Developing Sales Management Information System for UD Niko Semarang Using Midtrans Integration

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Abstract— UD Niko is still using an outdated operating system which hampers daily operations and increases the error rate. This kind of system is not efficient, as it creates an opportunity for errors and makes it hard to follow the stock. The research problem focuses on the kind of information system to be designed for UD Niko and the features to incorporate, as well as how effective it would be. The study seeks to develop a web-based management information system that supports stock and account receivables management and invoice recording and integrates with Midtrans to facilitate digital payments. The way the system was built is called the waterfall model. The resulting system includes features such as internal stock management, supplier, sales and freelance roles, accounts receivable and payable modules, invoice history and reporting functions, while integrating digital payment via Midtrans. The system testing used the blackbox method and interviews with the owner and employees of UD Niko. The system adequately meets the company's needs because it enables faster transactions, simplifies record keeping and efficiently manages inventory and reports. Overall, the system improves business management and operational efficiency at UD Niko.

Keywords— management information system, digital payments, operational efficiency, stock management.

I. INTRODUCTION

UD Niko still relies on manual recording for stock, receivables and sales transactions, which is inefficient and makes monitoring progress difficult. As a result, payment processing is delayed while inventory and report management is unstructured. Barid and Nayowan (2017) identify the demand for a computerized system to boost firm operations and efficiency [1].

Febriani said that the lack of internal control on accounts receivable's timely collection and a manual system may lead to incorrect financial data and insignificant loss [2].

The demand for a web-based payment system to avoid delays in fee payment has also been emphasized [3]. Additionally, the use of the Midtrans Payment Gateway to facilitate the payment of digital sales is reportedly fast and efficient. Additionally, the usage of accounting information systems empowers small businesses to streamline operations [4]. This ensures that decisions are based on accurate data inputs [5].

Moreover, Aisyah noted that management information systems are essential for improving customer service and operational effectiveness via e-commerce integration [6]. Anggraeni stated that companies need to perform operational audits to ensure that all procedures have been structured well so the business process can be conducted effectively and efficiently [7].

This study aims to develop a web-based management information system using the Laravel framework and integrate Midtrans API as an electronic payment solution.

It offers internal stock management and enables suppliers, sales representatives and freelancers to log in to their respective portals. The system includes a module for profit sharing, invoice history tracking and reporting tools. The system accelerates sales and report generation while streamlining inventory management through easy-to-read formats via digital payment channels. The system was tested through a black box method and interviews with UD Niko's owner and employees. The results indicated that the system significantly improves the efficiency, accuracy and convenience of daily business operations.

II. LITERATUR REVIEW

A. Management Information System

Management information system has been developing and enriching along with the practice as a system supporting organization operation, management and decision-making [8].

B. Application Development Tools

The system uses Laravel which is a web framework based on PHP and known for its security. It provides a wide range of tools and libraries that make it easier for developers to build, test and deploy applications. As such, developers can focus on building the application's features and logic rather than trying to build everything from scratch [9].

In order to support database administration in a secure and efficient way, the free phpMyAdmin tool is used for the management of databases, tables and users as well as interactions with MySQL [10]. Visual Studio Code is used as the main IDE for coding, debugging and extensions [11].

Additionally, XAMPP offers a comprehensive suite of tools (Apache, MySQL, PHP, Perl) to support web development across multiple platforms [12].

C. Database Management System

A database management system is essential for storing and retrieving data, supporting employees' productivity, data integrity and the reliable dissemination of information required for operations and strategic planning [13].

D. Midtrans

Midtrans is a payment gateway platform that integrates systems (web and mobile) and provides digital payment solutions to facilitate business processes and for better user experience [14].

III. METHOD.

3.1 Website Development Method

The research employed the Waterfall model to develop the system. This research employed the Waterfall model for system development, which emphasizes sequential and systematic processes consisting of requirement analysis, system and software design, implementation and unit testing, integration and system testing and operation and maintenance [15].

