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Implementation of E-SCM for Banana Chips Stock Management

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Abstract

Rumah Keripik Lely Tittiana is a business engaged in selling banana chips. The problems at Rumah Keripik Lely Tittiana include the management of chips stock experiencing shortages and excess stock due to delays in the supply of raw materials by suppliers because ordering is still manual. Excess stock causes product quality to decrease because it has an expiration period so that it can result in losses. The purpose of this research is to design an E-SCM application system using the PHP programming language and MySQL database for chip stock management. The E-SCM system includes various parties ranging from suppliers, distributors, producers, to customers. The research method used in this research is a qualitative research method. The results of this study help Rumah Keripik Lely Tittiana make stock management more effective in overcoming the problem of excess and shortage of stock, can monitor stock availability in real time, so that decision making can be done more accurately.

Keywords: Banana Chips, E-SCM, Management, Stock, Web

I. INDTODUCTION

Information technology has developed consistently in the last year to become one of the company's factors to change the process of ongoing business processes [1]. Increasing customer demand makes business needs more complex [2]. More productive business strategies and tactics must be implemented to maintain their competitive advantage and increase company ratings [3]. Information technology allows companies to excel in the competition because it allows them to obtain various information easily and helps develop business [4].

Micro, Small and Medium Enterprises (MSMEs) are defined as productive businesses owned by individuals and or individual business entities that meet the criteria for micro-enterprises, it is hoped that Micro, Small and Medium Enterprises (MSMEs) will become the main productive and competitive actors in the national economy [5]. The Micro, Small and Medium Enterprises (MSMEs) industry in the country is currently facing such a difficult situation amid changes in the complex business environment, market competition is getting tougher with the swift flow of free trade which has an impact on market competition not only from the domestic market but also regionally, and globally [6].

Chips are a type of snack food in the form of thin slices of tubers, fruits, or vegetables fried in vegetable oil [7]. To produce a savory and crunchy taste, it is usually mixed with flour dough seasoned with certain spices. In general, chips are made through the frying stage, but there are also those with only drying, or drying. Chips can be dominantly salty, spicy, sweet, sour, savory, or a combination of all of them.

Rumah Keripik Lely Tittiana is a business in the field of selling original yellow kepok banana chips, original jackfruit banana chips, caramelized banana chips, original yam chips, sweet spicy yam chips and breadfruit chips. Rumah Keripik Lely Tittiana is located on Jalan Mentimun, Siumbut Baru Village, East Kisaran City District, Asahan Regency, North Sumatra. Rumah Keripik Lely Tittiana was founded in 2021 with 4 members and the owner of Rumah Keripik Lely Tittiana is Mrs. Lely Tittiana.

The problem at Rumah Keripik Lely Tittiana is that the management of chips stock experiences shortages and excess stock due to delays in supplying raw materials by suppliers because ordering is still manual. Sub-optimal chip stock management can cause various problems. Excessive stock causes product quality to decrease because it has an expiration period so that it can result in losses [8]. Conversely, if there are few chips in stock when demand is high, sales opportunities will decrease and cause loss of potential profits [9]. At Rumah Keripik Lely Tittiana, a stock management and sales of chips are needed to increase sales and to collect sales reports quickly.

SCM is the coordination between all supply chain activities, starting from raw materials to end with satisfied customers [10]. he main objective of SCM is to maximize competitive advantage and profit for customers [11]. In SCM, one of the essential management is distribution management. Technological developments have enabled faster transportation at lower costs [12].

Every business needs management. Without good management, SCM lacks a clear strategy for operational efficiency and effectiveness [13]. Retail companies need to improve their management performance [14]. By implementing

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this, retail companies will be able to improve communication between management and demonstrate the value of organized SCM [15].

From some of the problems above, the management of stock and sales of chips between Rumah Keripik Lely Tittiana and suppliers will be easier in ordering raw materials and selling chips more structured. In transactions that will occur are stored in the database so that raw material reports, stock reports and sales reports can be printed.

The purpose of this research is to implement a web-based SCM system at Rumah Keripik Lely Tittiana for stock management of chips that experience shortages and excesses so that sales and marketing prices can be optimized.

Research by Dwi Alfino et al [16] concluded that the SCM system can help facilitate Toko Anugerah in managing goods data because it uses database-based storage so that data management becomes easier and data security is more guaranteed. inventory can be monitored at all times. This system can help manage sales data, purchases and inventory more effectively so as to improve maximum business processes. This system can report to the Owner so that to check the goods that are still available and also the entry / release of goods can be seen from the report without having to check directly to the warehouse.

