

Raw Material Storage Information System Case Study: CV.Bplast Jaya

Aldo Ardiansyah*, Arif Senja Fitriani, Ade Eviyanti, Novia Ariyanti

Universitas Muhammadiyah Sidoarjo, Sidoarjo, Indonesia

*Corresponding Email: aldo_ardi11@gmail.com

Abstract. This study was motivated by the limitations of the raw material inventory management system in companies, which is still carried out manually. The lack of understanding and knowledge of information technology among employees is also a factor hindering the implementation of a more efficient system. This condition causes various obstacles, such as delays in recording, inaccurate data, and difficulties in real-time stock tracking. The purpose of this study is to assist companies in developing a more effective and efficient raw material storage system through the use of web-based information technology. This study uses a qualitative approach with data collection methods in the form of observation, interviews, and documentation to obtain information related to system requirements and problems faced by companies. Based on the results of the research, a web-based raw material storage information system has been successfully designed and developed that is capable of presenting real-time inventory data, recording the entry and exit of raw materials more accurately, and providing search and reporting features that facilitate decision-making by management. The implementation of this system has shown an increase in data recording efficiency, a reduction in input errors, and ease in tracking raw material stocks. Thus, the developed system can be the right solution to overcome the raw material management problems that the company has been facing.

Keywords: Information System, Storage, Qualitative, Raw Materials, Digitization

1 Introduction

The use of information technology has become a very important aspect in supporting various industrial fields, including the manufacturing and processing sectors[1]. Companies are required to continuously innovate and adapt to technological advances in order to maintain operational sustainability and improve work efficiency and effectiveness. Good management will greatly affect the smooth running of the production process and the achievement of the company's strategic objectives[2]. CV. Bplast Jaya is a company engaged in processing plastic waste into ready-to-use products, such as plastic pellets, household appliances, and gutters. In its production process, the company relies on various types of plastic raw materials such as *PET (Polyethylene Terephthalate)*, *HDPE (High-Density Polyethylene)*, *PVC (Polyvinyl Chloride)*, *LDPE (Low-Density Polyethylene)*, *PP (Polypropylene)*, and *PS (Polystyrene)*[3]. However, raw material management at CV. Bplast Jaya is still carried out conventionally, namely through manual recording using books or simple spreadsheets. This manual system often causes various problems, including delays in information regarding stock availability, data inaccuracy due to human error, duplicate records, difficulties in tracking the flow of raw materials, and the risk of data loss due to the lack of an adequate backup system. These problems have the potential to hamper the smooth operation of the company as a whole[4].

The Raw Material Storage Information System, developed using qualitative data methods in qualitative research, describes quality or characteristics. This is collected using questionnaires, interviews, or observations, and often appears in narrative form[5]. Based on the problems described above, a solution is needed in the form of a web-based raw material storage information system that can help CV. Bplast Jaya manage inventory data in a more integrated and efficient manner[6]. This system is designed to provide real-time inventory information, facilitate raw material tracking, and provide regular data backups to reduce the risk of data loss[7].

By designing and developing a web-based raw material storage information system, this study aims to provide solutions to the problems faced by companies and support the creation of a more modern, integrated raw material management system that is responsive to the operational needs of companies [8]. In addition, this system is also expected to support improved management decision-making and efficiency in production resource management, thereby providing added value for the future growth and competitiveness of CV. Bplast Jaya [9].

2 Method

2.1 System Development Methods

This study uses qualitative methods as described in Figure 1. Qualitative methods are research approaches that utilize systematic strategies, steps, and procedures involving the collection of data and information from relevant subjects, which in this case are respondents who have direct experience with the issues being studied[10]. Respondents provide data in the form of statements, views, and personal feelings, which are then analyzed to gain a deep and comprehensive understanding of the actual conditions in the field. Therefore, this study utilizes a qualitative methodology intended to gain an in-depth understanding of the phenomenon related to the raw material storage information system at CV Bplast Jaya[11].