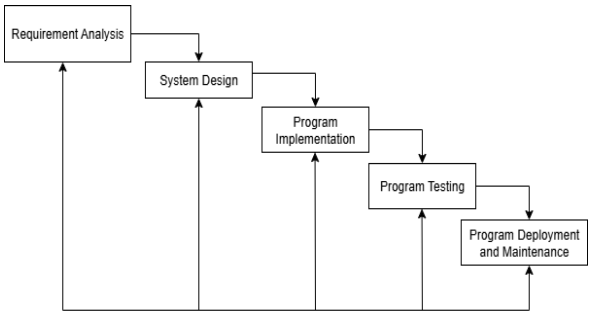


Figure 3.1 Waterfall Method

- *Requirement Analysis*

Identified critical system features by interviewing the store's owner and employees.

- *System Design*

Built flowchart, use case and ERD diagrams. Designed Midtrans as a digital payment method integration.

- *Implementation*

Tools used in this project include Laravel, PHP and MySQL. It has a user-friendly interface with the possibility of integrating the Midtrans payment API.

- *Testing and Evaluation*

Conducted through interviews and direct trials on the owner and the employees to test the system's appropriateness and gain feedback for improvements.

3.2 System Testing Method

After the system was tested through Blackbox evaluation and interviews with direct trials. The owner of UD Niko and one employee tested the system and gave feedback. Interviews evaluated if the system met business needs, such as seamless transactions with Midtrans, or needed additional refinements.

IV. RESULTS AND DISCUSSION

A. APP DESIGN

Figure 4.1 shows the use case diagram illustrating different access rights for the Admin, Operator, and Sales. Each role has specific permissions to access the database at various levels, aligning with their responsibilities.

The Admin has full system access and can manage product data, transactions, suppliers, stores, freelance and financial reports. Admin monitors Midtrans based transactions and approves item requests submitted by Sales.

The Operator has limited access, which focuses on recording receivables, payables, and processing payments through Midtrans to maintain accurate financial records.

The Sales role handles sales transactions through Midtrans, views payment history and requests items if the stock is unavailable. The Admin reviews and validates these requests.

The division of access rights aims to ensure data safety and minimize mistakes caused by employees in their work.

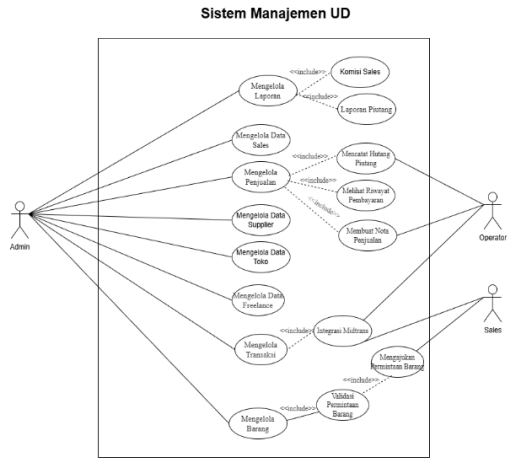


Figure 4.1 Use Case Diagram

On Figure 4.2, shows the business process flowchart of UD Niko's.

