins that are responsible for the system. Marketing admin is tasked to update dislog admin when there are orders that need to be processed for delivery. Dislog admin needed to keep track of each customer's order in an excel

called tally sheets and update the sheet when there are deliveries or returns. Additionally, Dislog admin needs to calculate the outstanding per orders and update the movement of the data to operational admin on a daily basis. Meanwhile, the operational admin is tasked to sum up every update daily and keep track of each of PT XYZ's clients that are still actively engaging in business with PT XYZ. The summarization would be in a form of report and be handed to PT XYZ's general manager.

Currently, the workflow and system that are being used by PT XYZ proved to be insufficient and lacking integration as the rates of human errors and difficulties to cross check between the admin served more to reveal the urgency to optimize their system. In the worst case possible, the insufficient system may have provided disparity in information and resulted in fatal mistakes in the context of goods transport. This problem needs to be tackled and is aligned to the vision and mission of the community service roadmap of the Department of Computer Science, Batam International University.

It is generally recognized that the information system is an integral component that may decide and lead an organization to success (Yoganata et al., 2023). In response to this ever rapid and dynamic moving digital era, one of the attempts to deal with this notion is to utilize websites to optimize operational processes (Pamungkas et al., 2020). Especially in the context of PT XYZ, their delivery operations involved staff and components, which means PT XYZ needed to implement an effective system that may be the key to ease the admins tasks.

The problem stemmed from data inconsistencies between tally sheet and report as both are done by different admins. Dislog admin will input the data in the form of tally sheets on online excel and the operational admin will check the updated data one by one to sum into a report by offline excel. Once the report has been done, both admins will cross check the inputs. As the storage for tally sheets and reports are done in two separate locations, it is proved to be difficult for managing and retrieving records. Additionally, there are no designated filters that assist the admin to retrieve data. This workflow is vulnerable to human error, prone to data redundancy, difficulties to cross checking, difficulties to maintain records (Rizal & Rahmatulloh, 2019)(Christian & Amir, 2021). The current workflow was not able to support multi location deliveries on one order, contributing to the difficulty in managing such scenarios.

Based on the problems that have been identified, we planned and developed a website that has both inventory management and delivery management that binds all the workflow into one integrated system. The finished product will be implemented to PT XYZ to be used by the admins.

Methods

Below is the flowchart for the development of the Inventory and Delivery Website:

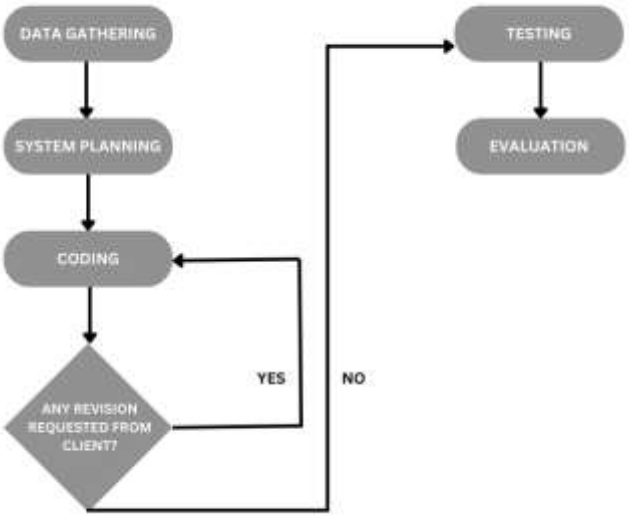

Figure 2. *Flowchart*

The targeted implementation location is PT XYZ's office branch located at Anggrek Mas and PT XYZ's main factory which is located at Tanjung Uncang. The process took up six months and is divided into three stages, which as below:

Pre-Implementation

First and foremost we needed data and references to be able to analyze the problem and condition that PT XYZ faced. A qualitative method was conducted to analyze PT XYZ's requirements (Raharjana et al., 2021). An interview with the PIC of PT XYZ was held and the requirements were arranged and further developed into user story (Iskandar et al., 2023). For further data collection, regular contact with the PIC through WhatsApp was maintained. Documentation references such as tally sheet's format, product listing, customer listing and daily report's format were procured through the same way. Aside from the format, the data were filled with dummy data due to the sensitivity nature. To keep track of the development, request changes table (revision that PT XYZ demanded) and development progress table were made to monitor the project.

To proceed with the website development, an ERD was made to assist on database visualization (Alpiansyah et al., 2023). The ERD will provide an overall information of entities, attributes and relationships between the data for Inventory and Delivery Website (Haryani & Saputra, 2021). New formats of the tally sheet and daily report were made to support more features of the website. The updated formats were made using excel.

