



## **WEBSITE-BASED INVENTORY APPLICATION USING EXTREME PROGRAMMING METHOD AT SINAR JAYA MOTOR COMPANY**

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### **Abstract**

*Sinar Jaya Motor Company is a company engaged in the provision of car and truck spare parts services based in Jakarta. In the activities of processing warehouse goods data, incoming goods data, outgoing goods data, factory return data, order return data, order data, the process of making reports for business processes with these data is still done manually, causing problems, namely inaccuracy of goods data due to process data entry is still long, prone to errors and report generation takes quite a long time because you have to do a document search first. The research objective is to produce a website-based inventory application that can solve problems at the Sinar Jaya Motor company. Data collection methods in this study were literature study, interview methods, and observation, while the system design method used was Extreme Programming which consisted of planning, designing, coding, and testing stages. In its design, the researcher adopts a structured programming paradigm and is written using the HTML, CSS, PHP, Javascript and MySQL database programming languages. The author will also use the Bootstrap5 framework to produce an attractive and responsive website appearance. It is hoped that the existence of a website-based web inventory which is the result of this research can be used for data entry of warehouse goods, incoming goods data, outgoing goods data, factory return data, order return data, order data so as to produce reports for all business processes within the company, storage and document printing. The conclusion of this study is that the website-based inventory application for transporting goods that has been built can help solve the problems experienced by the Sinar Jaya Motor company in managing goods data and other data and make it easier for this company's employees to make and print documents and monthly reports so as to facilitate the process ongoing business.*

**Keyword:** *Sinar Jaya Motor, Website, Inventory, Extreme Programming.*

## **1. INTRODUCING**

In this modern era, information technology has become a big part of agencies or companies, information technology can provide an advantage in increasingly fierce competition. With the development of modern technology, it has entered various aspects of daily life, and it cannot be denied that information technology can contribute to the work efficiency of an agency or company. The influence of technology on various aspects of life can be found and understood because technology prioritizes device settings using computers. Advances in technology have provided information and communication resources that are very broad from what humans already have. Even though the role of information has received less attention in recent decades, in fact the need for information and communication is no less important than the need for human clothing and food. Information is a basic element that is implicitly attached to the concept of planned development. The development of science and technology has driven progress in all areas of life, including progress in the field of information technology. This has opened up opportunities for mankind to access all global information which has resulted in the phenomenon of a world without borders [1]. Therefore, companies can apply information technology to assist their business processes from main business processes to supporting business processes. One example of a business process that exists within a company is the process of compiling a stock of goods or what is commonly called the inventory process.

The process of inventorying goods is the process of recording data on goods or assets in a company/organization. Companies whose inventory is well managed can maintain and improve the company's business processes [2].

Website is a way to present oneself on the Internet. The website can be likened to a place on the Internet, anyone in this world can visit it, at any time someone can find out about other people, ask questions to someone, and provide input or even find out and buy a product [4]. Websites can be conveyed clearly and mutually support each other so that information can be easily explained, such as describing something through text and then it can be strengthened by adding pictures or videos [5].

Sinar Jaya Motor Company is a company engaged in the sale of car spare parts. Utilization of information technology



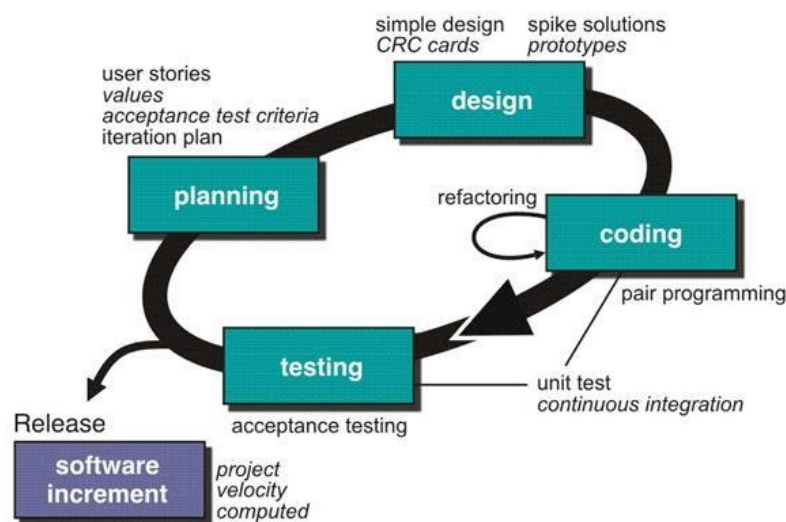
in this company is still not optimally utilized. This company uses the Microsoft Excel application to record stock in the warehouse, then prints and photocopies it for use by salespeople to market Sinar Jaya Motor spare parts. This often causes if there is an error in recording both the price and the addition of items, it needs to be reprinted and photocopied resulting in wastage of paper and considerable expenditure for this.

Seeing these problems, the authors propose to the Sinar Jaya Motor company to develop a website-based inventory application system using the Extreme Programming method which has the advantage of being a relatively fast development process and will help companies reduce excessive spending on printing and use a lot of paper and make it easier business processes within the company. Extreme Programming (XP) is the development of software engineering where the target of this method is teams that are formed on a small to medium scale, and this method can also be used for developing systems with unclear requirements or changes to requirements very quickly [6]. XP or better known as extreme programming is an approach or modeling language for developing software that analyzes and simplifies various levels of development so that it can be easier to use and practical. XP focuses not only on coding but across all areas of software development [7]. In the inventory application system that you want to design, there are several kinds of processes, namely inputting item data, displaying a list of goods along with their prices and stock. So that information can be organized and make it easier for admin and sales to get and update information. Then it can produce realtime information that can be accessed easily.