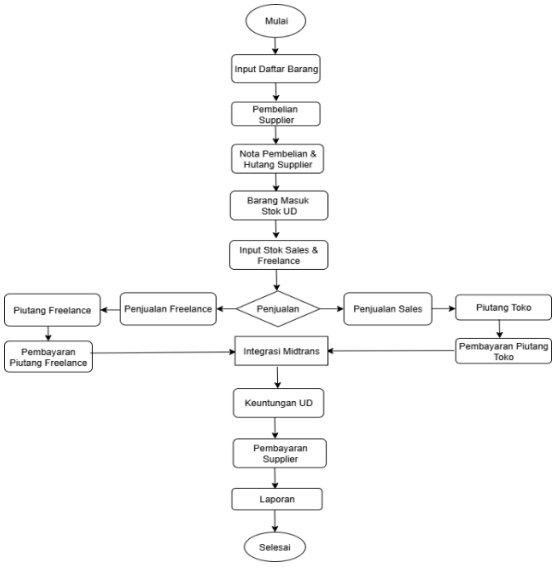


Figure 4.2 Flowchart

The flowchart begins with the input of goods and supplier purchase, which generates purchase records and debt records. The purchased goods will be added to inventory and then distributed to sales and freelance stocks. Sales transactions will generate receivables that are paid through Midtrans integration, it will calculate commissions and profits and produce final reports.

After the application design was approved by users, the development process was carried out. Here are the results of the system:

a. Admin Dashboard

Figure 4.3 shows the Admin dashboard, which is only accessible to the admin. Each role has their own access.

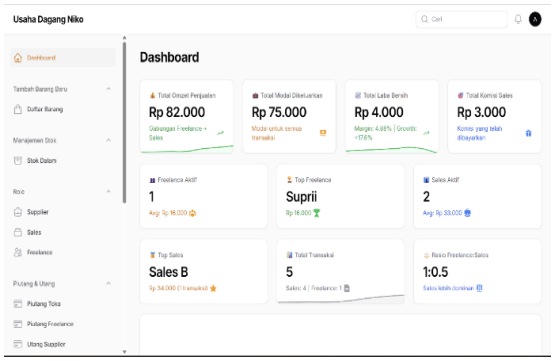


Figure 4.3 Admin Dashboard

On this page, provides a summary of net profit, total sales revenue, expenses, sales commissions, and freelance transactions, so that, the admin can easily monitor sales trends.

On the other side, there is a navigation menu accessible only to the admin, that includes options for managing product, and stocks, roles, receivables and payables, invoice history, and also to know report recording.

b. Active Supplier Purchase Invoice History

Figure 4.4 shows the active supplier purchase invoice history page.

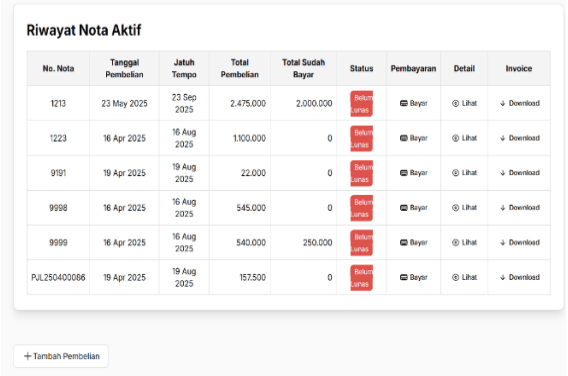


Figure 4.4 Active Supplier Purchase Invoice History

This page contains information such as the invoice number, date, due date, total amount, payment made, status, payment history, and downloadable invoice details. In addition, there is a button to add a new purchase invoice.

In the payment section, a Bayar button is provided to record supplier purchase transactions. In the details section, when the Lihat menu is clicked, it displays complete purchase invoice information such as ID, purchase date, due date, and item details (name, pack, unit, quantity per pack, total quantity, price, and total amount).

Meanwhile, the Invoice button allows both the admin and operator to download the invoice in digital format to local storage.

c. Invoice

Figure 4.5 shows the purchase invoice that is downloaded and saved locally.

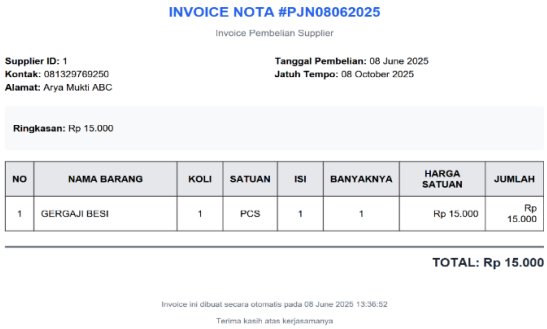


Figure 4.5 Invoice

When the admin or operator downloads a purchase invoice from the active invoice history, the invoice detail are automatically saved to local storage. The invoice contains supplier information, purchase date, due date, and product details such as product name, pack, unit, quantity per pack, total quantity, unit price, subtotal per item, and the overall total amount.

d. Stock Management

Figure 4.6 shows the stock management page, which contains a list of items available in the warehouse inventory.