Figure 1. Qualitative Method

2.2 Activity Diagram Design

An *Activity Diagram* is a layout of the system to be designed and modeled, so that the workflow in the information system, application, and software can be easily understood. This *Activity Diagram* is a design of the flow of *user* activities in running a system[12]. *Activity Diagrams* are also used to define or group the display flow of the system. This *Activity Diagram* is an *activity diagram* for *users* adding warehouse item data. The flow of activities in the warehouse information system application is depicted from *the user* logging into the application to *the user* updating warehouse item data. *Users* have access rights to perform CRUD (*create, read, update, delete*) processes on this application system[13].

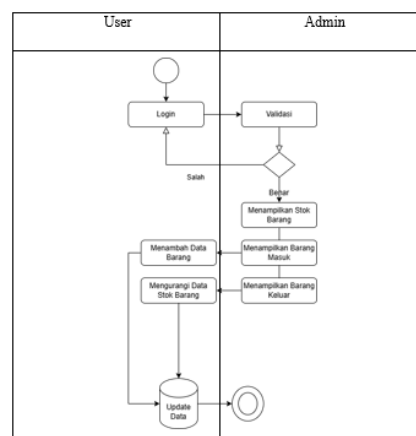


Figure 2. Activity Diagram

2.3 Use Case Diagram

A *use case diagram* is a model for the behavior of an information system that will be created. A *use case* will describe an interaction between one or more actors and the information system that will be created in a rough manner. *Use cases* are used to determine which functions are authorized to use those functions[14]. In Figure 3, there is a main actor, namely Admin. Admin has the right to access all *user* data and warehouse data. Admin also has the right to update warehouse data and *user* data[15].

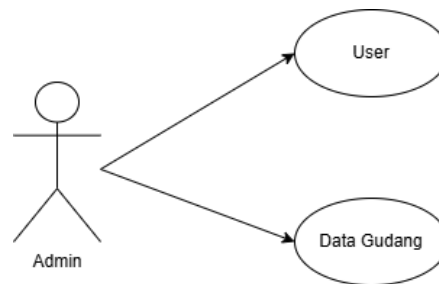


Figure 3. Use Case Diagram

3 Results And Discussion

3.1 Interview Results

This study used an approach to measure the increase in efficiency after the implementation of the Raw Material Storage Information System. Interviews were conducted with several employees who were directly involved in the operational process, including administrators, warehouse supervisors, and warehouse operators.

Based on the interview results, they said that the implemented system had a positive impact on the smoothness of work processes, especially in terms of time efficiency and simplification of workflows.

3.2 Field Observation Results

The researcher conducted direct observations of the work process before and after the system was implemented. The changes that occurred were quite significant, especially in terms of work duration and the number of process stages.

3.2.1 Before System Implementation

- Data input was done manually.
- Data recording was first done in a book, then summarized and entered into Excel.
- Input errors occurred quite frequently due to fatigue and carelessness.

3.2.2 After System Implementation

- Data input is done using the system.
- Eliminates the manual writing process in books because the system can be accessed directly from a cell phone.
- Input errors decreased dramatically because the system automatically recorded scanned data.

3.3 Feature Testing

Table 1. Login

No	Role	Username / Password	Expected Result	Actual Result	Status
1	Admin	Admin / 12345678	Masuk dashboard admin	Dashboard tampil	Sukses
2	Operator	Operator / 12345678	Masuk dashboard	Dashboard tampil	Sukses
3	Invalid	salah / 12345678	Error login	Tidak bisa login	Sukses

Table 2. Menu Navigation

Menu	Submenu	Expected	Status
Master Barang	Produk	Menampilkan tabel data produk	Sukses
	Jenis	Menampilkan jenis barang	Sukses
	Satuan	Menampilkan satuan barang	Sukses
	Barang	Menampilkan daftar barang	Sukses
Customer	-	Tabel customer tampil	Sukses
Transaksi	Barang Masuk	Tabel + tombol "Tambah Data" tampil	Sukses
	Barang Keluar	Sama seperti atas	Sukses
Laporan	Semua	Menampilkan data & filter tanggal	Sukses