## 2. RESEARCH METHODS

### 2.1 Research Stages

Extreme Programming is one of the many agile methods that exist today. Out of all the agile methods out there, XP is one of the most famous of the agile methods. XP has several advantages, particularly in the areas of principles, values, and best practices that provide direction for the application construction process [8]. System development with one of the XP methods provides added value and a very good contribution to the progress and development of the system in the future, so that it becomes an alternative that can be used [9]. The XP method can be applied with a short application development time and in accordance with the use of software development [10]. The XP approach provides brief and recurring stages for various portions depending on the goal to be accomplished [11]. The stages carried out in the development of the XP system can be seen in Figure 1 below.



**Figure 1.** Extreme Programming Method Development Flow [12]



Here are some stages of Extreme Programming [13] :

1. Planning

This stage is the first step in system development where in this stage several planning activities are carried out, namely identifying problems, analyzing needs up to setting a schedule for implementing system development. At the planning stage, you can start by listening to a collection of activity requirements from a system that allows users to understand the business processes for the system and get a clear picture of the main features, functionality and desired output. listens to the set of activity requirements of a system that allows the user to understand the business processes for the system and get a clear, in-depth picture of the main features, functionality and desired outputs [14].

2. Design

The next stage is design where at this stage modeling activities are carried out starting from system modeling, architectural modeling to database modeling. System and architectural modeling use Data Flow Diagram (DFD) diagrams while database modeling uses Entity Relationship Diagram (ERD).

3. Coding

This stage is an activity of implementing modeling that has been made into a user interface using a programming language. The programming language used is PHP with a structured method. For database management system using MySQL software.

4. Testing

The testing stage is the last stage to test the services or features and functionality contained in the application being built. So that conclusions can be drawn from the tests carried out.

Testing is carried out as part of the fundamentals to solve the problems being handled, so that it can be used to determine the strengths and weaknesses of the system and can project a new XP framework [15].

### 3. RESULT AND DISCUSSIONS

The Extreme Programming (XP) system development approach was employed in the creation of the customer service and complaint information system. The stages of creating an information system that was constructed using the XP technique are as follows.

#### 3.1 Planning

This activity begins with collecting data through interviews with the aim of listening to customers, this is useful for gathering information about the problems experienced by users. From the identification of the problems obtained, then the system requirements to be built are compiled. The main problem in this research is the process of recording stock and orders which are still done manually. From these problems the need for an application to be developed is the creation of a website-based inventory application that focuses on the process of recording warehouse stock data, incoming goods, outgoing goods, factory returns, return orders, sales orders, and preparing reports that have the aim of simplifying and streamlining business processes run on Sinar Jaya Motor. There are 4 identified users of this application, namely: owner, admin, sales, head of warehouse. The following are the functional requirements of the inventory application at Sinar Jaya Motor [16].

1. Owner

- a. Owner can login to the system by entering username and password.
- b. Owner can monitor incoming goods data and print reports.
- c. Owner can monitor outgoing goods data and print reports.
- d. Owner can manage warehouse data by adding data, changing data, deleting data and printing reports.
- e. Owner can manage user data by adding users, changing user data, and deleting users.
- f. Owner can manage customer store data by adding store data, changing store data, and deleting store data.
- g. Owner can monitor order data.
- h. Owner can monitor data on factory returned goods and print reports.
- i. Owner can monitor data on goods returned orders and print reports.

2. Admin

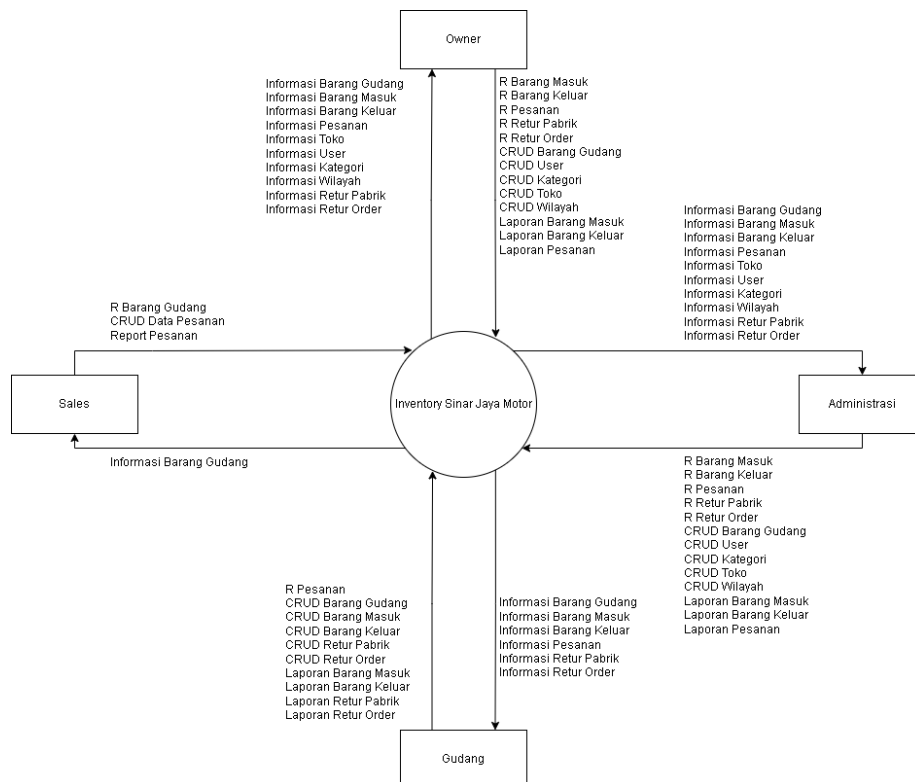
- a. Admin can login to the system by entering username and password.
- b. Admin can monitor incoming goods data and print reports.
- c. Admin can monitor outgoing goods data and print reports.
- d. Admin can manage warehouse data by adding data, changing data, deleting data and printing reports.



