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Analysis and Design of Web-Based E-Commerce Information System at Riskha's Kimbab

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Abstract

The development of information technology encourages business actors to utilize digital-based systems to support business processes, including in the sales sector. The use of E-commerce systems also has a positive impact on the development of Micro, Small, and Medium Enterprises (MSMEs). Riszkha's Kimbab is a culinary MSME business engaged in the sale of Korean food, specifically kimbab and various other typical Korean food menus. This business is located in the environment of the Indonesian Development University (UNIPI) and has quite large market potential because its target consumers are dominated by students, lecturers, and the surrounding community who have an interest in modern culinary. Based on the research results, the Riszkha's Kimbab e-commerce website developed in this study has been successfully built and implemented well, and is able to accommodate the Pre-Order (PO) business process more effectively, structured, and in accordance with the operational needs running on the sales system. The dynamic PO schedule management feature provides flexibility for administrators in managing the system. The implementation of automation features in the system, such as automatically reducing product stock during the checkout process and increasing the number of products sold when the order has been processed, contributes significantly to reducing the manual workload of administrators.

Keywords *: Analysis, Design, Website, E-Commerce, MSMEs*

1. Introduction

The development of information technology and the internet in the current digital era has brought significant changes in various aspects of people's lives, especially in the fields of economics and trade. The presence of the internet not only makes it easier for people to obtain information, but also creates various new opportunities in carrying out business activities. One form of this development is the emergence of the e-commerce system, which allows the buying and selling transaction process to be carried out online without being limited by space and time. The use of the E-commerce system also has a positive impact on the development of Micro, Small, and Medium Enterprises (MSMEs) [1]. With the existence of digital platforms, MSMEs have the opportunity to expand their marketing reach, improve the quality of service to customers, and simplify the process of managing sales transactions [2]. Riszkha's Kimbab is one of the culinary MSME businesses engaged in selling Korean food, especially kimbab and various other typical Korean food menus. This business is located in the Indonesian Development University (UNIPI) environment and has quite large market potential because its target consumers are dominated by students, lecturers, and the surrounding community who have an interest in modern culinary. Currently, Riszkha's Kimbab's sales system is still carried out manually through short message applications such as WhatsApp and social media Instagram. Consumers who want to place an order must contact the seller directly via chat to inquire about the menu, prices, product availability, and the payment process. This sales method often causes several obstacles, such as delayed responses, errors in recording orders, difficulties in managing transaction data, and ineffective promotion and customer service processes. In addition, the manual sales method also makes the sales data recap process less structured, which can hinder optimal business management. Based on these problems, an e-commerce system is needed that can help Riszkha's Kimbab manage the sales process more effectively and efficiently. With a website or application-based e-commerce system, customers can view the product catalog, place orders, choose payment methods, and monitor order status directly without having to contact the seller manually [3]. On the other hand, business owners can also more easily manage product data, sales transactions, revenue reports, and customer information in an integrated manner [4]. The implementation of this system is expected to improve service quality,

expand marketing reach, and increase sales and business development of Riszkha's Kimbab amidst increasingly competitive culinary business competition.

2. Theoretical Review

2.1 Definition of Information Systems

An information system is an integrated combination of people, hardware, software, networks, and procedures designed to collect, process, store, and disseminate data into useful information [5]. Its purpose is to support operations, management control, and decision-making within an organization. Information systems work together to collect, manage, store, process, and disseminate information needed to support decision-making within an organization or entity. One of the main components of an information system is the use of hardware and software- based technology [6]. A system is essentially a collection of closely interrelated elements that work together to achieve a target [7].

2.2 System Requirements Analysis

System requirements analysis is an information system that aims to identify and evaluate problems, opportunities, obstacles that occur and expected needs so that improvements can be proposed [8]. Information system requirements are capabilities, requirements or criteria that must be present and fulfilled by an information system, so that what users want from the information system can be realized. This document contains an analysis of information system requirements such as system requirements, functional requirements , non-functional requirements, security, and a combination in the process of conducting requirements analysis [9]. System requirements analysis is a very important first step in developing a successful information system. The system requirements analysis process involves identifying the functional and non-functional needs of users, which is crucial to ensure that the information system being developed can truly provide effective, efficient and sustainable solutions [10].