The next research by Wijaya and Setiawati [17] in their research concluded that effective and innovative supply chain management to strengthen its position in the market and bring more profits. Actors in the supply chain of PT Central Proteina Prima Tbk include ponds, laboratories, factories, retailers, consumers, and MSMEs. However, PT Central Proteina Prima Tbk still needs to improve supervision of the water quality of its fostered ponds. This shows that the animal health service department requires stricter SOPs.

Other research conducted by Sari et al [18] with the construction of this web-based SCM system, Erwin Ponsel can place orders to suppliers who are committed to providing mobile phone spare parts on time, and web-based SCM software has been successfully built as an information system that can assist in the management of stock and distribution of mobile phone spare parts at Erwin Ponsel.

Research by Nur Anisa et al [19] found that Supply Chain Management (SCM) is a strategic approach that integrates all aspects of the supply chain, from the procurement of raw materials to the distribution of final products to consumers. In the context of this study, the results show that the implementation of SCM integrated with information technology has a significant positive impact on the company's logistics performance. The integration of information technology in SCM also brings positive impacts that cannot be ignored.

Research conducted by Pratiwi et al [20] concluded that implementing an SCM system can speed up the production process because the business process is very efficient because it is integrated, namely sales, orders, inventory and invoices have been recorded on the system.

Based on previous research, E-SCM is needed to facilitate inventory management so that this SCM system can help Rumah Keripik Lely Tittiana in managing chips stock to suppliers and making sales transactions to customers.

II. METHODOLOGY

This is the stage carried out in this research.

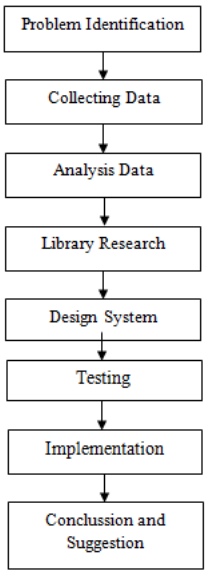

Figure 1. Stage of Research

A. *Problem Identification*

The problem identification in this study is that the chips stock management experiences shortages and excess stock due to delays in supplying raw materials by suppliers because ordering is still manual.

B. *Collecting Data*

The data collected from Rumah Keripik Lely Tittiana is in the form of inventory data in 2024. The author comes directly to the Lely Tittiana Chips House by conducting interviews with the owner of the Lely Tittiana Chips House regarding data collection.

C. *Analysis Data*

The data obtained is then analyzed to develop the existing system with the aim of obtaining better results. Based on brand data and the amount sold, an analysis is carried out to find out how the continuation of all marketing, sales, transaction and recording processes at the Lely Tittiana Chips House. This analysis is carried out to find out what is needed by Rumah Keripik Lely Tittiana for the sustainability of its business.

D. *Library Research*

Literature study is carried out with the aim of knowing what methods will be used to solve the problem to be studied, as well as getting a strong reference base for researchers in applying a method used. References taken from books and journals related to information systems, Supply Chain Management, software engineering, PHP programming language and MySQL database.

E. *Design System*

The sales management system at Rumah Keripik Lely Tittiana will be designed using the PHP programming language, MySQL database, Information System Flow (ASI) flowchart, Entitiy Relationship Diagram (ERD) and user interface will be designed using Microsoft Visio, UML diagrams will be designed using Visual Paradigm.

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F. Testing

After completing the design, the program will be tested first to find out whether it is in accordance with the purpose for which it was made. The sales management system at the Lely Tittiana Chips House that has been designed will be tested using the blackbox test. This is useful for knowing whether the system that has been built is in accordance with what is expected.

G. Implementation

The sales management system that has been tested can be implemented at Rumah Keripik Lely Tittiana and can be used properly.

H. Conclussion and Suggestion

Will provide conclusions regarding all stages passed and suggestions regarding the results that have been achieved. These conclusions and suggestions are useful for future researchers on sales management systems.

III. Result and Discussion

In inventory management, there are frequent stock-outs of raw materials due to the large number of requests from customers and frequent overstocks of raw materials due to improper procurement of raw materials in each monthly period. Therefore, system performance in achieving goals needs to be improved so that goods arrive on time so that stock-outs do not occur. In this case, precise and accurate information is needed for the smooth distribution process. Information related to goods data must be stored in the form of a database server so that when data is needed it can be easily searched and viewed to ensure the number of orders that must be ordered so that there is no running out and excess stock of raw materials.

A. Analysis Data

Input data requirements in the system to be designed are input supplier data, inventory data, raw material ordering data, raw material usage data, product production data and sales data. While the output is information about inventory reports, raw material ordering reports, sales invoices and sales reports.

