



Development of a Web-Based System for Recording and Reporting Palm Weights Using Laravel at PT. Graha Prima Lestari

Fredynand Marcos^{1 *}, Wilson², Jackri Hendrik³

^{1,2,3}STMIK-TIME, Indonesia

fredynandm@gmail.com^{1*}, wu95.wilson@gmail.com², Jackri.hendrik@gmail.com³

Abstract

This research was initiated by operational problems in the palm oil weighing process, which was conducted manually. The manual method often caused calculation errors, delays in making report, and risk of data loss. To address these issues, a web-based palm oil weighing application was developed using the Laravel framework and the Waterfall development method, supported by a relational database to manage data in an integrated manner.

The application implements a role-based access system to manage permissions for administrators, weighing operators, and management. The system records gross weight, tare weight, and automatically calculates net weight while generating accurate reports efficiently. With this system, the weighing process is expected to become more efficient, precise and structured.

Keywords: Palm Oil, Weighing System, Laravel, Waterfall, Information System.

1. Introduction

Modern companies require efficient management to handle important and vital needs [1]. The plantation sector is one of the agricultural subsectors that plays an important role in Indonesia's economy [2]. In this sector, the use of websites for operational management and the recording of palm oil weighing has become a standard operational practice in almost all palm oil mills and large plantation corporations to ensure accountability and auditability [3]. However, problems arise in the downstream supply chain, namely the lack of price transparency and the absence of independent recording applications for farmers and suppliers, which leads to inefficiencies and potential losses [4]. Therefore, an user-friendly recording system is required that can serve as a reliable control and reporting tool for parties outside the palm oil mill [5].

PT. Graha Prima Lestari (GPL) recognizes the importance of accuracy and speed of reporting from the results of palm oil weighing, considering the intense industry competition and the high demand for transparency from farmers and suppliers. Accurate and digitalized management becomes the key to ensure company efficiency and optimizing profitability.

In this sector, the use of websites for operational management and palm oil weighing records has become a standard operational practice in almost all palm oil mills and large plantation corporations in Indonesia. However, PT. Graha Prima Lestari uses an outdated recording system that is still written manually. The existing system faces crucial limitations, such as restricted real-time data accessibility and vulnerability to human error during data transfer. This outdated system condition creates gap, namely the lack of price transparency and the absence of independent recording applications for suppliers, which can lead to inefficiencies and financial losses.

2. System Development

This study adopts a system development approach that focuses on transforming manual operational workflows into a structured digital process. The proposed solution is designed to centralize operational data, improve coordination among different roles, and provide real-time access to information related to management.

2.1. System architecture

The weighing application that was developed is a client–server–based system. In this architecture, the application acts as the client used by users in the field, while the server functions as the backend that manages business processes, application logic, and data storage. The backend of the application is built using Laravel framework with PHP programming language and uses a relational database system such as MySQL/MariaDB.

2.2. Database Design

The database is designed to support the palm oil weighing and queue process as well as recin an integrated and structured manner. Several main tables used include the users table, vehicles table, weighing table , queue table , production table, sales and purchase table. The users table is used to store account data along with user access rights, such as administrator, weighbridge operator, and management. The vehicles table stores information about list of vehicles transporting oil palm, While the weighing table records the main data of the weighing process, such as the date, gross weight, tare weight, and net weight , Queue table is used to store weighing queue data , Production table is used to store production data, sales and purchase table is used to store sales and purchase data.

2.3. Relation Table

Relationships table are designed so that each weighing process can be more precise and easier to track. Each weighing record is also linked to database record, making record easier to make a report and to track. In addition, weighing results are automatically summarized daily, weekly, and monthly.

The application is also integrated with the database, allowing every data to be processed and displayed in real time. By implementing this , the weighing process becomes faster, more efficient and more accurate compared to the older system.

3. System implementation

This section describes the implementation of the proposed system in the form of a web application. The application is designed to provide an easier way for users.

3.1. Web application features

This Page is used to authenticate users by their role (Admin,Manager,Accounting,Operator). Users fill in their password and email to get into the application.

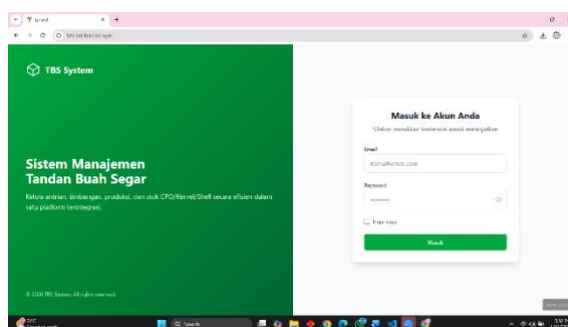


Fig. 1 Login interface of the web application showing role-based user authentication.

Main menu shows menu according to roles to avoid confusion,in the picture is admin roles so it displays the queue list, total weighing records, production data, sales data, queue status, production output, and a summary of stock.