- e. Admin can manage customer store data by adding store data, changing store data, and deleting store data.
  - f. Admin can monitor order data.
  - g. Admin can monitor data on factory returned goods and print reports.
  - h. Admin can monitor data on orders returned goods and print reports.
3. Sales
- a. Sales can monitor warehouse data.
  - b. Sales can manage order data by adding orders, changing orders if they haven't been shipped, deleting orders, and printing order receipts
4. Head of Warehouse
- a. Head of Warehouse can manage incoming goods data by adding incoming goods data, changing incoming goods data, deleting incoming goods data, and printing reports.
  - b. Head of Warehouse can manage outgoing goods data by adding outgoing goods data, changing outgoing goods data, deleting outgoing goods data, and printing reports.
  - c. Head of Warehouse can manage warehouse data by adding data, changing data, deleting data and printing reports.
  - d. Head of Warehouse can monitor orders and process orders and send orders.
  - e. Head of Warehouse can manage data on factory returned goods by adding data, changing data, deleting data and printing reports.
  - f. Head of Warehouse can manage data on orders returned goods by adding data, changing data, deleting data and printing reports.

**3.2 Design**

After the planning stages are carried out, then the design is carried out based on the functional requirements analysis that has been carried out. In accordance with the functional requirements analysis, there are 4 users or actors in this application, namely: owner, admin, sales, and head of warehouse. The following is the result of a design using a context diagram (Figure 2).



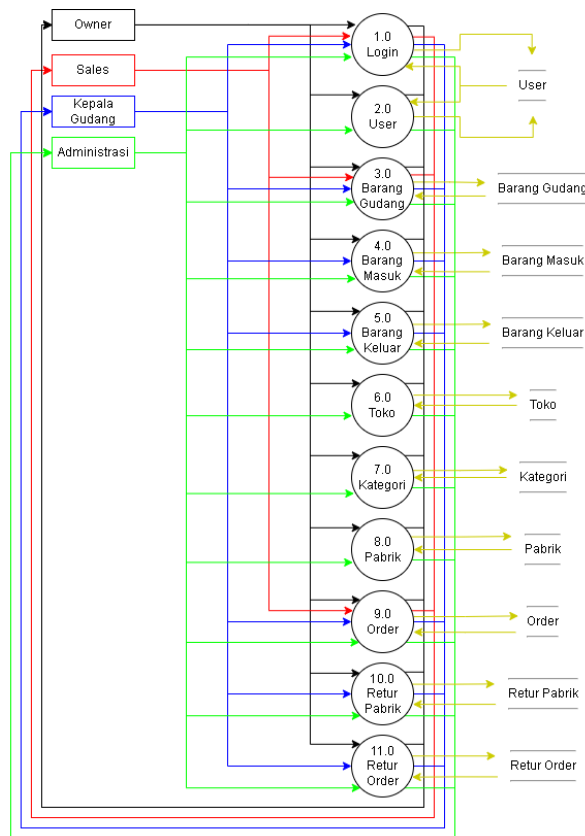
**Figure 2.** Context Diagram

Figure 2 is a Context Diagram image of the author's proposal for the Sinar Jaya Motor company. In the diagram, there are 4 main entities, namely Owner, Sales, Admin, and Head of Warehouse and these 4 entities have their



respective functions. The owner can do CRUD warehouse items, users, categories, stores, and regions, then R incoming goods data, outgoing goods data, order data, factory return data and order return data and can print reports on incoming goods, outgoing goods, orders, factory returns and return orders. Then Admin can do CRUD warehouse items, users, categories, stores, and regions, then R incoming goods data, outgoing goods data, order data, factory return data and order return data, and can print reports of incoming goods, outgoing goods and orders. Then the Warehouse can make R orders, then CRUD warehouse goods data, incoming goods data, outgoing goods data, factory return data, and order return data, and can print reports on incoming goods, outgoing goods, factory returns, and order returns. And Sales can do R Warehouse goods, then CRUD orders and print order reports.

Then the context diagram that has been designed is described in more detail in the overview diagram.