Table 3. Incoming Goods Transactions

No	Input	Expected Result	Actual Result	Status
1	Input lengkap valid	Data disimpan, alert sukses muncul	Data masuk, redirect + alert	Sukses
2	Jumlah kosong	Muncul error "jumlah wajib diisi"	Validasi muncul di field jumlah	Sukses
3	Tidak pilih customer	Gagal simpan, muncul validasi	Validasi muncul	Sukses
4	Kode barang discan dan belum ada	Data disimpan ke tbl_barangmasuk saja	Sesuai (tidak cek ke master barang)	Sukses
5	Kode barang baru & nama kosong	Validasi muncul	Nama wajib diisi	Sukses

Table 4. Outgoing Goods Transactions

No	Input	Expected Result	Actual Result	Status
1	Semua input valid	Data keluar disimpan, stok berkurang	Redirect + alert sukses	Sukses
2	Jumlah > stok tersedia	Muncul error / validasi stok tidak cukup	Validasi muncul	Sukses
3	Jumlah kosong	Validasi: "jumlah wajib diisi"	Validasi tampil	Sukses
4	Kode barang tidak ada	Data hanya masuk ke barang keluar	Tetap bisa input	Sukses
5	Nama barang kosong	Tidak bisa simpan, validasi tampil	Validasi tampil	Sukses

Table 5. Customer Menu

No	Aksi	Expected Result	Actual Result	Status
1	Buka halaman	Tabel customer tampil	Tabel muncul	Sukses
2	Tambah nama + alamat	Data masuk dan tampil	Data tersimpan + alert sukses	Sukses
3	Simpan tanpa nama	Validasi muncul: "nama wajib diisi"	Validasi tampil	Sukses
4	Cari di tabel	Filter berfungsi	Tabel bisa filter	Sukses

Table 6. Incoming Goods Report

Uji	Expected	Actual	Status
Filter tanggal	Menyaring data sesuai range	Data disaring dengan baik	Sukses
Tampilkan semua data	Tabel memuat semua transaksi	Data sesuai dengan transaksi	Sukses
Tombol Print / PDF	Cetak laporan	PDF dan print aktif	Sukses

Table 7. Outgoing Goods Report

Uji	Expected	Actual	Status
Filter tanggal	Menyaring data keluar	Data sesuai range tanggal	Sukses
Tabel tampil	Menampilkan transaksi keluar	Tampil sesuai	Sukses
Tombol Print / PDF	Cetak laporan	Bertungsi	Sukses

Table 8. Inventory Report

Uji	Expected	Actual	Status
Tabel tampil	Menampilkan barang dan jumlah stok	Tampil dengan benar	Sukses
Jumlah = masuk - keluar	Perhitungan sesuai	Valid (uji manual = cocok)	Sukses
Tombol PDF / Print	Cetak laporan stok	Cetak jalan	Sukses

3.4 Login Page

The interface of the raw material storage information system website consists of several main pages designed to simplify the raw material system management process. The Admin *login form* is used by administrators and *users* to enter *their email* and *password* to access the website. In addition, there is an input validation feature to ensure access security.