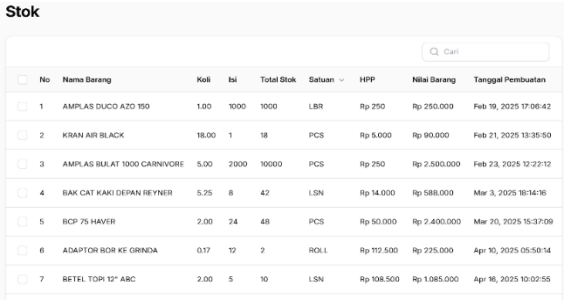


Figure 4.6 Stock Management

This page includes details such as product name, pack, quantity per pack, total stock, unit, cost price, value, and date of addition. The term pack refers to a large package or carton, while quantity per pack indicates the number of units contained in each package.

e. Payment Using Midtrans

Figure 4.7 shows the payment page for freelancers and sales representatives to UD Niko through the e-ticketing system.

This system provides various payment methods to facilitate digital transactions.

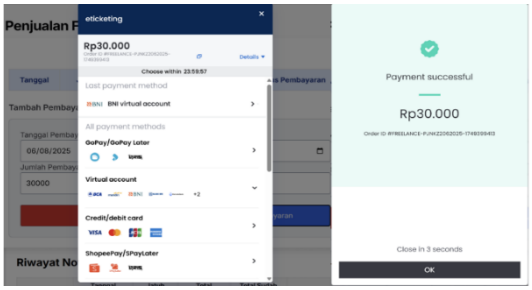


Figure 4.7 Payment Using Midtrans

The system provides various payment methods, such as bank transfers and e-wallets (GoPay, ShopeePay, Dana, OVO, and others).

f. Sales Commission

Figure 4.8 shows the page of sales commission for only fully settled invoices.

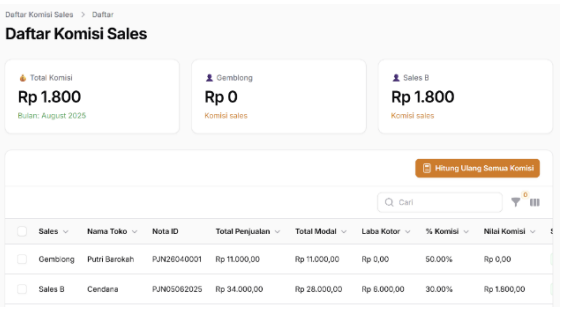


Figure 4.8 Sales Commission

This page is available only to the admin and includes complete invoice data, like the sales name, store name, invoice ID, each total, total cost, and gross profit. The admin can also edit the commission earned by sales for every invoice.

g. UD Profit Summary Page

Figure 4.9 shows the profit page, which displays UD Niko's revenue from all fully settled invoices of sales and freelancers, which is available only to the admin.

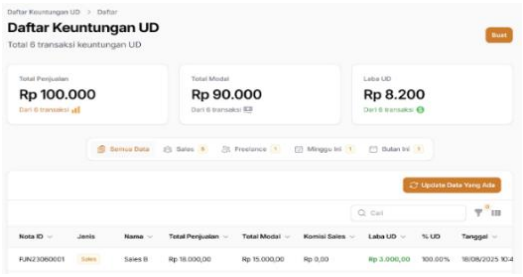


Figure 4.9 UD Profit Summary Page

This page shows a summary of total sales, total cost, and UD Niko's earnings. Below the summary, there is a detailed table that presented like detail information of invoice ID, type of sales, sales or freelance name, total sales, total cost, sales commission, UD earnings, profit percentage, also including transaction date.