The frameworks were Laravel for back end and Vue Js for front end, both frameworks are connected by REST API (Soni & Ranga, 2019). Other supporting tools such as XAMPP for localhost server, Postman for API testing, Visual Studio Code for code editor, Github for version control were used for the website

development (Christian & Amir, 2021)Necessary set ups such as configuring the frameworks template, workspace and environment were done to the supporting tools.

Implementation

Once the setup, documentation and planning are done, the website development will start by doing the logic and functionality part of the website which is the back end. With the help of Postman, the models, migrations, controllers, routes and middlewares were developed and tested. Then from the finished back end, the website will undergo development on the front end. The view part of the website is developed by working on the resources and view.

The progress of the website development will be regularly updated to PT XYZ and their PIC will return their feedback on the progress. Every revision needed will be added to the request changes table and another sprint will be added with each of the revisions from PT XYZ. The process will be iterated until once the latest version is approved. A zoom meeting was conducted to present the final version of the website to all of the admins and proceed to upload the website into a hosting. The website is provided to PT XYZ with a user guide on how to use the website.

Evaluation and Reporting

At this stage, the website is to be evaluated by PT XYZ along with the supervisor. A survey link was filled out by the PIC of PT XYZ to assess and determine the website and author's performance. The purpose of the evaluation is to see the implication of the website to PT XYZ and future insightful suggestions to work on the website. Next, Reports that summarize the whole progress are made and submitted.

Result and Discussion

Using the requirements attained by the interview with PT XYZ and documentation format of PT XYZ, the website development started by making an ERD. The ERD was made using a website called dbdesigner. Below are the ERD that was made:

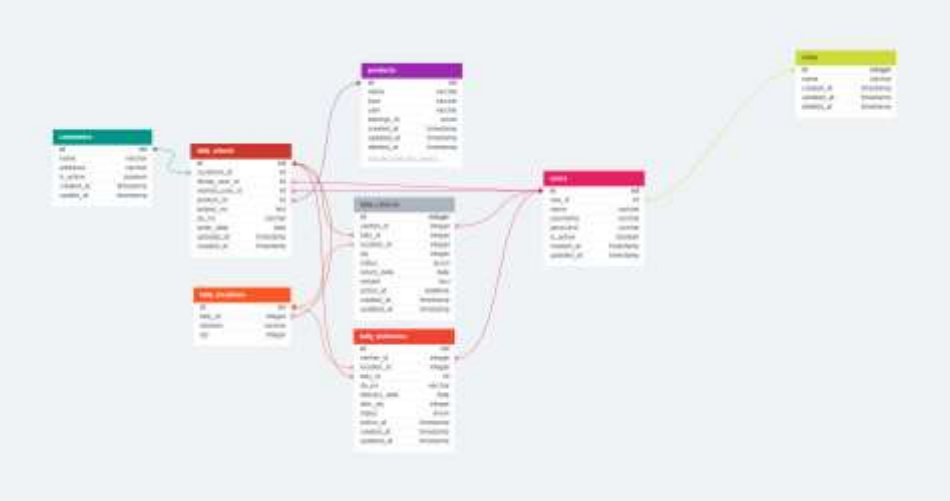

***Figure 3**. ERD of Inventory and Delivery Website*

Below are the tables and their functions, as follows:

1. customers: table to store customers data
2. users: table to store the website's user data.
3. roles: table to store the role of the website's user data.
4. products: table to store products data.
5. tally_sheets: table to store tally sheet data.
6. tally_locations: table to store the delivery location per order along with the purchased quantity data.
7. tally_deliveries: table to store the deliveries per tally location from a tally sheet's data. This table is used to store the approval status of delivery.
8. tally_returns: table to store the returns per tally location from a tally sheet's data. This table is used to store the approval status of return.

The Inventory and Delivery Website has four users (Marketing Admin, Dislog Admin, Operational Admin and Super Admin) and nine main menus. Features such as filter, search, print, session and notifications were tested and uploaded to hosting for further use.

Below are the images of each menu on the Inventory and Delivery Website:

