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Web-Based Motorcycle Rental System Design

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Abstract

The development of information technology has encouraged many businesses to switch to a more effective and efficient system, including in the business world, especially in vehicle rental. This research aims to discuss the design of a web-based motorcycle rental rental system that aims to simplify the ordering process, data management, and service to customers. The system is designed to provide features for online motorcycle booking, customer data management, motorcycle availability management, and automatic transaction recording. The research method with a qualitative approach with three data collection techniques, namely, Literature Study, Observation and Interview. System development methods include needs analysis, interface design, and implementation using web technology. The results of the study show that with this system, the rental process becomes faster, transparent, and structured so that it can improve operational efficiency and service quality in the motorcycle rental business.

Keywords Cimol Gedebage Market; Crisis Communication; Persuasive Approuch; Thrifting; Word of Mouth.

INTRODUCTION

In today's digital era, the use of technology in various aspects of life is growing rapidly, including in the field of vehicle rental. Where systems in general still use manual systems in managing rental data, which can cause obstacles such as inaccurate recording and less efficient administrative processes. Therefore, a web-based system is needed that can help in managing motorcycle rentals more effectively and in a structured manner. This research aims to design a web-based motorcycle rental application to improve operational efficiency and provide convenience for customers in renting. So the research focuses on the Design of a Web-Based Motorcycle Rental Application for Twin Motorcycle Rentals located in Numana Village

System design is a phase in which planning skills are required for the computer elements that will use the new system. There are two things that need to be

considered in system design, namely the selection of equipment and computer programs for the new system. This stage determines the flow and detailed algorithms of the designed system and produces a comprehensive information tracking and monitoring system model that is ready to be tested and implemented (Putri Tolampi & Maria, 2024)

An information system is a network of interconnected procedures, coming together to perform an activity or to accomplish a certain goal. Information systems function as a tool to present information in such a way that it is beneficial to its recipients. The purpose is to present information for decision-making in planning, initiating, organizing, and controlling activities (Prasetyo et al., 2020).

The web-based motorcycle rental information system is designed to simplify the transaction process between renters and rental owners. Rental is an activity in the form of providing capital goods for use for a certain period of time, based on a periodic payment agreement accompanied by the right to vote to borrow the capital goods concerned as mutually agreed upon (Prasetyo et al., 2020)

The use of web-based information systems in the motorcycle rental business has several advantages and challenges, namely High Accessibility: Users can access applications from anywhere and anytime as long as they are connected to the internet. Operational Efficiency Reduces the time required for transaction processing and manual data logging. Improved Customer Service Makes it easier for customers to place orders and get the latest information about motorcycle availability. Meanwhile, the challenge is Data Security: Protection of users' personal data must be a top priority to prevent disinterested access and ensure system security from cyberattacks. Technological Limitations Not all users have the same access to internet technology or hardware that (Selcha, 2024).

The author's data measurement technique is carried out through the *Waterfall* in the stage of system design with the *Waterfall is Needs Analysis, Design,* Implementation, Verification, Implementation and Maintenance (Anis Yunus et al., 2024). Method waterfall has stages, namely: Needs Analysis, Design, Implementation, Verification and Maintenance (Putri et al., 2023). The Waterfall method is often referred to as the classic life cycle and this describes a systematic and sequential approach to software development, starting from communication, planning, modeling, construction, and system delivery (Deployment) as well as maintenance of the resulting software (Harpelindo et al., 2022). It is hoped that this research will help the community in finding a place to rent a motorcycle and make it easier for rental owners to control the rental process.

METHODS

The research method consists of three data collection techniques, namely, Literature Study, Observation and Interview, namely (Septanto & Prayogi, 2024): Literature Study Literature study is a technique that is carried out by studying and collecting information from reference sources of journals, books and sources that are directly related to the research topic (Scott, 2020). It is a technique to conduct a review of relevant theories and references of previous research. The results of the literature review help in compiling the conceptual framework and research hypotheses (Waruwu et al., 2025). Observation is a data collection technique by making direct observations of the object to be researched (Scott, 2020). Observation is carried out by direct observation of Twin Motorcycle Rentals. Interview Interview is a process of obtaining a description in the research objective which is carried out through face-to-face Q&A between the interviewer and the respondent. A meeting of several people to Provide information and ideas through questions and answers (Scott, 2020). Interviews were conducted with the owners of twin motorcycle rentals.

The author's data measurement technique is carried out through the Waterfall method in the system design stage with the Waterfall method, namely Requirement or Needs Analysis, Design or Design, Implementation or Implementation, Verification or Verification, Deployment or Implementation and Maintence or Maintenance (Septanto & Prayogi, 2024).