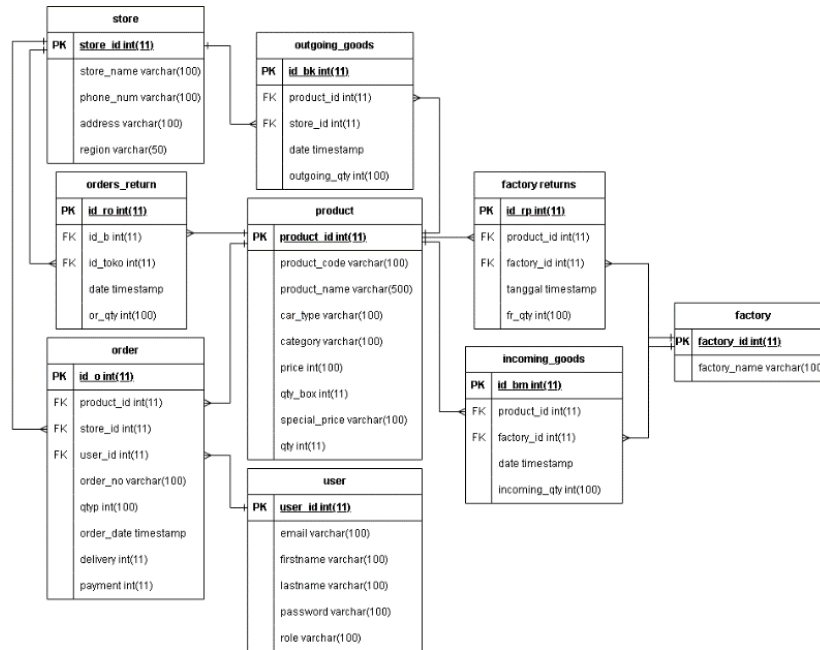
**Figure 3. Overview Diagram**

Figure 3 is an overview diagram of the Sinar Jaya Motor company inventory web-based application. The diagram above shows the 4 main entities consisting of Owner, Admin, Warehouse, and Sales. Then there are 11 main processes consisting of Login, User, Warehouse Goods, Incoming Goods, Outgoing Goods, Stores, Categories, Factory, Orders, Factory Returns, and Order Returns. And there are 10 data storage areas consisting of Users, Warehouse Goods, Incoming Goods, Outgoing Goods, Stores, Categories, Factory, Orders, Factory Returns, and Order Returns.

After the inventory web-based application for the company Sinar Jaya Motor has been described, a database design is carried out as a data storage medium. The database used in the system is designed using an ERD diagram as shown in figure 4. Entity Relationship Diagram or ERD is a structural diagram that is used to design a database. An ERD describes the data to be stored in a system and its boundaries [17]. The basic elements of ERD are represented by entities, attributes and relationships between entities. Entities represent defined elements of a system such as people, objects, or events that store related information. Entities can be combined into classes. Classes are structured descriptions of system components sharing common attributes. Attributes are specific features of the entity and they characterize the entity. There is no defined maximum number of attributes associated with a single entity. It is possible to identify certain attributes for individual entities. Attributes also have certain specifications in which the Primary Key (PK) and Foreign Key (FK) attributes are distinguished. The primary key attribute is a special type of attribute that defines a unique database entry. This specification is a unique value that applies to a particular attribute.



The Foreign Key attribute is the opposite of the Primary Key attribute, in that the attribute does not represent a unique value. Multiple entities can share the same attributes [18].

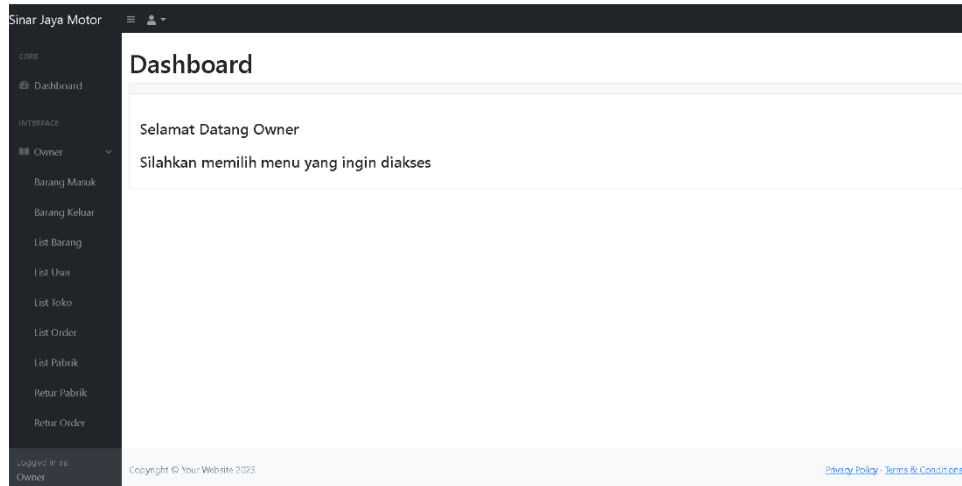


**Figure 4.** Entity Relationship Diagram (ERD)

Figure 4 is an Entity Relationship Diagram from the Sinar Jaya Motor inventory website. In the ERD above there are 9 entities including user, store, factory, product, order\_returns, factory\_returns, incoming\_goods, outgoing\_goods, dan order. Each entity has its own attributes and relationships. The user table will store user account data for the Sinar Jaya Motor company web inventory and have a 1 to Many relationship with the order tables. The factory table will store factory data that is a supplier for Sinar Jaya Motor company and have 1 to Many relationship with the factory\_returns table and the incoming\_goods table. The prodct table will store company product data and have 1 to Many relationship with the factory\_returns, incoming\_goods, order, orders\_return, and outgoing\_goods tables. Finally, the store table that will store data of customers store and have 1 to Many relationship with the orders\_return, outgoing\_goods, and order tables.