1. Login Website Inventory and Delivery page is used to let the user access the website.

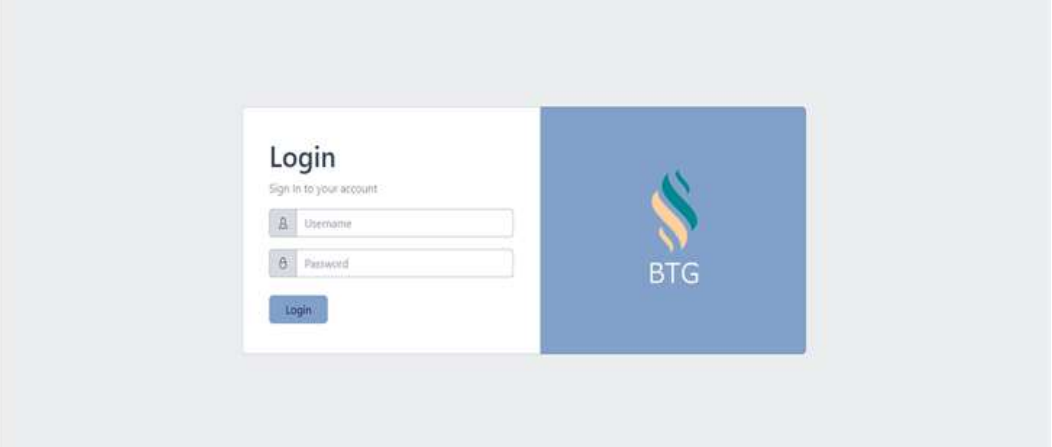

Figure 4. *Login Page of the Website*

2. Dashboard page is used to be the default homepage for the Website Inventory and Delivery

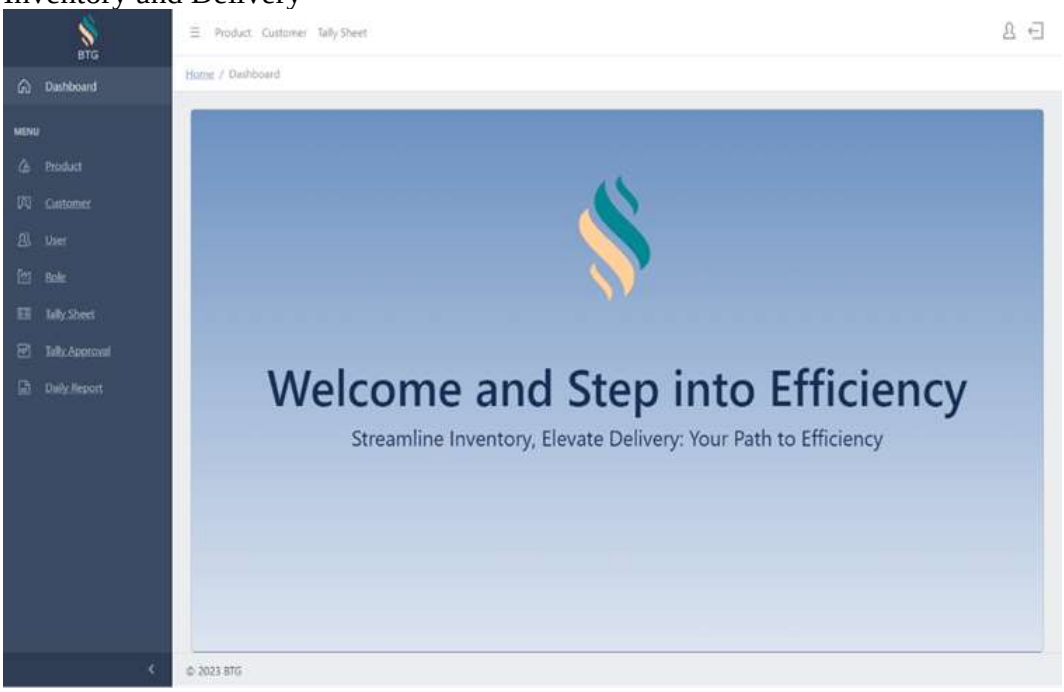

Figure 5. *Dashboard Page of the Website*

3. Product page is used to retrieve product data, modify product data and search records.

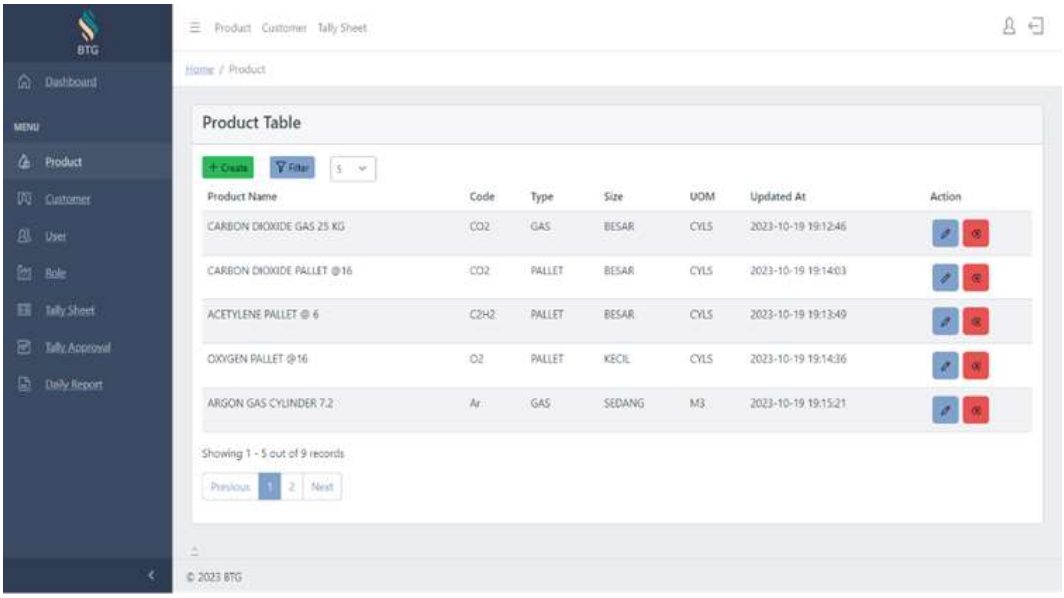

***Figure 6**. Product Page of the Website*

4. Customer page is used to retrieve customer data, modify customer data and search records.

