



Web-Based Printing Goods Collection Information System in UD. BUKIT BARISAN SEMARANG

Yunus Anis, Sri Mulyani, Sunardi, Rina Candra Noor Santi, Rizky Budi Nugroho

Faculty of Vocational, Stikubank University, Semarang, Indonesia

ABSTRACT: Data management is always a complicated problem if it is not managed properly. The problem faced by researchers is related to data collection at UD. Bukit Barisan. Manual data management in a book is very difficult and less effective. The development of a web-based goods data collection information system is very important to be developed to facilitate the performance of the administration section. The research method is carried out by interviews and observations, where the development of this system uses the design of data flow diagrams and entity relationship diagrams. The programming language used is HTML and PHP and the MYSQL database. Based on the results obtained from the implementation of the goods data collection system, the input system consists of the added supplier form, the unit added form, the type added form, the added goods form, the incoming goods input form, the outgoing goods input form, and the added user form. Testing uses a black box that results in a successful test for each form. The results of the input test that produce the expected output. This information system is very helpful for UD. Bukit Barisan management and improve the quality of goods data storage in the company.

KEYWORDS: Management Of Data, Systems, Information

I. INTRODUCTION

The development of technology in the field of information and management is currently very fast, especially in data processing using computers. Computer technology is something that is highly coveted by every business owner, because it is able to produce perfect information. The need for a computer as a tool for solving problems quickly is really needed. Along with the development of information technology, it is also increasingly needed an information system to help solve problems that occur in the realm of business owner administration.

If you look at this, some small and medium-scale business owners do not have a system that provides information on equipment/goods inventory. This situation is less effective so we need a system that is able to overcome this situation. Understanding the inventory of goods is an activity of recording goods as well as processing inventory data owned by a business owner.

U.D Bukit Barisan is a printing company that was founded in 1990 having its address at Jalan Poncowolo Timur Raya 447 B Semarang. This printery was founded by a husband and wife, namely Rusli Rasyidin and Nunung Lestari, providing printing services such as printing notes, travel invoices, brochures, invitations, and books. Based on the observations, it was found that at this time the data collection of goods carried out at the U.D Barisan printing office was still less effective because it was still using manual data collection written in books. This results in the process of recording data items running slowly and at risk of being lost.

II. RELATED WORK

Research related to goods data management has been carried out in previous studies, including research conducted by Agusvianto entitled "Warehouse Inventory Information System for Controlling Goods Inventory in Warehouse Case Study: PT.Alaisys Sidoarjo"[1]. PT. Alaisys always supervises and records inventory items. Reporting from the warehouse to the head office is done by copying data from the card into Microsoft Excel. The report in excel format must be sent via email or Gadget. This mechanism makes the head office unable to find out data from the warehouse efficiently. Therefore, with the construction of a new system, namely a web-based warehouse inventory system that can provide solutions to the problem of access rights, recording of goods in the warehouse so as to increase the effectiveness of the company. Another study conducted by Larasati [2] entitled "Web-Based Information System for Inventory of Perhutani

Cepu Employee Cooperatives” states that manual data management and storage of goods can result in errors and inaccuracies and the risk of data loss caused by employees. With the construction of a new system, namely a web-based Inventory system in order to minimize unwanted events from happening to the goods in the organization. The next research entitled "Design of Goods Inventory System at UD Minang Dewi" was conducted by Fahrival, Pohan, & Nasution [3]. At UD Minang Dewi, the Inventory system used is still using the manual method so that it slows down the performance at UD Minang Dewi. With the construction of a new system, namely a web-based inventory system, it can solve the problems that exist at UD Minang Dewi. In this research, making the system using PHP language and also using mysql database.

The research that will be carried out by applying the waterfall method aims to build an information system for data collection which includes inventory recording, recording incoming goods and recording outgoing goods. By using the waterfall method, researchers will be facilitated by the steps that have been determined, namely requirements definition, system and software design, implementation and Unit Testing, integration and unit testing, and operation and maintenance.[4]

III. METHODOLOGY

The method used for system development in this research is the waterfall method. The waterfall method is a process of activities from specification, development, validation, and evolution and represents them as separate processes such as requirements specification, software design, implementation, testing, and so on [4].