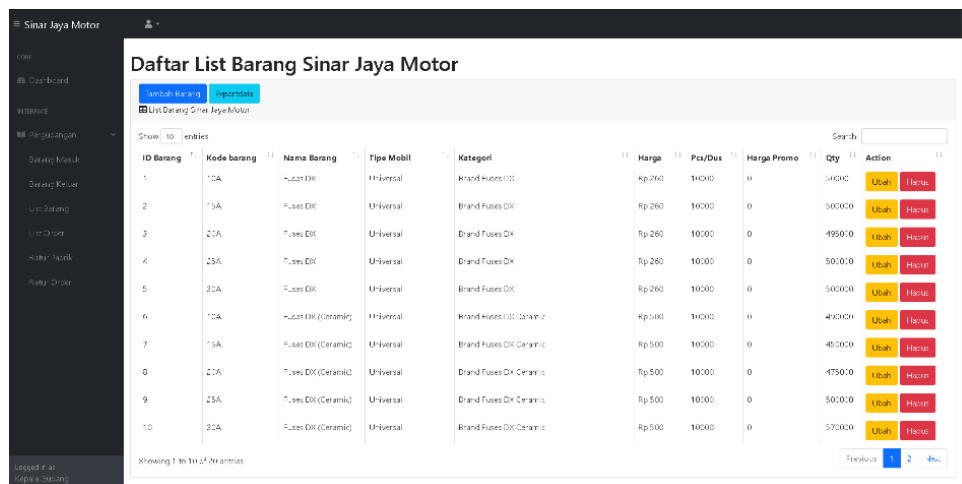
**3.3 Coding**

After the design stage, it will then be implemented in the form of program coding. At this stage coding is carried out based on the design and analysis that has been done before. This website-based inventory application is developed using the PHP programming language and uses the MySQL database. PHP is a programming language that is widely used for handling the creation and development of a web and is commonly used in HTML. PHP stands for "Hypertext Preprocessor", and is a language that is included in HTML documents, while working on the server side (server-side HTML-embedded scripting). This means that the syntax and commands given will be fully executed on the server but are included in a normal HTML page, so the script is not visible on the client side [19]. SQL (Structured Query Language) is a database operating concept, especially for selecting or selecting and entering data which allows data operations to be done easily automatically [20]. MySQL is in charge of organizing and managing data - data in the database, besides that MYSQL is known as a fast and reliable system, in processing queries quickly and easily, so it is very suitable for web-based applications [21]. The system is built on a website basis with the aim of making it easy to use, and besides that website use can be accessed anywhere and anytime. The system is built based on the functional requirements that have been made at the planning stage. The system begins with a login menu interface, where the user can enter the system by entering a user name and password. After the user logs in, the user can access the web inventory. The following shows the User Interface of the Sinar Jaya Motor web inventory.



**Figure 5. Home Page**

Figure 5 displays the home page which is the landing page after the user has logged in. The display for the other 4 roles is the same, the only difference is the menu that can be accessed in the side navigation bar. At the top of the website page there is a header consisting of a hamburger icon, company name and user icon. On the left there are side navigation bar that can be accessed based on role and below side navigation bar is account role that logs in. The owner can access incoming goods data, outgoing good data, warehouse goods data, user data, customer store data, order data, factory return goods data, and order return goods data. On the right of the side navigation bar will display website pages based on the selected menu.



**Figure 6. Warehouse Goods Data Page**

Figure 6 displays the warehouse goods data page where the data displayed is item id, item code, item name, car type, category, price, qty per box, special price, and qty. On this page, the owner, admin, and head of the warehouse can manage item data such as adding items, changing item data or item prices, or deleting items, while sales can only view warehouse item data.



ID Barang Masuk	Kode Barang	Nama Barang	Kategori	Tanggal	Pengirim	Qty	Action
1	20A	Fuses DK	Brand Fuses DK	2023-04-09 20:49:56	QIANGZHOU NEW KONGSHUN MACHINERY DEVELOPMENT CO.,LTD.	1000	Print
2	53630-B7504	Cable Cap Mesin	Brand Cable Cap Mesin D-SM	2023-05-10 11:02:17	QIANGZHOU NEW KONGSHUN MACHINERY DEVELOPMENT CO.,LTD.	10000	Print
3	53630-B7505	Cable Cap Mesin	Brand Cable Cap Mesin D-SM	2023-05-10 11:04:42	QIANGZHOU NEW KONGSHUN MACHINERY DEVELOPMENT CO.,LTD.	1100	Print
4	53630-B7503	Cable Cap Mesin	Brand Cable Cap Mesin D-SM	2023-05-10 11:07:24	QIANGZHOU NEW KONGSHUN MACHINERY DEVELOPMENT CO.,LTD.	2000	Print
5	53630-B7503	Cable Cap Mesin	Brand Cable Cap Mesin D-SM	2023-05-12 11:30:02	QIANGZHOU NEW KONGSHUN MACHINERY DEVELOPMENT CO.,LTD.	10000	Print

Figure 7. Incoming Goods Page

Figure 7 displays the incoming goods page where the data displayed includes incoming goods id, item code, item name, category, date of entry, name of the factory that sent the goods, and qty. On this page, only the head of the warehouse can manage incoming goods data such as adding incoming goods and deleting incoming goods and printing reports. Meanwhile, the owner and admin can only view the data and print the report.