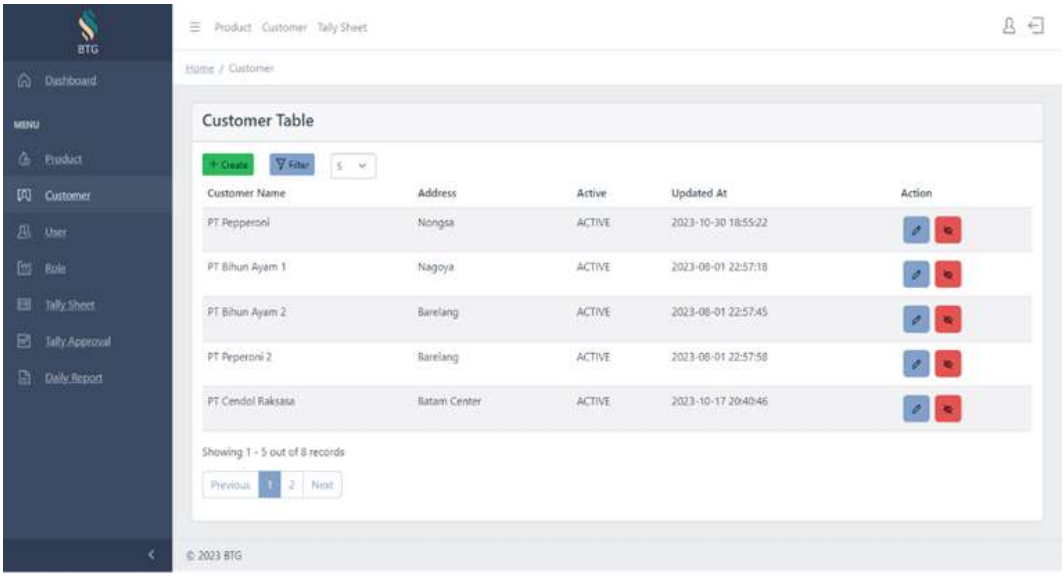

***Figure 7**. Customer Page of the Website*

5. Tally Sheet page is used to retrieve tally sheet data, modify tally sheet, search records and print tally sheet.

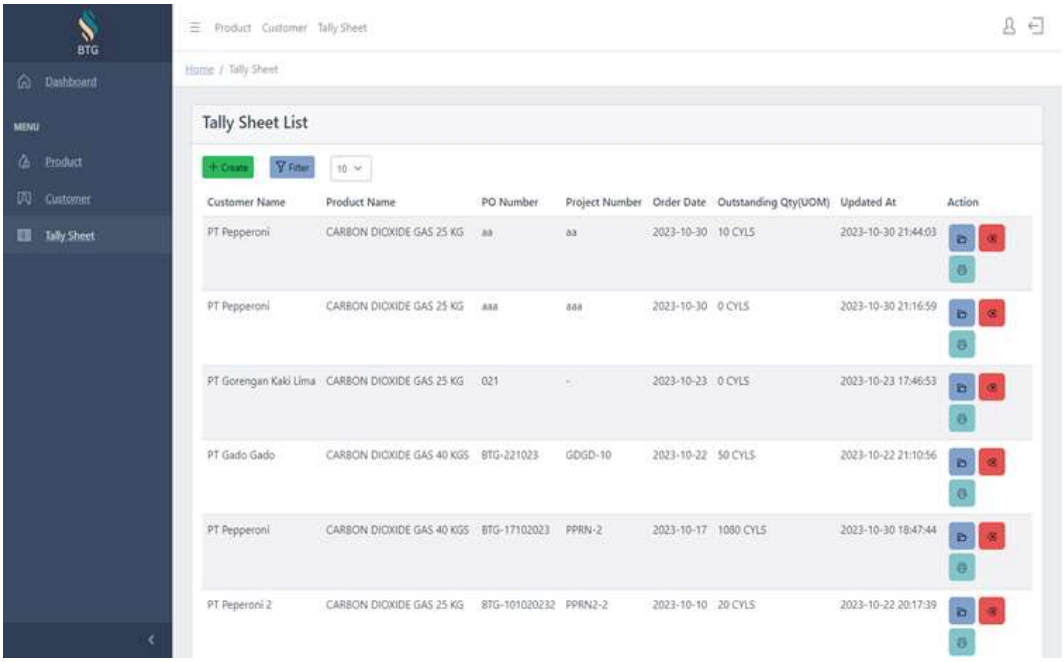

***Figure 8**. Tally Sheet Page of the Website*

6. Tally Approval page is used to retrieve tally sheet approval data, search records and assist the admin to redirect the page to the specific record of the tally sheet to see the details and proceed to continue to give out approval or rejection on the tally sheet page.