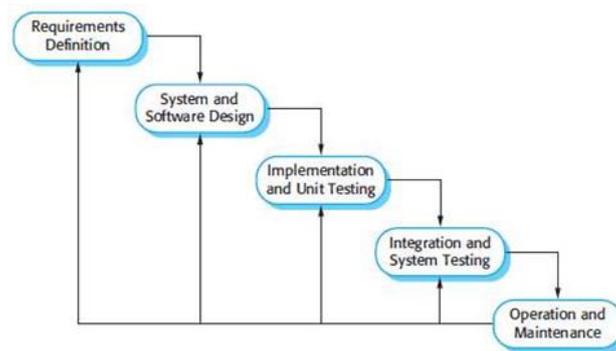


Figure 1. Waterfall Method

The following is an explanation of the stages carried out in the waterfall model as follows:

a. Requirements and Definition

Services, limitations, and system objectives are determined in consultation with system users so that a search and collection of requirements is carried out in accordance with system specifications from users. At this stage determine the right type of system and can answer the problem in making a web-based goods data collection information system at the printing company U.D Bukit Barisan.

The researcher analyzes and understands the conditions experienced by the company and then builds an information system for data collection of goods, starting from the work system of inputting incoming and outgoing goods data, checking the condition of goods for the feasibility of selling values, to reports on the entry and expenditure of goods. Then identify the solutions that are expected to provide a better understanding of the problem. The analysis can be described as follows:

Table 1. Analysis of the running system

No.	Problem	Solution
1.	The data collection process carried out at the U.D. Bukit Barisan printing office is still less effective because it still uses manual data collection by handwriting in books.	Designing an information system for data collection of goods that will facilitate the process of data collection including inventory recording, recording incoming goods and recording outgoing goods.
2.	Storage of data items that are not neat where the data is not stored in the database but manually recorded in the book is at risk of being lost and the work being slow.	In the information system that will be developed there is an integrated and secure website-based data storage feature for incoming and outgoing goods.

Source: Research Results (2022)

b. System and Software Design

The process of allocating requirements for either system hardware or software by establishing the overall system architecture. The design identifies and describes the underlying system abstraction relationships. At this stage, prepare and develop a new system, then develop it in writing. The activities carried out include designing systems using DFD, ERD, database design and system interface design.

From the analysis carried out the software needed for the development of an information system for data collection of goods at UD printing. Bukit Barisan is shown in the following table :

Table 2. System Development Software Requirements

No.	Device Type	Device Name
1.	Operating system	Microsoft Windows 10 64 bit
2.	Web Server	Apache (2.2.4)
3.	Database Server	MySQL (5.1)
4.	Web Browser	Mozilla Firefox 60.0.1
5.	Programing language	HTML, PHP, JavaScript

Source: Research Results (2022)

The hardware needed in the development of an information system for data collection of goods at UD printing. Bukit Barisan are:

1. Processor: Dual Core @ 2.1 Ghz
2. Memory (RAM) 4 GB
3. 14” LCD Monitor

After analyzing the software and hardware requirements, the next step is to design a system using DFD, ERD, and database design on the interface to be built. A Context diagram is a data flow that serves to describe the linkage of flows in data between the system and the outside. Context Diagram can be seen in Figure 2 below:

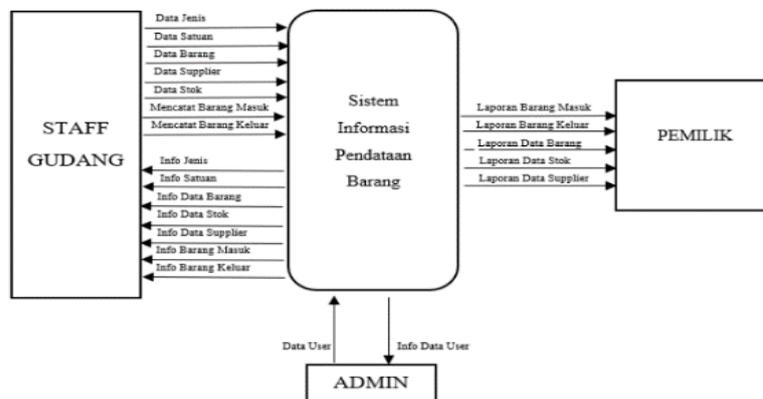


Figure 2. Context Diagram

ERD is used in building a database to describe the relationship or relationship of two files or two tables more systematically. ERD consists of 2 main components, namely entities and relationships. The two components are further described through attributes. The ERD diagram can be seen in Figure 3 below:

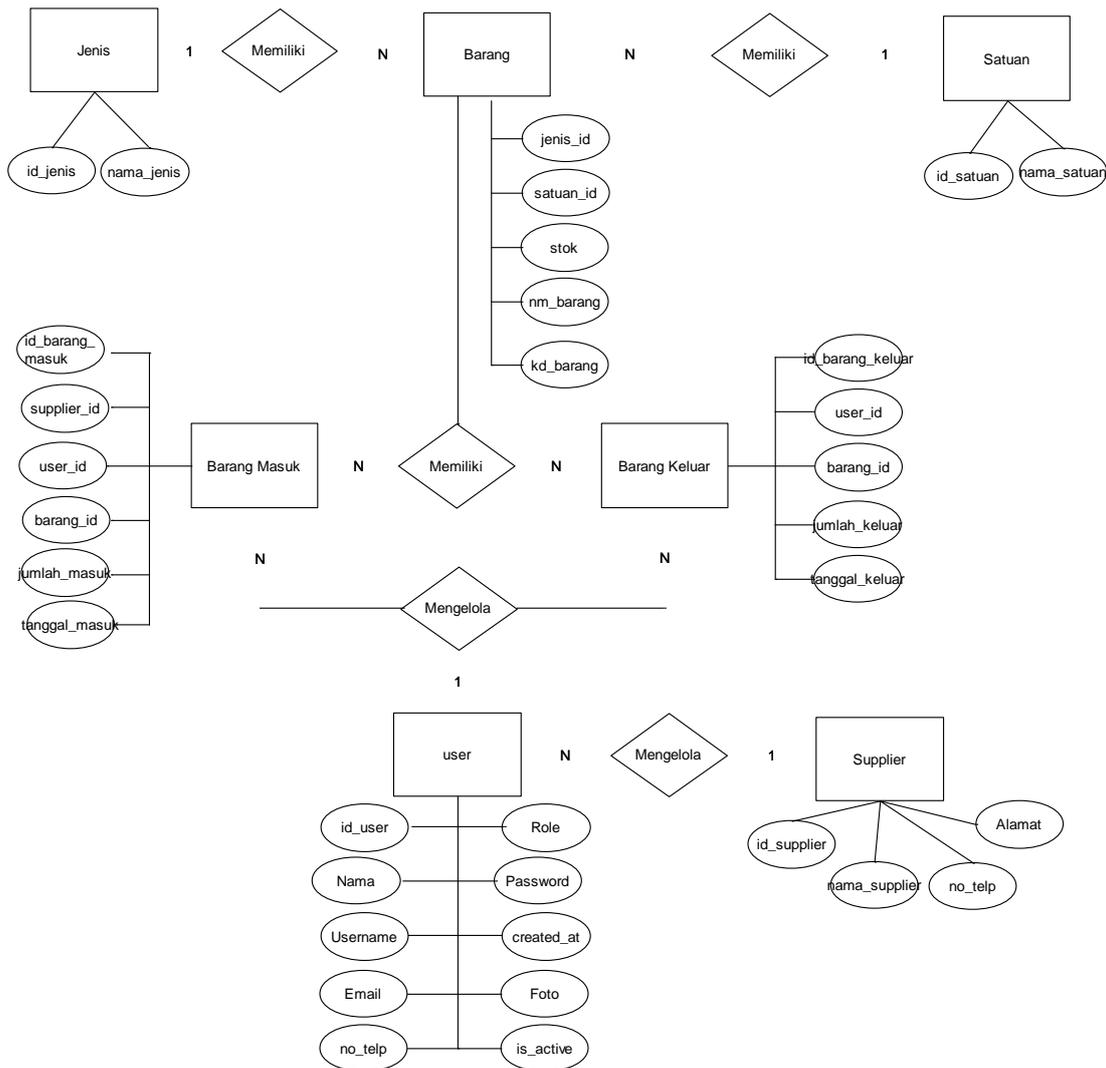


Figure 3. Entity Relational Diagram

c. Implementation and Unit Testing

During this stage, the software design is realized as a series of programs or program units. Unit Testing is involved to verify that each unit is met according to specifications. At this stage create a web-based goods data collection information system at UD printing. Bukit Barisan using the waterfall method is implemented and through the testing stages. The software design in web page format starts from the warehouse staff login page, where the warehouse staff user can fill in the username and password correctly to be able to start the information system application.

d. Integration and System Testing

At this stage, a complete system integration is carried out to ensure that the system is complete, then a system test is carried out so that when it is handed over to the customer, the system does not have problems.