Input data on product and supplier data at Rumah Keripik Lely Tittiana can be seen in table 1.

Table 1. Product Data and Supplier

No	Name of Product	Supplier
1	Pisang	1.Hariati
		2.Darto
		3.Irma
2	Ubi	1. Wak Abu
		2. Rina
		3. Hasan
3	Sukun	1. Br.Sidamanik
		2. Ningsih
		3. Hendra
4	Minyak goreng, gula, garam, plastik	1. Grosir Wak buyung
		2. Grosir Sutrisno
		3. Toko Rahmat Sembako
5	Gas LPG 3kg	1. LPG PT Serena Anugerah Berjaya
		2. Sentra Energi LPG
		3. Toko Sugeng

B. Design System

Broadly speaking, the system process that will be designed is described with a Use Case Diagram as shown in Figure 2. In this figure there are three actors who use the E-SCM system, namely admin, leaders and suppliers.

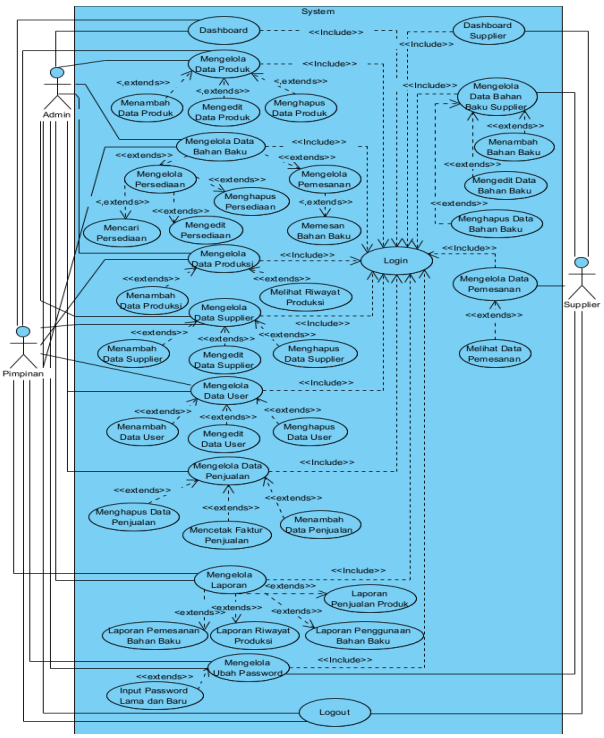

Figure 2. Use Case Diagram

C. Implementation System

After the E-SCM system runs on the local sever, the initial display is the login page. Login is a page used to enter the system Only registered users can enter. The login view is shown in Figure 3.

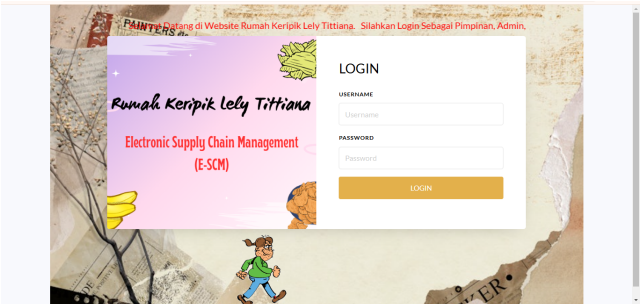

Figure 3. Login Page

After login then the system will redirect to the home page. On this page you can see some information on raw materials, products, orders to suppliers and production as shown in figure number 4.

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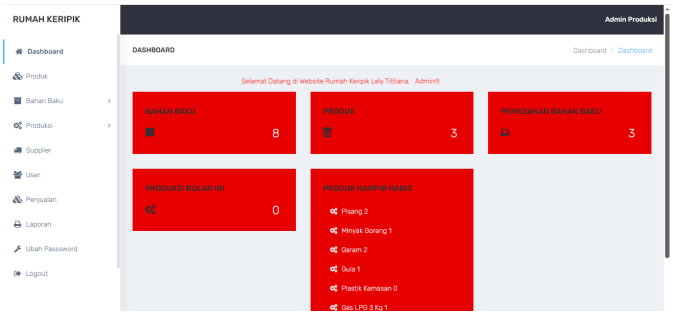

Figure 4. Home Page

Product data page can view product data and process product data.