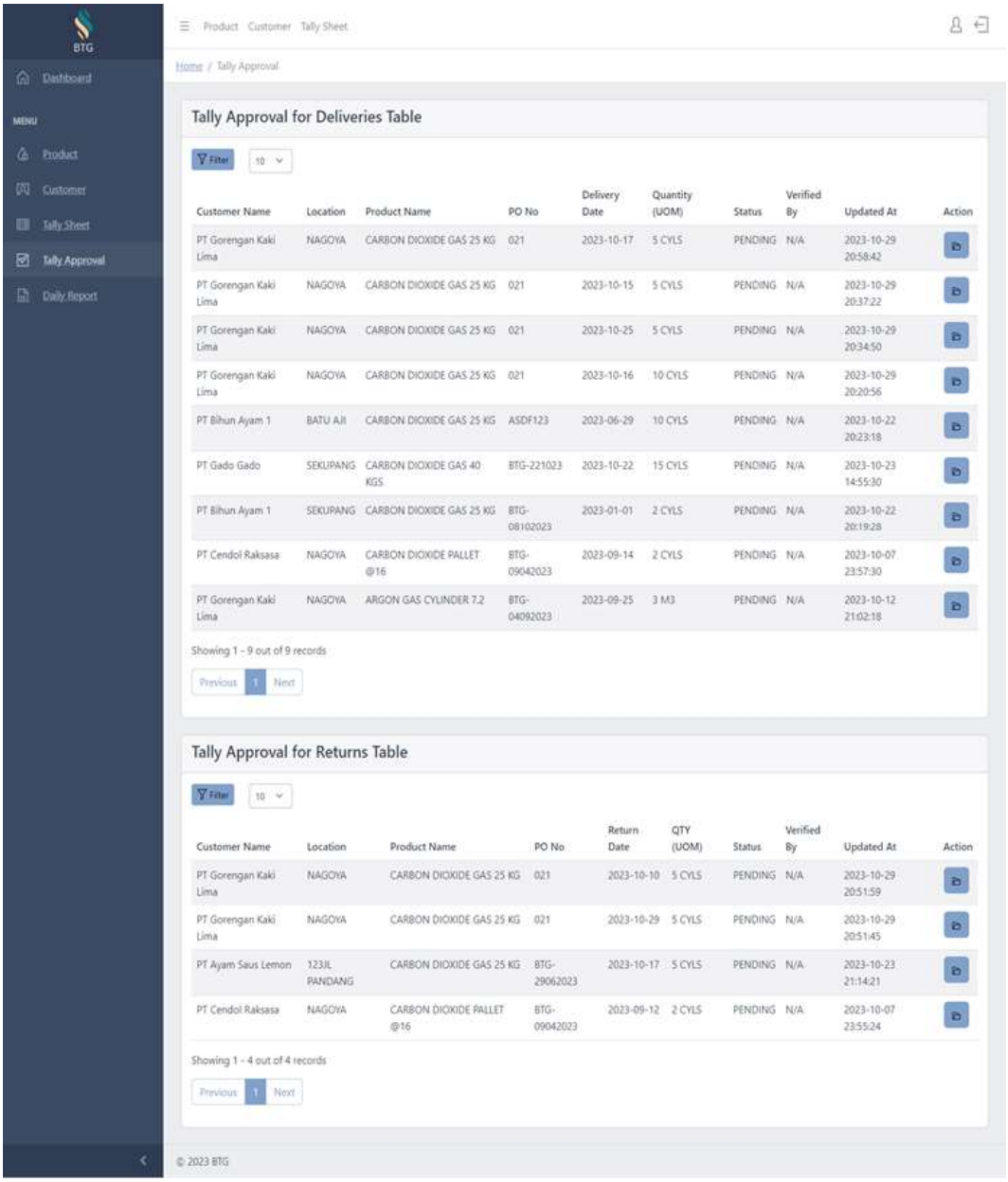

Figure 9. *Tally Approval Page of the Website*

7. Report page is used to retrieve the queried reports from the tally sheet data.

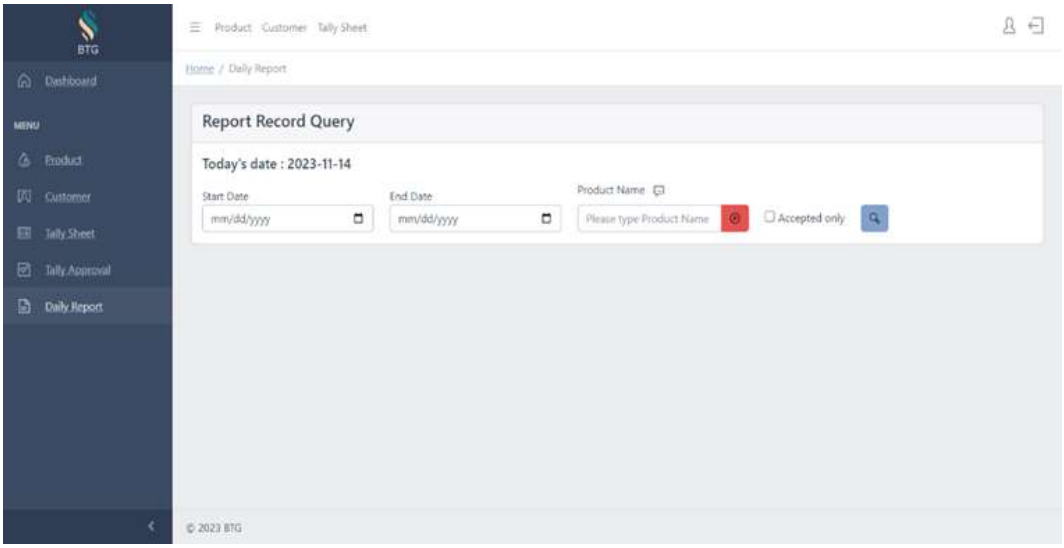

***Figure 10**. Report Page of the Website*

8. Profile page is used to see the details of the account that are logged in and update the account's password.

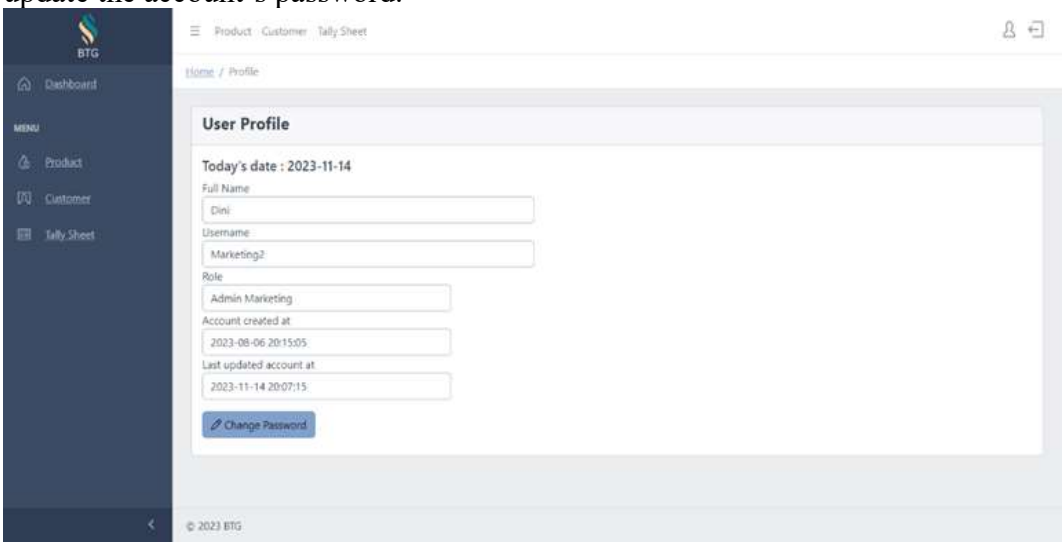