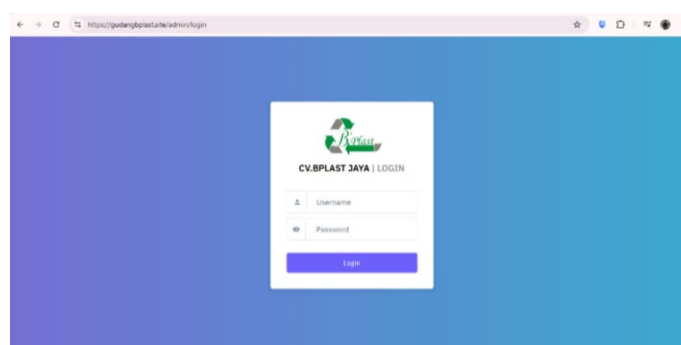


Figure 4. Login Screen

3.5 Dashboard Page

After successfully logging in, users will be directed to the dashboard, which displays a summary of key information, such as *Master Goods*, *Customers*, *Transactions*, *Reports*, *Settings*, and *Logout*. The dashboard also features a navigation menu to facilitate movement between features within the application.

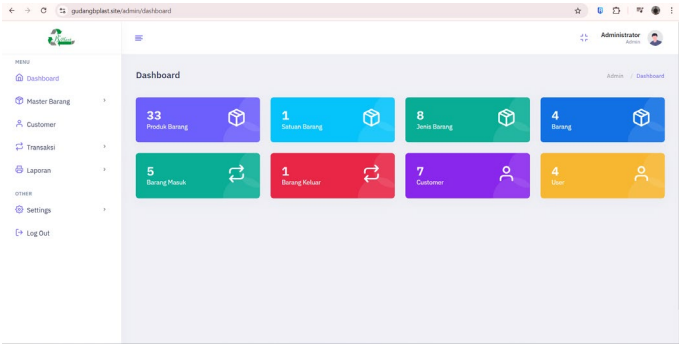


Figure 5. Dashboard Display

3.6 Master Goods Page

This raw material storage website has 4 pages in the *Master Goods* section, namely *Products*, *Units*, *Types*, and *Goods*. The *Products* section explains what raw materials are available at CV.Bplast Jaya, the *Units* section is where the weight of raw materials is determined, the *Types* section lists all types of raw materials used, and the *Goods* section is a record of goods that have been adjusted using goods codes.



Figure 6. Master Goods Content Display

3.7 Product Page

The Product Type page is part of the *Master Goods* menu used to manage data on the categories or types of raw materials available at CV. Bplast Jaya. On this page, users can view a list of plastic types such as *PET*, *PP*, *LDPE*, *HDPE*, and others used in the production process. The page displays data in a table format, consisting of columns *for No.*, *Type*, *Description*, and *Action*. The *Action* feature allows users to edit or delete existing type data. There is also a *search* feature and *pagination* to facilitate data search if the number of types increases.

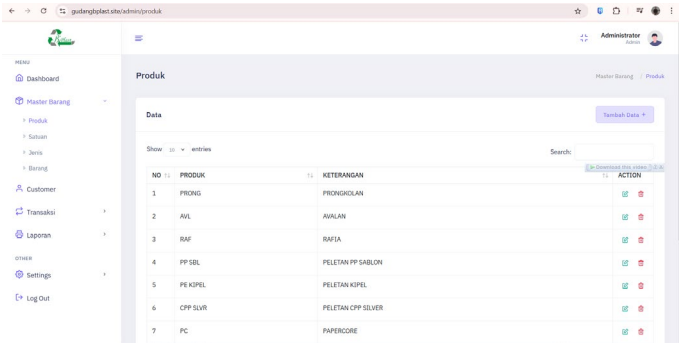


Figure 7. Product Page Display

3.8 Unit Page

The Unit page is used to manage measurement unit data for raw materials or products at CV. Bplast Jaya. These units are important for recording and transaction purposes, such as *Kg*, *Gram*, *Ton*, or other units according to the type of material used. The page display is arranged in a table containing the columns *No*, *Unit*, and *Action*.