ID Barang Keluar	Kode Barang	Nama Barang	Kategori	Tanggal	Tujuan	Qty	Action
1	25A	Fuses DK	Brand Fuses DK	2023-03-01 14:47:48	Sinar Mula	0	Print
2	15A	Fuses DK	Brand Fuses DK	2023-03-01 14:46:22	Sinar Mula	10	Print
3	20A	Fuses DK	Brand Fuses DK	2023-03-01 14:43:14	Sinar Mula	50	Print
4	MB-097505	Bracket Stay (LH)	Brand Bracket Stay (Kaca Spion) (Dus Polos)	2023-03-20 15:20:25	Sinar Mula	4000	Print
5	34510-7731-D	Cable Speedometer	Brand Cable Speedometer NDSul	2023-03-30 17:26:02	Sinar Mula	1000	Print

Figure 8. Outgoing Goods Page

Figure 8 displays the outgoing goods page where the data displayed includes the outgoing item id, item code, item name, category, date the item came out, the name of the store where the item was sent, and qty. On this page, only the head of the warehouse can manage outgoing goods data such as adding outgoing goods and deleting outgoing goods and printing reports. Meanwhile, the owner and admin can only view the data and print the report.



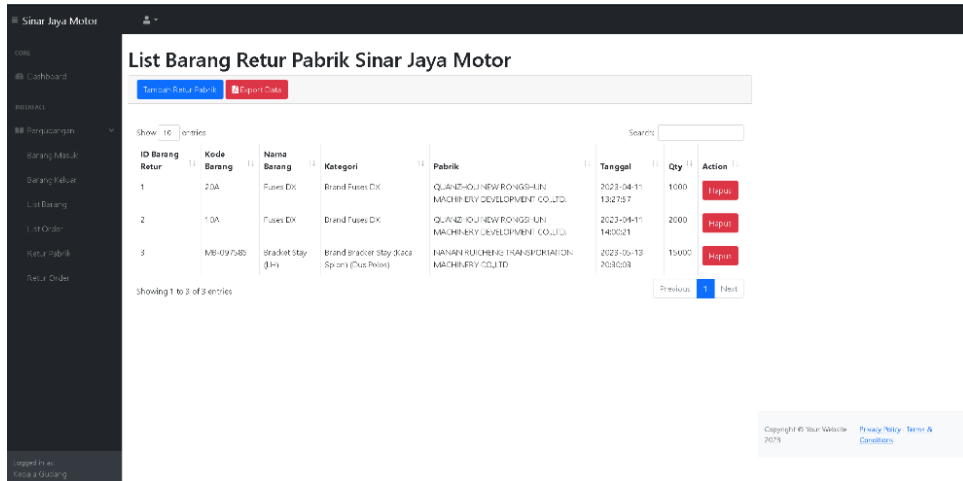


Figure 9. Factory Return Goods Page

Figure 9 displays the factory return item page where the data displayed includes the factory return item id, item code, item name, category, factory name, date the item was returned to the factory, and qty. On this page, only the head of the warehouse can manage factory returned goods data such as adding factory returned goods data and deleting factory returned goods data and printing reports. Meanwhile, the owner and admin can only view the data and print the report.

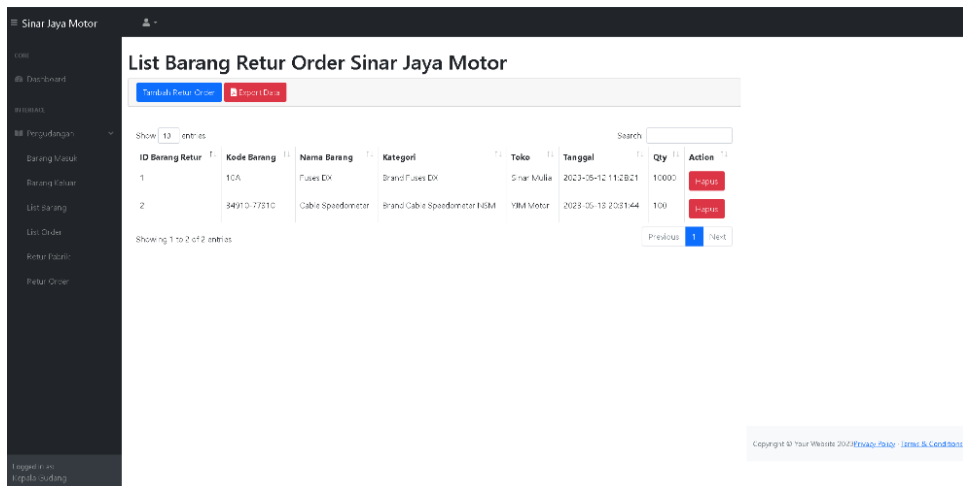


Figure 10. Order Return Goods Page

Figure 10 displays the item return order page where the data displayed includes the id of the item returned order, item code, item name, category, name of the shop that returned the item, date the item was returned, and qty. On this page, only the head of the warehouse can manage return order data, such as adding order return item data and deleting order return item data and printing reports. Meanwhile, the owner and admin can only view the data and print the report.