Besides, there are filters and buttons that allow the admin to update or manage profit data.

h. Sales Dashboard

Figure 4.10 displays the Sales dashboard. The first screen shows detailed of sales information like the person's name and contact number.

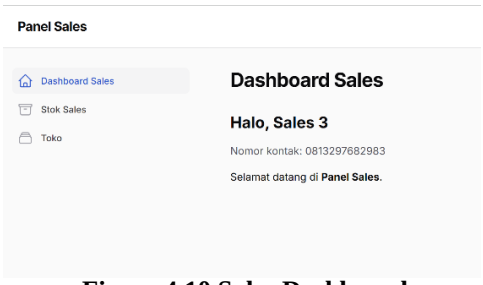


Figure 4.10 Sales Dashboard

The page allows user to get the access tools like to submit stock requests to the Admin, viewing store information, also processing transactions through Midtrans.

i. Sales Stock Handling Page

Figure 4.11 shows the stock handling by Sales page. On this page, there is information about product stock, including the item name, quantity per pack, unit, content, Sales stock amount, cost price (HPP), and highest selling price.

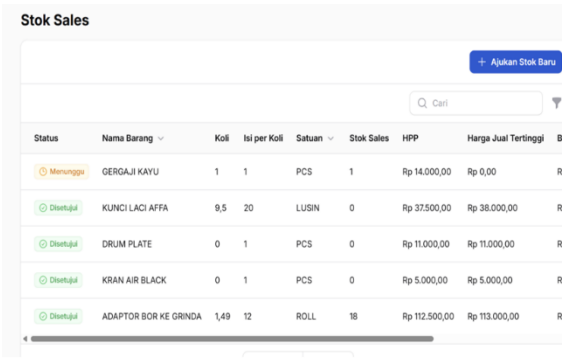
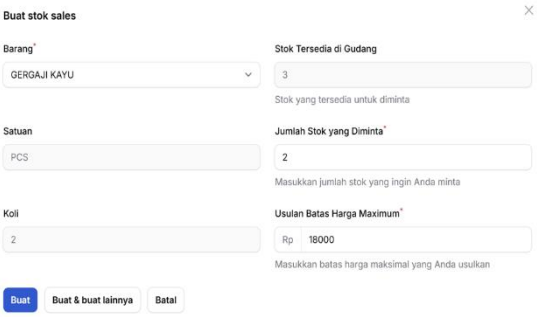


Figure 4.11 Sales Stock Handling Page

To do so, Sales can click "Request New Stock", then fill in the form with the items they wish to add.

The form displays the available warehouse stock for each item, as shown in Figure 4.12. Sales can then enter the desired quantity to request.

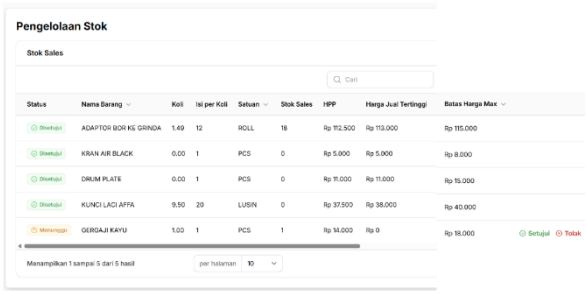


4.12 Sales Stock Request Form

After completing the form, Sales can click "Create", and the system will automatically send the stock request to the admin for approval.

j. Admin Approval for Sales Stock

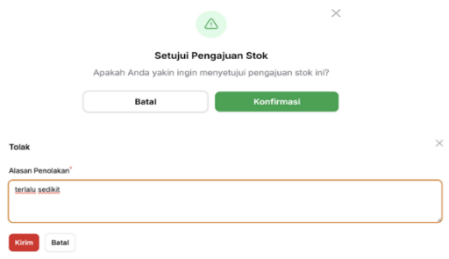
Figure 4.13 shows the Sales Stock Request Management on the Admin Page.