***Figure 11**. Profile Page of the Website*

9. Logout menu is used to let the admin exit the user's account from the website.

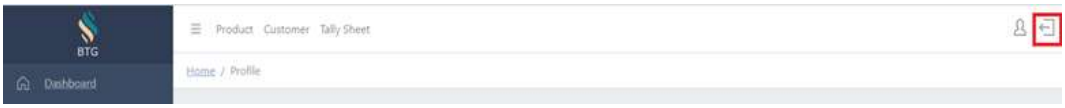

***Figure 12**. Logout Menu of the Website*

Below are the final version of the downloadable documents from the website

***Figure 13**. Downloaded Tally Sheet Document in PDF form*

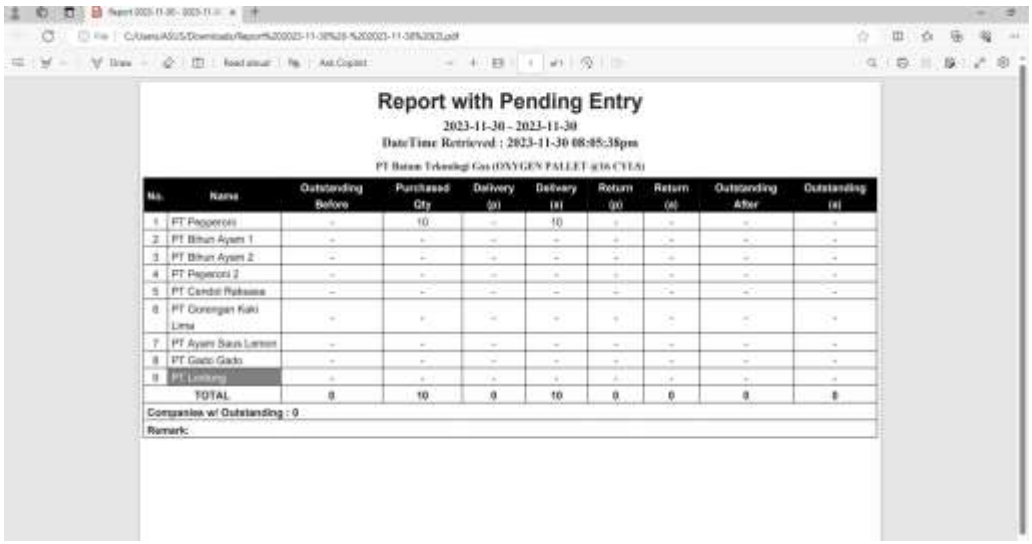

***Figure 14**. Downloaded Report with Pending Entry Document in PDF form*

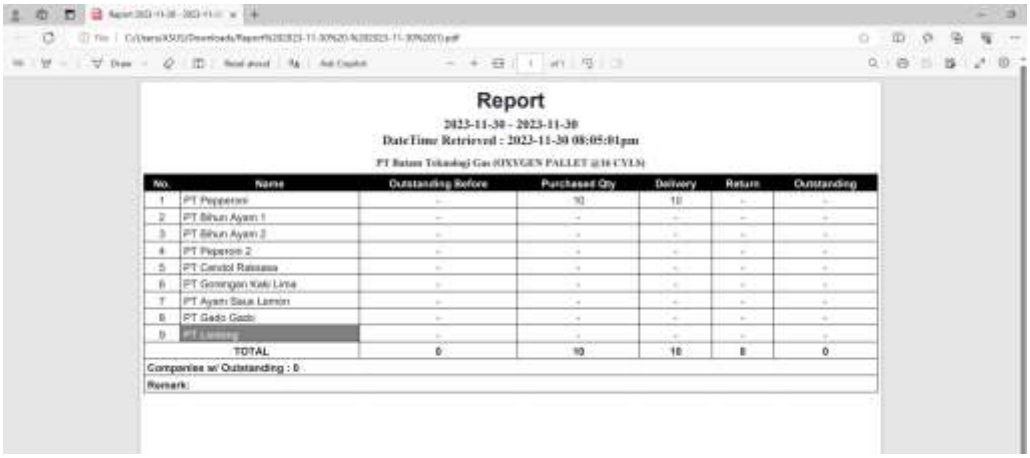

Figure 15*. Downloaded Report (Accepted Only) Document in PDF form*

After the final revision was done, a zoom meeting to present and explain the flow of the website was held on 23 October 2023 13.30WIB - 16.00WIB. All of the admins were present to observe the workflow and give out their feedback regarding the website. In this meeting, PT XYZ has approved that the website is aligned with their requirements with some minor changes that need to be made.