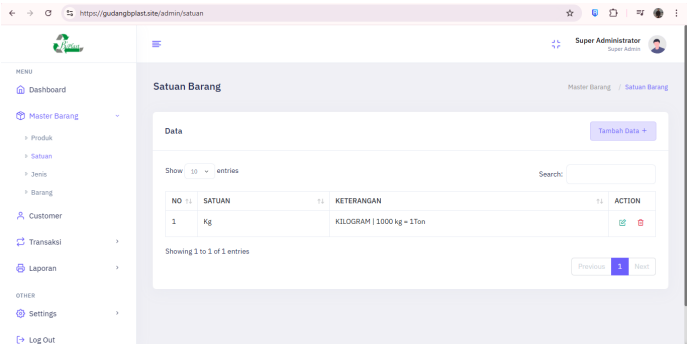


Figure 8. Display of the Unit Page

3.9 Type Page

The Type Page is used to manage data on the categories of plastic raw materials used in the production process at CV. Bplast Jaya. Each type represents a specific type of material, such as *PET*, *PP*, *LDPE*, *HDPE*, and so on, which have different physical and chemical characteristics.

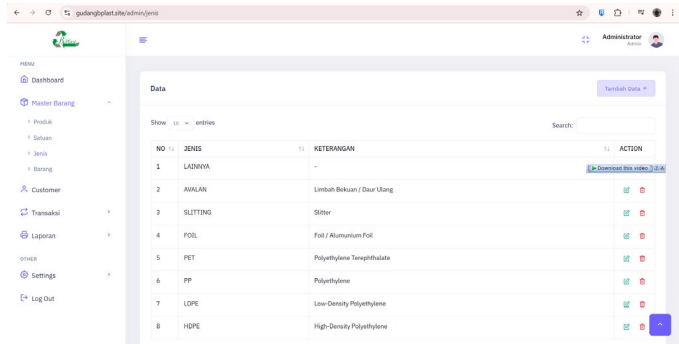


Figure 9. Type Page Display

3.10 Goods Page

The Goods Page is an important feature in the Goods Master menu used to manage data on all raw materials available at CV. Bplast Jaya. On this page, users can view a complete list of goods along with related information such as *item code*, *item name*, *product*, *unit*, *type*, *stock*, and *price*.

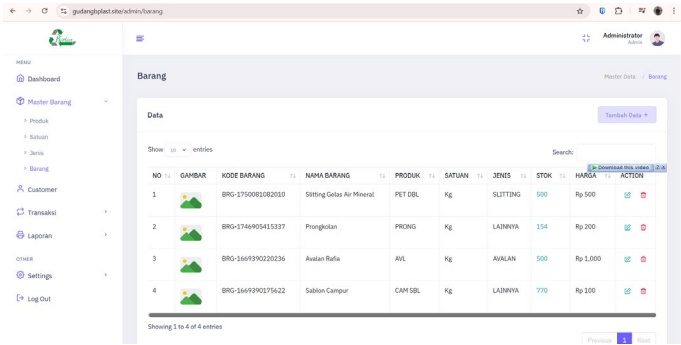
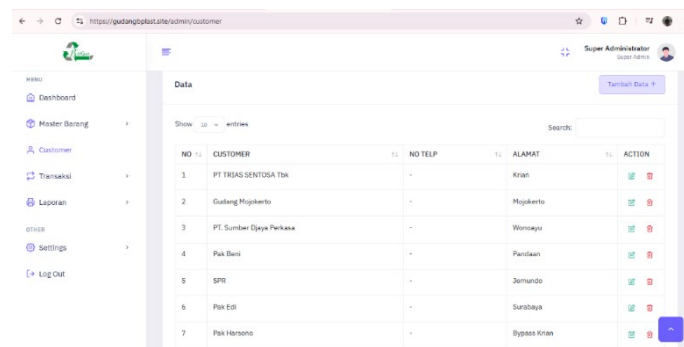


Figure 10. Item Display Image

3.11 Customer Page

This website also provides a list of all *customers* who have made sales transactions within *CV.Bplast*, and the *Customer* menu provides an option to add data if you want to add *customer* data.