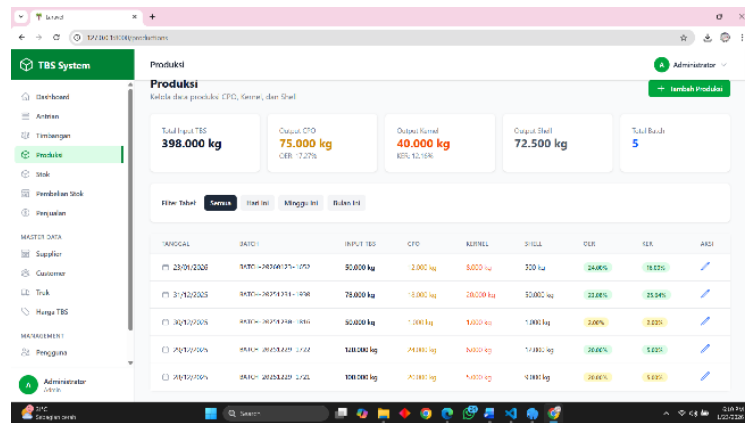


Fig. 5 interface displaying production

Other than production stock are also added from purchases, The interface is made to make user use them easier and to avoid confusion

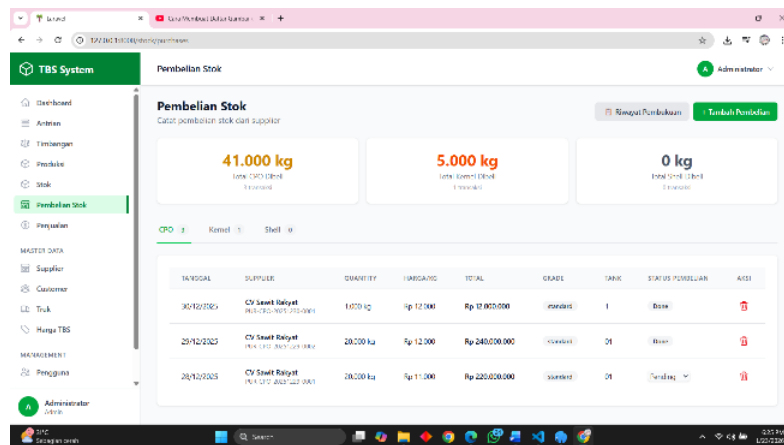


Fig. 6: interface displaying purchase

In stocks we can see total stocks which are CPO, Shell and Kernel added from production and purchase input.

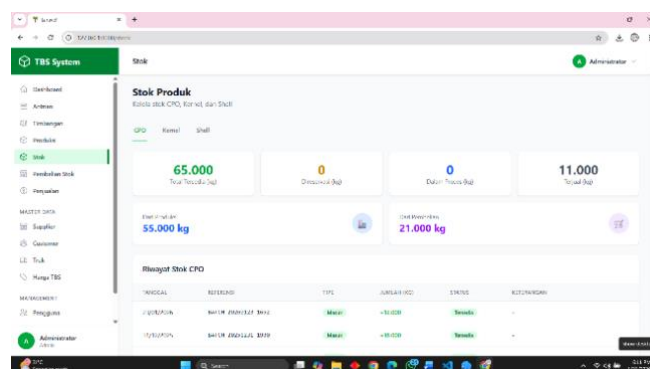


Fig. 7: interface displaying stocks

4. Conclusion

The web-based stock management system has been successfully designed and implemented to help the company manage stock data, record incoming and outgoing goods, and organize company data in a more structured and efficient manner. The Laravel framework was integrated

into the web-based application using Laragon as the development environment, making the application development process more organized and easier in terms of program code management.

The developed system has proven to assist the company in managing financial records and stock management, as it provides more accurate data recording, simplifies stock monitoring, and supports more effective decision-making in company management.

References

- [1] Perguruan Tinggi Agama Islam Panca Budi Perdagangan, S. (2023). OPTIMASI PRODUKTIVITAS ORGANISASI MELALUI MANAJEMEN STRATEGIS SUMBER DAYA MANUSIA DI ERA DIGITAL, 1(1).
- [2] Ingesti, P., & Rahmadan, R. (2021). Faktor penentu pendapatan premi tenaga kerja panen kelapa sawit (*Elaeis guineensis* Jacq.) di kebun Gohor Lama PT Langkat Nusantara Kepong. *Jurnal Pengelolaan Perkebunan (JPP)*, 2(1), 38–48. <https://doi.org/10.54387/jpp.v1i1.21>
- [3] Andi Syahputra. (2024). Laporan Kerja Praktek .
- [4] Malik, A., & Siata, R. (n.d.). IDENTIFIKASI FAKTOR PENENTU BESARAN INDEKS “K” DAN KEBIJAKAN PENETAPAN HARGA TBS KELAPA SAWIT POLA KEMITRAAN DI KABUPATEN MUARO JAMBI (Vol. 1).
- [5] Saptantinah, D., & Astuti, P. (2010). PERLUNYA PENERAPAN SISTEM AKUNTANSI PADA USAHA KECIL MENENGAH. *Jurnal Ekonomi dan Kewirausahaan* (Vol. 10).