### 3.4 Testing

After the Sinar Jaya Motor inventory website has been created, the functionality of the website will then be tested. This is done to minimize the error rate and ensure the output produced by the system is as expected. This testing process is carried out using the Blackbox Testing method. Black box testing is a software quality testing method that focuses on software functionality. Black box testing is usually used to find incorrect functions, user interface errors, and errors in input, output errors, initialization and termination errors [22]. The Blackbox test results from the Sinar Jaya Motor web inventory are shown in table 1 below.



Table 1. Blackbox Testing Result

No	Pre-condition	Expected Result	Actual Result	Status
1.	The user logs in by entering the username and password	The user enters the website page	The user has successfully entered the website page	OK
2.	The user logs out.	The user logs out and is redirected to the login page.	The user is successfully logged out and redirected to the login page.	OK
3.	Owner, Admin, and Head of Warehouse adds item data	Item data will be stored in the database and appear on the item data page.	The item data has been successfully stored in the system	OK
4.	Head of Warehouse adds incoming items	Incoming goods will be stored in the database and appear on the incoming goods page.	The incoming goods have been successfully saved in the system	OK
5.	Head of Warehouse adds items out	Outgoing goods will be stored in the database and appear on the outgoing goods page.	Outgoing items are successfully stored in the system	OK
6.	Head of Warehouse adds item return	Goods returns will be stored in the database and appear on the goods returns page.	The returned item has been successfully saved in the system	OK
7.	Owner and Admin adds supplier	Supplier data will be stored in the database and appear on the supplier page.	Supplier data is successfully stored in the system	OK
8.	Owner adds user	User data will be stored in the database and appear on the user page.	User data is successfully stored in the system	OK

#### 4. CONCLUSION

Based on the results of an analysis of the problems owned by the Sinar Jaya Motor company, it can be concluded that these problems are caused by information technology in the process of recording and processing goods data that has not been utilized optimally. This causes a lot of expenditure to print a list of new warehouse goods data several times a year due to changes in the goods data, then there is an asynchronous data for orders between sales and admin which can cause problems for the company and also data out of sync between the list of warehouse goods and stock in the warehouse so that it takes time every 6 months to check the stock of goods and takes up a lot of time. Through this research, a web-based inventory application for the Sinar Jaya Motor company was created to help deal with the problems the company has. Based on the results of development and testing, the Sinar Jaya Motor inventory web-based application runs smoothly and has no errors or problems. The features and menus contained in this inventory web-based application were developed in accordance with the analysis that has been carried out and the needs desired by Sinar Jaya Motor owners. And because this web inventory uses database storage, companies don't have to worry about data outages and don't have to worry about losing data because it's already stored in the database. And with database storage, all users who can access this inventory website can see data in real time and the process of making reports can be done easily and quickly without worrying about errors or mistakes. The Sinar Jaya Motor inventory-based website application can access the system anywhere and anytime with any device connected to the internet network. In addition, the application based on Sinar Jaya Motor's inventory website will be easier to develop and add new features because the system being developed is still in its early stages and can still be optimized further in the future. And also, if the owner wants to add features or a business process has changed, this inventory website can still be developed.

#### ACKNOWLEDGEMENT

Praise and gratitude the author prays to the presence of God Almighty because with His permission the author can complete this research. The author also thanks all parties who directly or indirectly helped and supported the author in completing this research. The author also thanks the university supervising lecturers who have provided guidance, input and constructive suggestions to the author. Finally, the authors also thank Sinar Jaya Motor for providing the time, place and opportunity for the authors to conduct and complete the research.