2.3 System Design

System design can be defined as planning the creation of a system that involves various components so that it will produce a system that is in accordance with the results of the system analysis stage [11]. The purpose of system design is to meet the needs of system users and to provide a clear picture and complete design [12]. This process ensures the system runs effectively, efficiently, and safely, and facilitates improvements to existing systems. Become a blueprint or technical guide that is easy for programmers to understand regarding data structures, interfaces (user interfaces), to system workflows [13].

2.4 E-Commerce

Electronic Commerce is the purchase, sale, and marketing of goods and services through electronic systems. E-commerce is a buying and selling transaction process conducted through internet services used based on [14]. Along with the development of the internet and technology, e-commerce has become one aspect of global economic growth. Several changes in consumer behavior patterns that increasingly lead to online shopping preferences have encouraged many business actors to adapt by using information technology management systems on e-commerce [15]. E-commerce as a sales strategy for MSMEs has a significant impact on economic development. By utilizing digital technology, MSMEs can expand their market reach to the national and international levels [16]. The use of e-commerce as a sales strategy not only increases sales volume, but also opens up opportunities to establish strategic partnerships with various parties, such as distributors or online retailers, which can support sustainable business growth [17].

3. Research Methods

Research methodology is a systematic method or strategy used by researchers in conducting research activities. Researchers systematically design how the research process will be conducted to accurately answer research questions. This includes selecting the type of research, determining the population and sample, data collection instruments, and data analysis techniques used [18].

3.1 Methods of Collecting Data

collection process stage carried out by researchers, namely obtained through observation, interviews and literature studies.
1. Observation
Researchers conducted direct observation activities at Riszkha's Kimbab, focusing on the scope and business of the organization that is directly related to sales activities.
2. Interview
Researchers conducted direct interviews with the relevant parties in order to obtain accurate information for supporting data in developing sales applications at Riszkha's Kimbab.
3. Literature Study
Researchers conduct literature analysis, namely reading and studying various sources such as journals and books, with the main aim of obtaining studies and theories regarding the main problem being discussed.

3.2 Data Source

The data used in this study comes from primary and secondary sources. The use of both data sources aims to obtain accurate, complete information that meets the research needs.

1. Primary Data

Primary data is the primary data obtained directly by researchers from the original source or object of the research focus. Primary data collection is carried out specifically by researchers through various techniques, such as observation, interviews, questionnaires, and other methods appropriate to the research needs [19]. This data has a high level of relevance because it is obtained directly from parties related to the problem being studied. Therefore, primary data plays a crucial role in providing accurate, factual, and up-to-date information that can be used as a basis for analysis and drawing research conclusions.

2. Secondary Data

Secondary data is data obtained indirectly by researchers through various previously available sources that have been collected, processed, or published by others. This data is used as supporting sources to complement primary data and strengthen research analysis. Secondary data sources can include books, scientific journals, articles, research reports, official documents, archives, or publications from related institutions or agencies [20]. Through secondary data, researchers can obtain relevant theoretical and empirical information, which helps them understand research problems, develop theoretical foundations, and compare research results with previous findings.

4. Design of Proposed System Procedures

Based on the analysis results, a system procedure design is proposed that includes workflows, data processing mechanisms, and interactions between integrated system components. The system design is expected to provide appropriate solutions to previously identified problems, minimize errors in operational processes, accelerate information delivery, and improve data accuracy and reliability. Thus, the proposed system is expected to provide added value for users and support the achievement of the objectives set in this study. Use Case Diagrams model the functional interactions between actors (users) and the system. This diagram describes who will use the system and what they can do.