4.13 Sales Stock Request on Admin Page

On the Admin page, stock requests from Sales are displayed. The Admin can approve or reject each request.

When approved, a confirmation message appears, if rejected, a form for entering the rejection reason is shown, and and the admin must provide a reason for the rejection, as shown in Figure 4.14.



4. 14 Admin Approval for Sales Stock

When a request is approved, the stock automatically gets added to the Sales inventory and deducted from the

warehouse stock. And it should show on the sales and admin pages if it was approved or not.

The rejection reason is displayed on the sales page if the stock request is rejected by Admins. Sales can view the rejection details (item name, item quantity and reason by Admin) as Figure 4. 15.

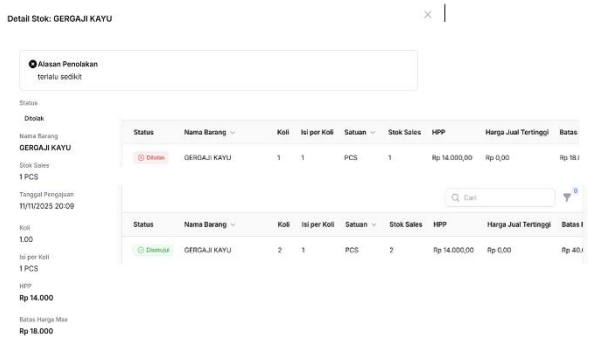


Figure 4.15 Stock Request Results on Sales Page

This allows Sales to understand why the request was not approved and make necessary adjustments before submitting a new request. If the request is approved, the Sales stock will automatically increase according to the approved quantity.

k. Sales Role Payment via Midtrans

Figure 4.16 presents the Sales payment process via Midtrans integration.

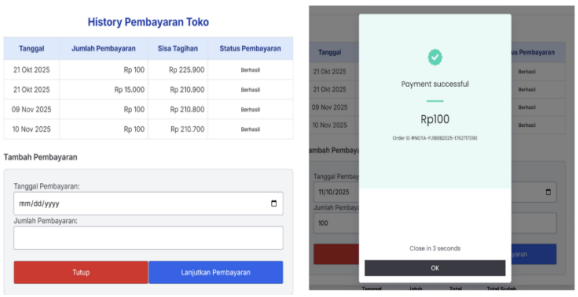


Figure 4.16 Sales Role Payment via Midtrans

This page allows Sales to settle invoices using Midtrans and view details of completed payments. The table displays information such as Date, Payment Amount, Remaining Balance, and Payment Status.

B. APPLICATION TESTING

The purpose of the application testing stage is to ensure that the developed system operates correctly. This step includes technical testing, like blackbox testing and user interviews, to make sure that all the features, like logging in, buying things, making invoices, managing stock, recording payments, and integrating with Midtrans, work as they should and are running smoothly.

Interviews with the owner and employees of UD Niko show that the new management information system meets their needs, makes transactions easier through Midtrans integration, is easy to use, and makes record-keeping and data management more efficient. Respondents also recommend to add data backup for important information, they also suggest to add detailed financial reports, as well as a direct report printing feature to improve the system in the future.

IV. CONCLUSION

The study found that the management information system developed in UD Niko can meet the company's needs to record transactions, manage inventory and make reports more structured than manual methods.

Key features include internal stock management, supplier, sales and freelance roles, accounts receivable and payable modules, invoice history search, report viewing and digital payment gateway integration via Midtrans. These functionalities have facilitated transactions and information access for the owner and employees.

Blackbox testing and interviews with UD Niko's owner and staff revealed that the system performs transactions faster, more practical and better controlled, has a simple interface, is user-friendly and produces clear report results.

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