## REFERENCES

- [1] S. Khodijah, and Y. Nurizzati, “Dampak Penggunaan Teknologi Informasi Dan Komunikasi Terhadap Perilaku Sosial Siswa Di MAN 2 Kuningan”, *Edueksos : Jurnal Pendidikan Sosial Dan Ekonomi*, vol. 7, no. 2, pp. 161–176, 2018.
- [2] F. Aditain, & A. K. Hidayah, “Sistem Informasi Inventaris Berbasis Android Menggunakan Metode Client Server”, *Jurnal Media Infotama*, vol. 17, no. 2, 2021
- [3] S. Zalukhu, & I. Handriani, “Analisa Dan Perancangan Aplikasi Sistem Inventory (Studi Kasus: PT. Cakra Medika Utama)”, *JSAI (Journal Scientific and Applied Informatics)*, vol. 2, no. 1, 2019, <https://doi.org/10.36085/jsai.v2i1.153>
- [4] Y. M. Geasela, P. Ranting, & J. F. Andry, “Analisis User Interface terhadap Website Berbasis E-Learning dengan Metode Heuristic Evaluation”, *Jurnal Informatika*, vol. 5, no. 2, pp. 270–277, 2018, <https://doi.org/10.31294/ji.v5i2.3741>
- [5] W. Andriyan, S. S. Septiawan, & A. Aulya, “Perancangan Website sebagai Media Informasi dan Peningkatan Citra Pada SMK Dewi Sartika Tangerang”, *Jurnal Teknologi Terpadu*, 6(2), 79–88, 2020, <https://doi.org/10.54914/jtt.v6i2.289>
- [6] I. Ahmad, R. Indra Borman, J. Fakhrurozi, and G. G. Caksana, “Software Development Dengan Extreme Programming (XP) Pada Aplikasi Deteksi Kemiripan Judul Skripsi Berbasis Android,” *Jurnal Inovtek Polbeng*, vol. 5, no. 2, pp. 297–307, 2020.
- [7] D. Wongso, H. Sama, and Herman, “Perancangan dan Implementasi Website Pariwisata di Desa Sembulang Dengan Metode Extreme Programming,” *Journal of Information System and Technology*, vol. 02, no. 03, pp. 50–61, 2021.
- [8] B. G. Sudarsono, S. P. Lestari, A. U. Bani, J. Chandra, & J. F. Andry, “Using an Extreme Programming Method for Hotel Reservation System Development”, *International Journal of Emerging Trends in Engineering Research*, vol. 8, no. 6, pp. 2223–2228, 2020, <https://doi.org/10.30534/ijeter/2020/01862020>
- [9] D. Fernando, A. Anharudin, & F. Fadli, ”Rancang Bangun Aplikasi E-Portofolio Hasil Karya Mahasiswa Unsera Menggunakan Metode Scrum”, *JSiI (Jurnal Sistem Informasi)*, vol. 5, no. 1, pp. 7–12, 2018, <https://doi.org/10.30656/jsii.v5i1.579>
- [10] D. H. Pertiwi, “Metode Extreme Programming (XP) Pada Website Sistem Informasi Franchise LKP Palcomtech,” *J. Mikrotik*, vol. 8, no. 1, pp. 86–98, 2018.
- [11] R. I. Borman, A. T. Priandika, and A. R. Edison, “Implementasi Metode Pengembangan Sistem Extreme Programming (XP) pada Aplikasi Investasi Peternakan,” *JUSTIN (Jurnal Sist. dan Teknol. Informasi)*, vol. 8, no. 3, pp. 272–277, 2020, doi: 10.26418/justin.v8i3.40273.
- [12] Q. E. Fazrin, T. Lisnawati, S. Nurhayati, J. B. Satya, and D. Alamsyah, “Penerapan Metode Pengembangan Sistem Extreme Programing (XP) Pada Aplikasi Presensi Karyawan dengan QR Code,” *Building of Informatics, Technology and Science (BITS)*, vol. 3, no. 3, pp. 164–170, Dec. 2021, doi: 10.47065/bits.v3i3.1018.
- [13] I. Carolina and A. Supriyatna, “Penerapan Metode Extreme Programming Dalam Perancangan Aplikasi Perhitungan Kuota Sks Mengajar Dosen,” 2019.
- [14] I. Seprina and E. Yulianingsih, "Sistem Informasi Penerimaan Calon Peserta Didik Baru Di Smk Negeri 1 Muara Kuang Berbasis Web," *Jurnal Informanika*, vol. 08, no. 01, 2022.
- [15] L. Rusdiana, “Extreme Programming Untuk Rancang Bangun Aplikasi Pengelolaan Surat Keterangan Kependudukan”, *Register: Jurnal Ilmiah Teknologi Sistem Informasi*, vol. 4, no. 1, pp. 49-55, 2018, doi: 10.26594/register.v4i1.1191.
- [16] R. J. Rumandan, “Development Of Information Systems For Service And Customer Complaints Using The Extreme Programming Method”, *Jurnal Teknoinfo*, vol. 17, no. 1, pp. 342-350, 2023.
- [17] M. L. A. Latukolan, A. Arwan, & M. T. Ananta, “Pengembangan Sistem Pemetaan Otomatis Entity Relationship Diagram Ke Dalam Database”, *Jurnal Pengembangan Teknologi Informasi Dan Ilmu Komputer*, vol. 3, no. 4, pp. 4058–4065, 2019.
- [18] K. Lachová and P. Trebuña, “Modelling Of Electronic Kanban System By Using Of Entity Relationship Diagrams. *Acta Logistica*”, vol. 6, no. 3, pp. 63–66, 2019, <https://doi.org/10.22306/al.v6i3.115>
- [19] M. Susilo, “Rancang Bangun Website Toko Online Menggunakan Metode Waterfall”, *InfoTekJar (Jurnal Nasional Informatika Dan Teknologi Jaringan)*, vol. 2, no. 2, 2018, <https://doi.org/10.30743/infotekjar.v2i2.171>
- [20] P. S. Hasugian, “Perancangan Website Sebagai Media Promosi Dan Informasi”, *Journal Of Informatic Pelita Nusantara*, vol. 3, no. 1, pp. 82–86, 2018.
- [21] H. Mukhtar, “Sistem Informasi Deteksi Kehadiran Dan Media Penyampaian Pengumuman Dosen Dengan Menggunakan Teknik Pengenal QR Code”, *Rabit : Jurnal Teknologi Dan Sistem Informasi Univrab*, vol. 3, no. 2, pp. 85–92, 2018, <https://doi.org/10.36341/rabit.v3i2.445>
- [22] L. Setiyani, “Pengujian Sistem Informasi Inventory Pada Perusahaan Distributor Farmasi Menggunakan Metode Black Box Testing”, *Techno Xplore : Jurnal Ilmu Komputer Dan Teknologi Informasi*, vol. 4, no. 1, pp. 20–27, 2019, <https://doi.org/10.36805/technoxplore.v4i1.539>