NO	CUSTOMER	NO TELP	ALAMAT	ACTION
1	PT TREAS SENTOSA Tbk	+	Krian	[Edit] [Delete]
2	Gudang Mojokerto	+	Mojokerto	[Edit] [Delete]
3	PT Sumber Ujaya Perkasa	+	Wongayu	[Edit] [Delete]
4	Pak Bani	+	Pandean	[Edit] [Delete]
5	SPS	+	Demande	[Edit] [Delete]
6	Pak Edi	+	Surabaya	[Edit] [Delete]
7	Pak Harsono	+	Bypass Krian	[Edit] [Delete]

Figure 11. Customer Page Display

3.12 Transaction Page

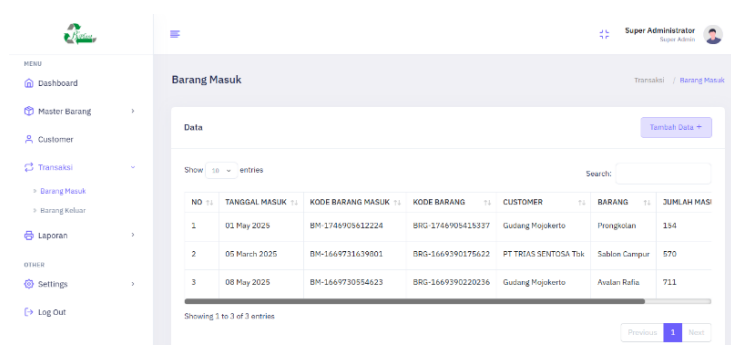
This *Raw Material Storage Website* also provides a *Transaction Page* to record all *transactions* made for *incoming* and *outgoing goods*. With this feature, recording transactions becomes more structured and efficient compared to manual methods.



Figure 12. Transaction Page Display

3.13 Goods Received Transaction Page

The *Goods Receipt* page is part of the *Transactions* menu used to record every activity related to the receipt of raw materials into the CV. Bplast Jaya warehouse. All data entered will be recorded systematically and organized to facilitate tracking and stock evaluation.



NO	TANGGAL MASUK	KODE BARANG MASUK	KODE BARANG	CUSTOMER	BARANG	JUMLAH MAS
1	01 May 2025	BM-1748909612224	BRG-1748909415337	Gudang Mojokerto	Prongkolan	134
2	05 March 2025	BM-1669731639801	BRG-1669390175632	PT TREAS SENTOSA Tbk	Sablon Campur	670
3	08 May 2025	BM-1669730554623	BRG-1669390220236	Gudang Mojokerto	Avalan Rafia	711

Figure 13. Incoming Goods Transaction Display

3.14 Goods Out Transaction Page

The *Goods Out* page is part of the *Transactions* menu used to record the expenditure of raw materials from the CV. Bplast Jaya warehouse. The main function of this page is to document the distribution process of goods leaving the inventory system, whether for production, delivery, or other purposes.

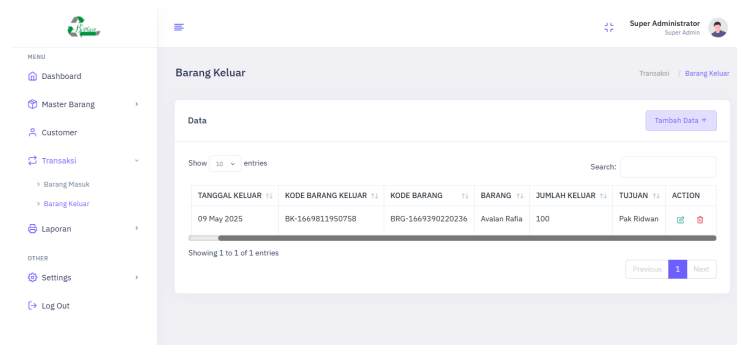


Figure 14. Outgoing Goods Page Display

3.15 Report Page

The application also has an *Outgoing, Incoming, and Stock Report* page that displays a list of *Transaction Reports* based on a specific period. This page allows administrators to view the history of *Transaction Reports* stored in the system, so that data can be accessed at any time without having to search manually in physical records. With this feature, *Transaction Reports* become more structured and efficient compared to manual methods.