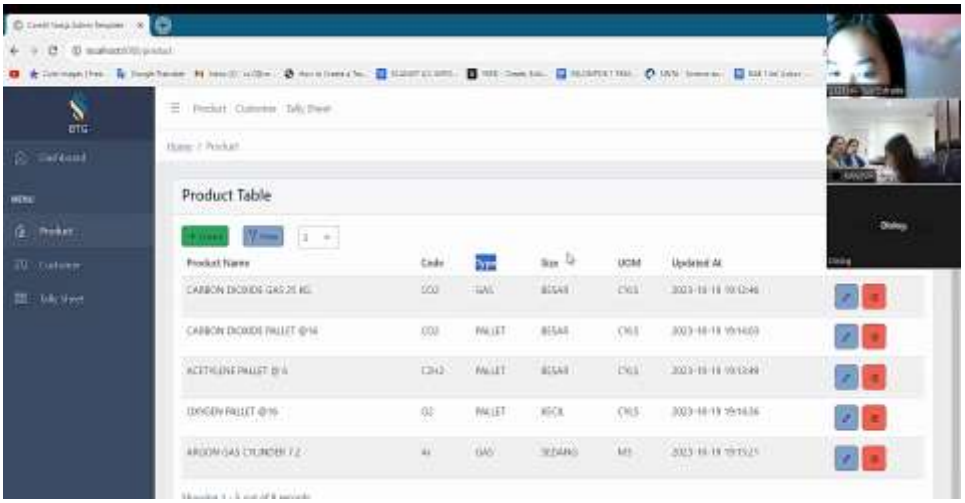

Figure 16*. Zoom Meeting with PT XYZ*

The website then proceeded to be uploaded into a hosting and proved to be accessible from the admin's work PC and a user guide was provided to the PIC for detailed guidance on the workflow. A short demo of the website was held on 30 November 2023 at PT XYZ office branch and PT XYZ planned to implement the website to their system by the upcoming year 2024.

***Figure 17**. Photo along with PT XYZ's PIC*

Conclusions

PT XYZ is one of the gas companies that provide delivery services on Batam. One of their goals is to attain their client's trust to be a reliable supplier. This goal drives PT XYZ to be motivated on reducing human errors and cross checking on their delivery documentation. As aligned to the vision and mission of the community service roadmap of the Department of Computer Science, Batam International University. We developed a website for PT XYZ in hopes that the system will help PT XYZ to ease the admin's workload and facilitate efficient document filling.

The result of the implementation is still undetermined as PT XYZ planned to use the website for 2024. However, future developments such as more detailed reports that include details of tally sheets and decision making systems are highly suggested. The improved report might be helpful to trace back each tally sheet from the report and the decision making system may be implemented to give more real time insights for the admins to make time efficient and effective choices.

References

Alpiansyah, F., Abdillah, R., Himawan, I., Yulisa Geni, B., & Bisri, M. (2023). Rancang Bangun Sistem Administrasi Perkantoran Berbasis Bahasa Pemrograman Java. *STORAGE: Jurnal Ilmiah Teknik Dan Ilmu Komputer*, *2*(1), 1–7. https://doi.org/10.55123/storage.v2i1.1564

Christian, Y., & Amir, A. (2021). Perancangan Sistem Pencatatan Akuntansi dengan Teknologi Web-Based pada UKM Cath's Beauty House di Kota Batam. *ConCEPt-Conference on Community …*, *1*(1).

Haryani, H., & Saputra, D. (2021). Designing of Web-Based Learning Media for Senior High School During The Covid-19 Pandemic. *International Journal of Educational Research & Social Sciences*, *2*(2), 241–254. https://doi.org/10.51601/ijersc.v2i2.53

Iskandar, N. R., Guntara, R. G., & Maesaroh, S. S. (2023). *Implementasi Pengelolaan Transaksi Usaha Berbasis Android pada UMKM Menggunakan Metode Pengembangan Scrum*. *1*(6), 903–913.

Pamungkas, R., Saifullah, S., Pratama, Q. R., & Try Cahyo, O. A. (2020). Pemanfaatan Website Desa Dalam Optimalisasi Informasi Publik kepada masyarakat di Desa Kiringan. *Jurnal Daya-Mas*, *5*(2), 32–38. https://doi.org/10.33319/dymas.v5i2.43

Raharjana, I. K., Siahaan, D., & Fatichah, C. (2021). User Stories and Natural Language Processing: A Systematic Literature Review. *IEEE Access*, *9*, 53811–53826. https://doi.org/10.1109/ACCESS.2021.3070606

Rahmatuloh, M., & Revanda, M. R. (2022). Rancang Bangun Sistem Informasi Jasa Pengiriman Barang Pada PT. Haluan Indah Transporindo Berbasis Web. *Jurnal Teknik Informatika*, *14*(1), 54–59.

Rizal, R., & Rahmatulloh, A. (2019). Restful Web Service Untuk Integrasi Sistem Akademik Dan Perpustakaan Universitas Perjuangan. *Jurnal Ilmiah Informatika*, *7*(01), 54. https://doi.org/10.33884/jif.v7i01.1004

Soni, A., & Ranga, V. (2019). API features individualizing of web services: REST and SOAP. *International Journal of Innovative Technology and Exploring Engineering*, *8*(9 Special Issue), 664–671. https://doi.org/10.35940/ijitee.I1107.0789S19

Yoganata, M. W., Irawan, F. S., & Yuliana, M. E. (2023). PERENCANAAN SISTEM INFORMASI TERINTEGRASI DI KONVEKSI MARIEE MENGGUNAKAN GOOGLE SHEETS DALAM MEMFASILITASI KOMUNIKASI ANTAR BAGIAN. *Jurnal Ilmiah Bidang Sosial, Ekonomi, Budaya, Teknologi Dan Pendidikan*, *2*(12), 3831–3844.