The implementation is the result of the design that has been carried out for further testing or system evaluation. This test or evaluation uses the blackbox method, which is an approach to be able to test every function in a program so that it can run properly. Black box testing is specifically designed to find errors by testing the software interface. The purpose of this test is to determine the usefulness of the software that has been made by checking whether the input is well received, and the output results are in accordance with what is expected and ensure that the software that has been developed has quality and is in accordance with what was previously designed. , namely by presenting the main study of the specifications, design analysis and coding of the software itself.[6]

e. Operations and Maintenance

At this stage the system is installed and put into practical use. The maintenance phase is carried out by correcting errors that were not found in the early stages of each cycle, in order to improve the implementation of system units and improve system services. At this stage the system that has been handed over to the user to be prepared and operated as well as maintenance is carried out to make corrections if there are errors or deficiencies.

This research starts from the Requirements Definition stage, namely by collecting device requirements, both hardware and devices needed in system development. After both can be met, the next step is to enter the System and Software Design stage.

After analyzing the software and hardware requirements, the next step is to design a system using DFD, ERD and database design on the interface to be built. Context diagram is a data flow that serves to describe the linkage of flows in a data between the system and the outside.

III. USER INTERFACE

System implementation is needed to provide instructions for using the system to users, namely warehouse staff, owners and administrators. So that the users of this system can provide an assessment of the functions contained in the system and provide feedback on whether the system is appropriate or needs to be refined again for future needs. The design and development of this information data collection system was built using the PHP programming language and MySQL database, HTML, CSS, and Javascript as the external appearance of this designed application.

The results and implementation of the goods data collection system design starts from the login page on the warehouse staff as shown in the following figure:



Figure 4. Implementation of the Login page (warehouse staff)

The Figure above is this page is the initial part before starting to enter the application. On this page, the user enters the username and password.



Figure 5. Implementation of the Main page (warehouse staff)

The figure above is the main page (dashboard) to display the start page of the goods data collection information system.



No.	ID Barang	Nama Barang	Jenis Barang	Stok	Satuan	Aksi
1	B000000	Kertas NCR Multicopy Bluttom Merah	KERTAS	10	Box	 
2	B000001	Kertas NCR Multicopy Bluttom Kuning	KERTAS	10	Box	 
3	B000002	Itching Pembersih	PERLENGKAPAN	20	Pcs	 
4	B000003	Plastik Undangan Uk. 20 x 15 cm	PLASTIK	300	Pcs	 
5	B000004	Casing Lebar	KERTAS	10	Pack	 

Figure 6. Implementation of the Goods Data page

The figure above is a page to display data on goods in the warehouse that were purchased from several suppliers.



Figure 7. Implementation of the Incoming Goods Input page

The figure above is a display for inputting goods data in the form of the name of the item, the type of item, and the item unit.

Riwayat Data Barang Keluar						+ Input Barang Keluar
No.	No Transaksi	Tanggal Keluar	Nama Barang	Jumlah Keluar	Aksi	
1	T-BK-21060100003	2021-06-01	Casing Lebar	2 Pack		
2	T-BK-21060100002	2021-06-01	Plastik Undangan Uk. 20 x 15 cm	50 Pcs		
3	T-BK-21060100001	2021-06-01	Label Nama Tipe 109	10 Pcs		
4	T-BK-21060100000	2021-06-01	Kertas NCR Multicopy Buttom Kuning	2 Box		
5	T-BK-21052800000	2021-05-28	Itching Pembersih	4 Pcs		

Figure 8. Implementation of the Outgoing Goods page

The figure above is a display to display data for goods that have been ordered or used for store stock. In the Leadership section, the design starts from the owner's main page as shown in the following figure:

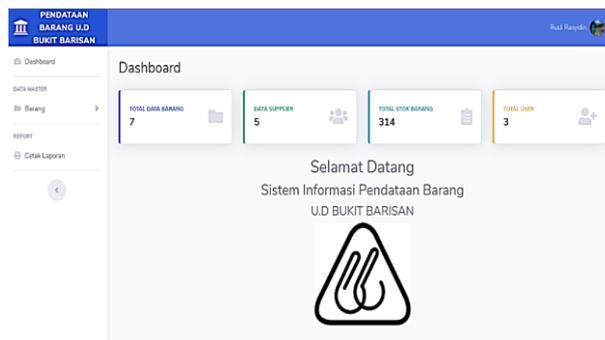


Figure 9. Implementation of the Owner's Main page

The figure above is a part to display the start page of the goods data collection information system. There you can see a dashboard that displays total item data, supplier data, total stock of goods and total users.