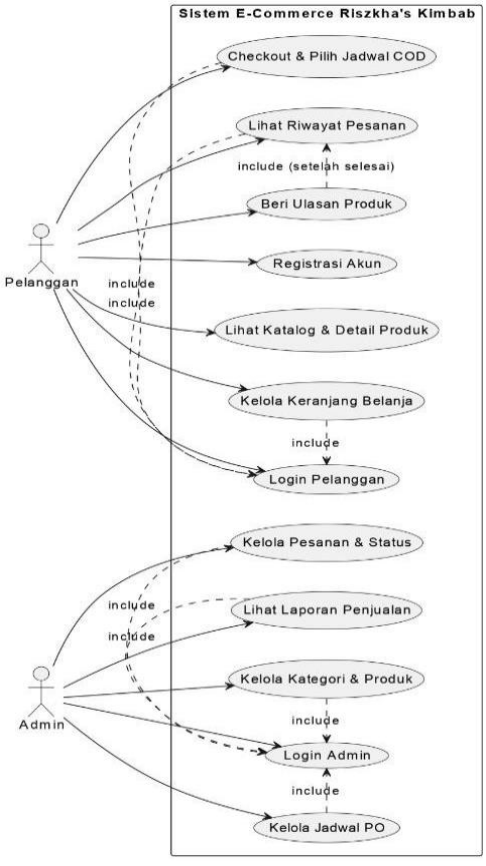

Fig. 1: Proposed Use Case Diagram

5. Implementation and Testing

5.1 Interface Implementation

The interface implementation display presented in this section demonstrates the final results of the system design and development process. Each page and feature displayed is designed to support user activities in managing data, accessing information, and executing available system functions. The results of the interface implementation of the developed system can be seen in the following description and images.

Fig. 2: Product Catalog Home Page

Figure 2 displays a promotional banner (carousel), information about active PO schedules (Alert Banner), and a list of product cards. Each card displays a photo, price, and quantity sold.

Fig. 3: Product Detail Page

Figure 3 shows the product detail and review pages that appear when a product is clicked. They display a full description, remaining stock, and a list of reviews/ratings from other customers.

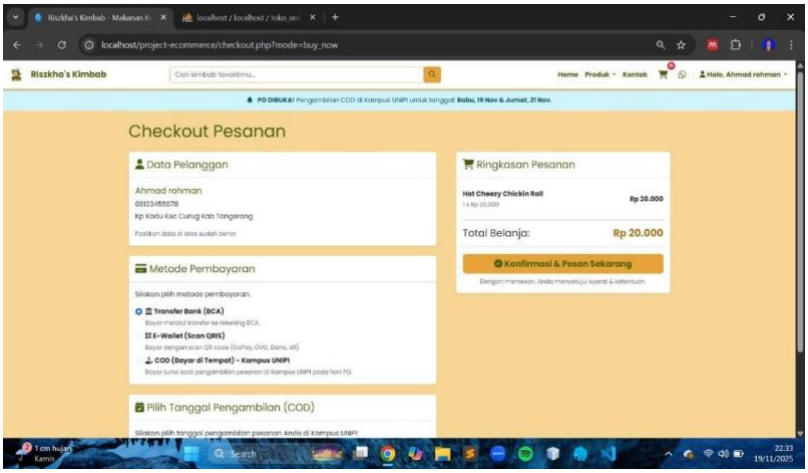

Fig. 4: Checkout Page

Fig. 4 shows the checkout page for completing an order. Here, the customer selects a payment method (Transfer/QRIS/COD) and an available pickup date.

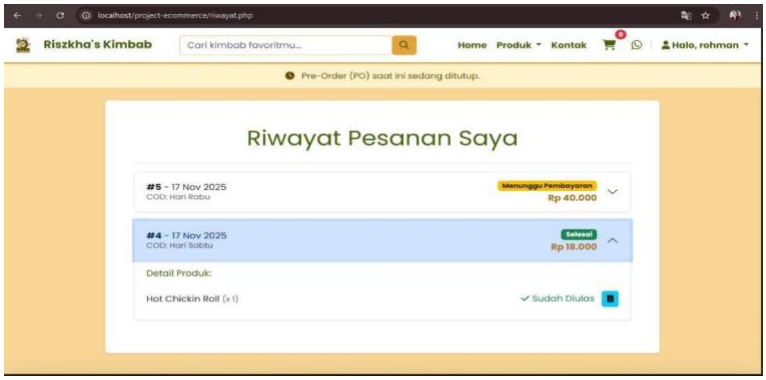

Fig. 5: Order History Page

Fig. 5 The history and review page is a system feature used to display a list of previous customer orders. On this page, all transactions processed by the user are displayed in a structured manner based on the order date, making it easier for users to retrace their purchase history. If the order is "Completed," a "Leave a Review" button appears.