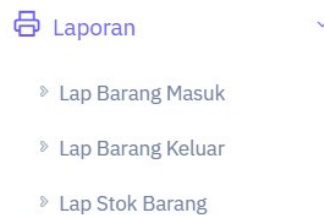


Figure 15. Report Page Display

3.16 Goods Receipt Report Page

The *Goods Receipt Report* Page is a reporting feature that displays a summary of raw material receipt transaction data at CV. Bplast Jaya. This page is designed to facilitate users in monitoring, evaluating, and printing reports periodically based on data previously recorded in the *Goods Receipt* menu.

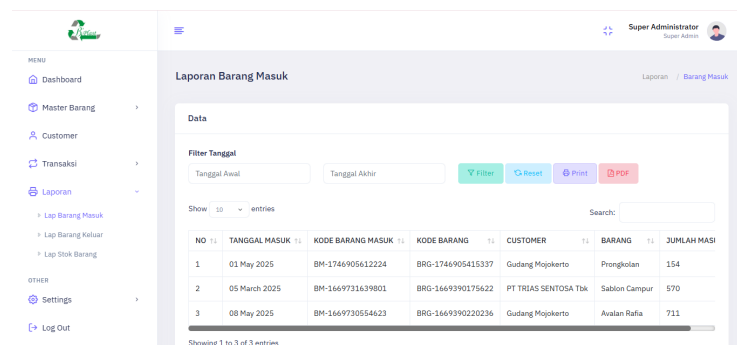


Figure 16. Incoming Goods Report Page Display

3.17 Outgoing Goods Report Page

The *Goods Out Report* page displays a summary of raw material expenditure data from the CV. Bplast Jaya warehouse. This feature helps management and operators monitor goods distribution in detail and historically based on previous transactions in the *Goods Out* menu.

NO	TANGGAL KELUAR	KODE BARANG KELUAR	KODE BARANG	BARANG	JUMLAH KELUAR	TUJUAN
1	09 May 2025	BK-166981190758	BRG-1669390220236	Avalan Rafia	100	Pak Ridwan

Figure 17. Outgoing Goods Report Display

3.18 Stock Report Page

The *Goods Stock Report* page is a reporting feature used to display comprehensive information on raw material stocks at CV. Bplast Jaya. This page provides a summary of stocks based on calculations from *Goods Receipt* and *Goods Issue* transactions, making it easier for users to check real-time stock availability.

NO	KODE BARANG	BARANG	STOK AWAL	JUMLAH MASUK	JUMLAH KELUAR	TOTAL STOK
1	BRG-1746905415337	Prongholan	10000	154	0	10154
2	BRG-1669390220236	Avalan Rafia	5000	711	100	5611
3	BRG-1669390175622	Sablon Campur	20000	570	0	20570

Figure 18. Report Page Display

4 Conclusion

Research has been conducted and found that the inventory system used at CV.Bplast Jaya is not yet fully computerized, resulting in raw material data collection still being done manually and unable to be monitored remotely. Therefore, to solve this problem, A system was developed using the Laravel Framework for the Raw Material Storage Information System, to facilitate administrators in data collection and remote, real-time monitoring of warehouse inventory data.

With the hope that the establishment of this Raw Material Storage Information System will enable data collection to run smoothly and remote monitoring to be carried out effectively.

Acknowledgement

Praise and thanks be to Allah SWT () for His mercy () and blessings, so that this research and report could be completed successfully. I would like to thank my supervisor for his guidance, direction, and valuable input during the preparation of this research.

I would also like to thank all the lecturers of the Informatics Study Program, Muhammadiyah University Sidoarjo, for the knowledge and insights that have been very useful during my studies. I would also like to express my special appreciation to my family and friends for their prayers, support, and motivation during this research process.