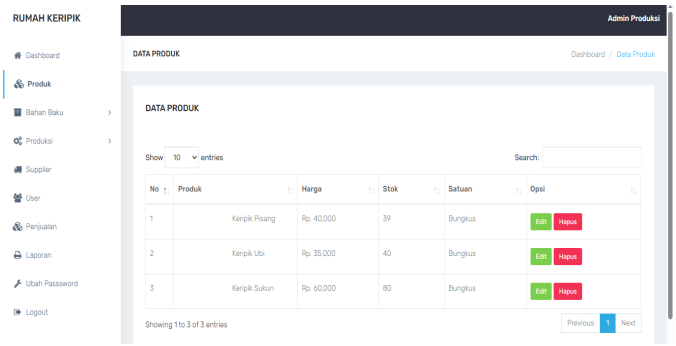

Figure 5. Data Product Page

The raw material inventory data page is a page for managing raw material inventory data such as bananas, sweet potatoes and other raw materials.

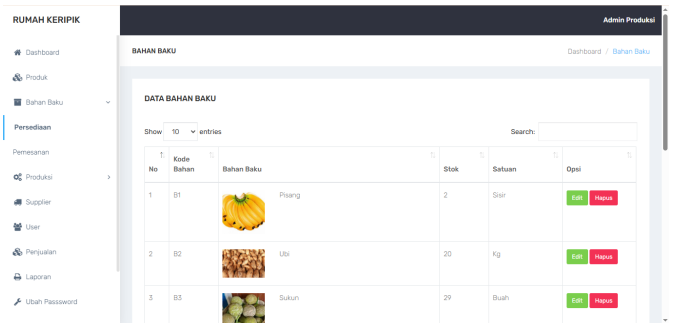

Figure 6. Raw Material Inventory

Admin can order raw materials to suppliers through the raw material order data page.

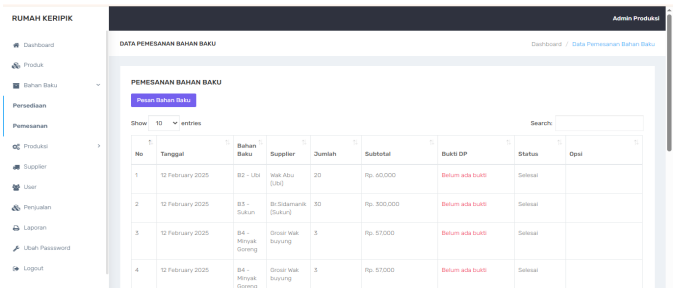

Figure 7. Raw Material Ordering Data

Admin can also add a list of suppliers who provide raw materials for product orders.

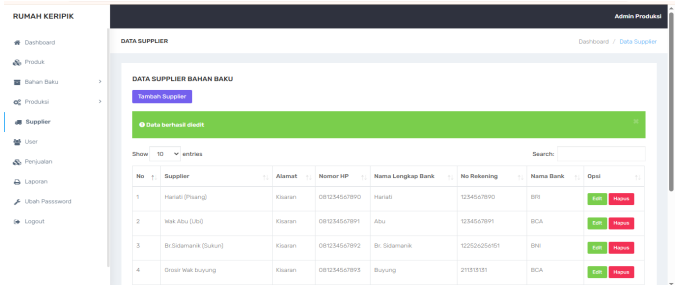

Figure 8. Supplier Data Page

Admin can also enter product sales data to make transactions to customers.

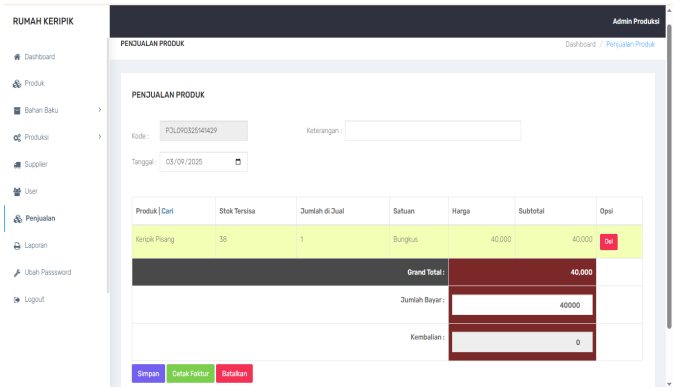

Figure 9. Sales Page

Admin can view and print reports on ordering raw materials to suppliers.

Figure 10. Report Page

IV. Conclussion

Based on the research that has been done, it can be concluded that with the E-SCM system, stock management becomes more effective in overcoming the problem of excess and shortage of stock. This system helps in monitoring stock availability in real-time, so that decision making can be done more accurately.

V. Suggestion

This web-based E-SCM is expected to be further developed with other activities such as transportation information and returns.

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