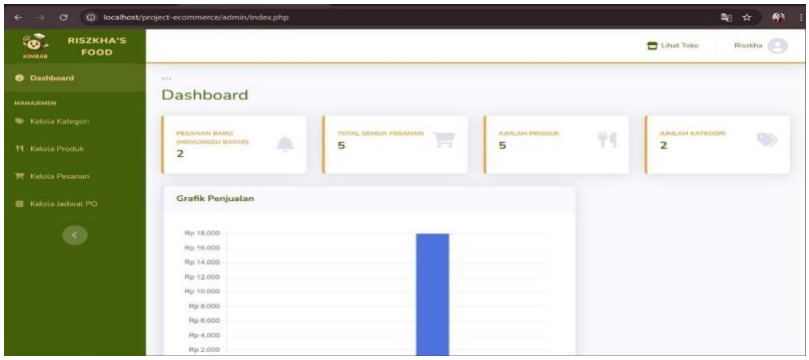

Fig. 6: Order History Page

Fig. 6 The admin dashboard is the main page that serves as the control center for administrators in managing and monitoring all system activities. This page is designed to present information in a concise, structured, and easy-to-understand manner, making it easier for admins to obtain an overview of the overall system condition without having to open each menu separately. This dashboard page displays various statistics cards containing summaries of important data, such as the number of transactions, total sales, number of products, and other information relevant to the system's operational needs. Presenting data in the form of statistics cards aims to facilitate the process of quickly monitoring (quick overview) the system's condition over a specific period.

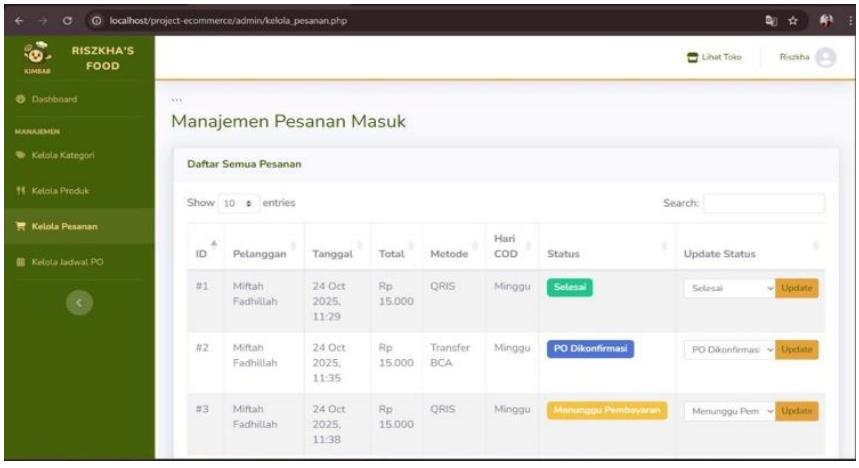

Fig. 7: Manage Order Page

Fig. 7: The order management page is a feature on the administrator's side used to manage all incoming order transactions in the system. On this page, the admin has the authority to verify each customer order and ensure that the transaction data is correct before further processing. Furthermore, this page also provides a function to change the order status based on the current process stage, such as changing the status from "Awaiting Payment" to "Processing" to "Completed." This mechanism allows the admin to monitor the progress of each order in a more structured and systematic manner.

5.2 System Testing

During the system testing phase, this study employed the blackbox testing method to ensure that all system functions operate according to established requirements and specifications. This testing focused on examining the system's functionality without considering its internal structure or the program code used. Through this testing, the system's functionality can be evaluated to determine whether it is functioning properly, is easy to use, and meets user needs. The results of this blackbox testing serve as the basis for making improvements if any discrepancies are found in the developed system.

6. Conclusion

Based on the results of the research on the development of the Riszkha's Kimbab e-commerce information system that has been carried out, it can be concluded that:

1. The Riszkha's Kimbab E-Commerce Information System developed in this research has been successfully built and implemented well, and is able to accommodate the Pre-Order (PO) business process more effectively, structured, and in accordance with the operational needs that run on the sales system.
2. The dynamic PO schedule management feature provides administrators with flexibility in managing the system, particularly in determining order opening and closing periods and setting Cash on Delivery (COD) schedules. This feature allows schedule changes to be made directly through the system interface without requiring code modifications, thus increasing the ease and efficiency of system management.
3. The implementation of automation features within the system, such as automatically reducing product stock during checkout and increasing the number of products sold once an order has been processed, significantly reduces the manual workload of administrators. This not only improves operational efficiency but also minimizes the potential for errors in sales data recording, resulting in a more accurate and reliable information management system.

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