I hope this research can contribute to the development of information technology, particularly in the management of raw material storage, especially for warehouse issues. I realize that there are still shortcomings in this research, so constructive criticism and suggestions are highly appreciated for future improvements.

References

- [1] D. Purnama Sari, R. Wijanarko, and J. X. Menoreh Tengah, "Implementation of the Laravel Framework in a Camera Rental Information System (Case Study at Rumah Kamera Semarang)," vol. 2, no. 1, pp. 32–36, 2019.
- [2] I. M. Ijfi, M. F. Khalilullah, Z. P. Leri, V. Farezy, and E. Arribe, "DESIGN OF A WEB-BASED INVENTORY INFORMATION SYSTEM (CASE STUDY: JAKARTA DÉCOR STORE)," 2025.
- [3] K. Jenis *et al.*, "Pp. 1403–1412 E-ISSN 2503-2933 Universitas Multi Data Palembang," 2022. [Online]. Available: <http://jurnal.mdp.ac.id>
- [4] E. Dikta Sumanik, H. A. Sawor, F. Dacosta, and R. Artikel, "Journal of Economic Science and Education Web-Based Inventory Information System at SMP YPK Kotaraja INFO ARTIKEL," vol. 1, no. 1, pp. 47–57, 2024, [Online]. Available: <https://doi.org/10.62335>
- [5] A. Sistem *et al.*, "System Analysis and Development of a Web-Based Online New Student Admission Information System Using Qualitative Methods," *Journal of Science and Technology*, vol. 3, no. 1, pp. 8–16, 2021.
- [6] K. Syahputri, M. Irwan, and P. Nasution, "The Role of Databases in Management Information Systems," *Journal of Accounting, Finance, and Business*, vol. 1, no. 2, pp. 54–58, 2023, [Online]. Available: <https://jurnal.itc.web.id/index.php/jakbs/index>
- [7] A. Fachrul Rezy and I. H. Ikasari, "Systematic Literature Review: Web-Based Inventory Management Information System." [Online]. Available: <https://jurnalmahasiswa.com/index.php/biikma>
- [8] S. P. Information on Raw Material Inventory at Cofee Black Gallery Jakarta RC Esti Nursumaryanti, E. Wehalo, and R. Esti Nursumaryanti, "RAW MATERIAL INVENTORY INFORMATION SYSTEM AT PT. COFEE BLACK GALLERY JAKARTA."
- [9] M. Herman Djaja, A. Suryansyah, and M. Herman Djaja, "Implementation of Information System Design," 2020.
- [10] W. Gede *et al.*, "LITERATURE REVIEW OF MANAGEMENT INFORMATION SYSTEM COMPONENTS: SOFTWARE, DATABASE, AND BRAINWARE," vol. 3, no. 3, 2022, doi: 10.31933/jemsi.v3i3.
- [11] "Qualitative_methods_and_their_application_in_research".
- [12] L. P. Dewi, "BUSINESS PROCESS MODELING USING UML ACTIVITY DIAGRAM AND BPMN (CASE STUDY OF FRS ONLINE)."
- [13] "560-Article Text-1660-1-10-20200222".
- [14] B. Samudra, A. Sulistyanto, T. Mengkasrinal, and S. Tinggi Jayakarta Information and Computer Management, "DESIGNING A WEB-BASED INVENTORY INFORMATION SYSTEM: A CASE STUDY OF PT. EPSINDO JAYA PRATAMA," *Jayakarta Information Management Journal*, vol. 3, no. 2, pp. 142–156, 2023, doi: 10.52362/jmijayakarta.v3i2.1138.
- [15] D. A. Susanto and H. D. Purnomo, "Designing a Web-Based Warehouse Information System Using the Laravel Framework," 2023. [Online]. Available: <http://jurnal.mdp.ac.id>