Data User								Tambah User
No.	Foto	Nama	Username	Email	No. telp	Akses	Aksi	
1		Bagas Prakoso	Bagas02	bagas23@gmail.com	083839719799	gudang		
2		Rusli Rasyidin	pemilik	rusli@yahoo.com	0889203380	pemilik		

Figure 10. Implementation of the User Data page

V. CONCLUSION

The application of the waterfall method to the information system for data collection used by warehouse staff, leaders and admins at UD. Bukit Barisan makes it easier to manage data that has been experiencing several obstacles and problems. Regarding the management of goods data in the future, this system is expected to be developed on an android or mobile platform to make it easier for users (customers) to manage goods data more easily.

REFERENCES

- [1] H. Agusvianto, "Sistem informasi inventori gudang untuk mengontrol persediaan barang," *Journal Information Engineering and Educational Technology*, vol. 01, no. 012017, pp. 40–46, 2017, [Online]. Available: <https://journal.unesa.ac.id/index.php/jieet/article/view/679>.
- [2] O. Larasati, "Sistem Informasi Inventory Barang Koperasi Karyawan Perhutani Cepu Berbasis Web," *J. Mitra Manaj.*, vol. 2, no. 6, pp. 586–596, 2018, doi: 10.52160/ejmm.v2i6.161.
- [3] M. N. Fahriral, Sentosa Pohan, "Perancangan Sistem Inventory Barang," *Peranc. Sist. Invent. Barang Pada Ud. Minang Dewi Berbas. Website*, vol. 6, no. 2, pp. 1–7, 2018, [Online]. Available: <https://jurnal.ulb.ac.id/index.php/informatika/article/view/743>.
- [4] O. Galkina and V. Yachenko, "Application of iterative software development methodologies for reducing service quality gaps," *Proc. 2014 IEEE North West Russ. Young Res. Electr. Electron. Eng. Conf. ElConRusNW 2014*, pp. 36–37, 2014, doi: 10.1109/ElConRusNW.2014.6839195.
- [5] A. A. Wahid, "Analisis Metode Waterfall Untuk Pengembangan Sistem Informasi," *J. Ilmu-ilmu Inform. dan Manaj. STMIK*, no. November, pp. 1–5, 2020, [Online]. Available: https://www.researchgate.net/profile/Aceng_Wahid/publication/346397070_Analisis_Metode_Waterfall_Untuk_Pengembangan_Sistem_Informasi/links/5fbfa91092851c933f5d76b6/Analisis-Metode-Waterfall-Untuk-Pengembangan-Sistem-Informasi.pdf.
- [6] D. Wang, Y. Li, L. Wang, and B. Gong, "Neural Networks Are More Productive Teachers Than Human Raters: Active Mixup for Data-Efficient Knowledge Distillation from a Blackbox Model," *Proc. IEEE Comput. Soc. Conf. Comput. Vis. Pattern Recognit.*, pp. 1495–1504, 2020, doi: 10.1109/CVPR42600.2020.00157.
- [7] M. Hu, S. Cleland, and S. Burt, "Build up a Constructivist Learning Environment for Teaching First-year Students Data Flow Diagrams," *Proc. - Front. Educ. Conf. FIE*, vol. 2019-October, 2019, doi: 10.1109/FIE43999.2019.9028468.
- [8] A. Elfaki, A. Aljaedi, and Y. Duan, "Mapping ERD to knowledge graph," *Proc. - 2019 IEEE World Congr. Serv. Serv. 2019*, vol. 2642–939X, no. May 2018, pp. 110–114, 2019, doi: 10.1109/SERVICES.2019.00038.
- [9] P. Yu, H. W. Hu, and Z. Nan, "Design and implementation of a MySQL database backup and recovery system," *Proc. World Congr. Intell. Control Autom.*, vol. 2015-March, no. March, pp. 5410–5415, 2015, doi: 10.1109/WCICA.2014.7053638.