FINDINGS AND DISCUSSION

The result of this research is a web-based motorcycle rental application designed to simplify the motorcycle rental process for users and rental owners. This application has various features that aim to improve operational efficiency as well as provide a better user experience. The application is built using Waterfall's development method, which consists of several stages: analysis, design, development, implementation, and evaluation. In the design of this website using the programming languages Html, Css, javascript, and php (Sholikhan et al., n.d.). To create an application, it requires database programming that uses Mysql, Mysql is a very reliable and very fast database system. Initially, SQL served as a liaison language between the database program and the programming language to be used. MySQL is a Database Management System (Yanti & Arnomo, 2023).

This motorcycle rental application includes features including:

Home Page. Provides general information about motorcycle rental services, including a list of available motorcycles and rental prices.

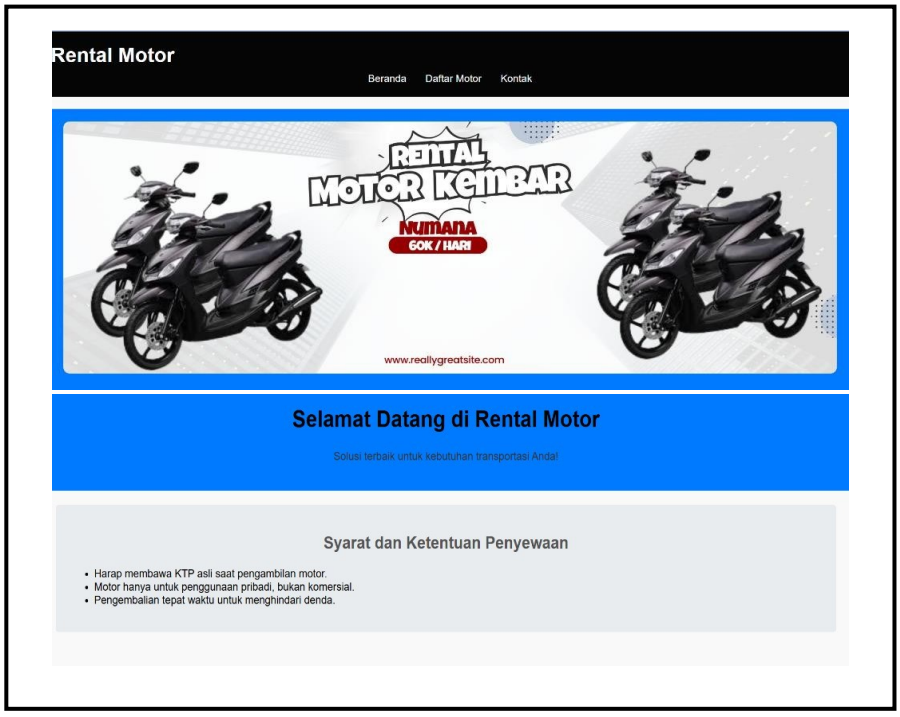

Figure 1. Home Page

This page is the main page in this page there are banners and terms and conditions for renters who want to rent a motorbike.

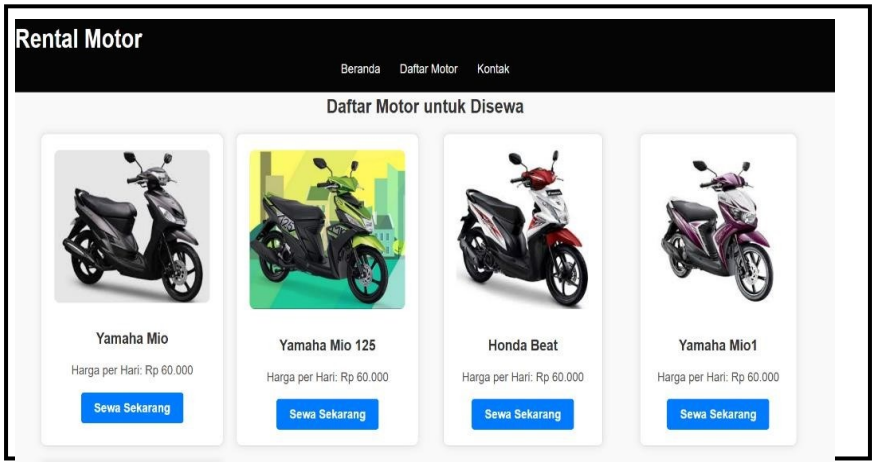

Figure 2. List of motorbikes for rent

On this list of motorcycles, renters can make a rental which will then move to the rental process page or part of the rental form.

1. **Rental Process**: Users can order a motorcycle online by selecting the type of motorcycle, rental date, and rental duration.

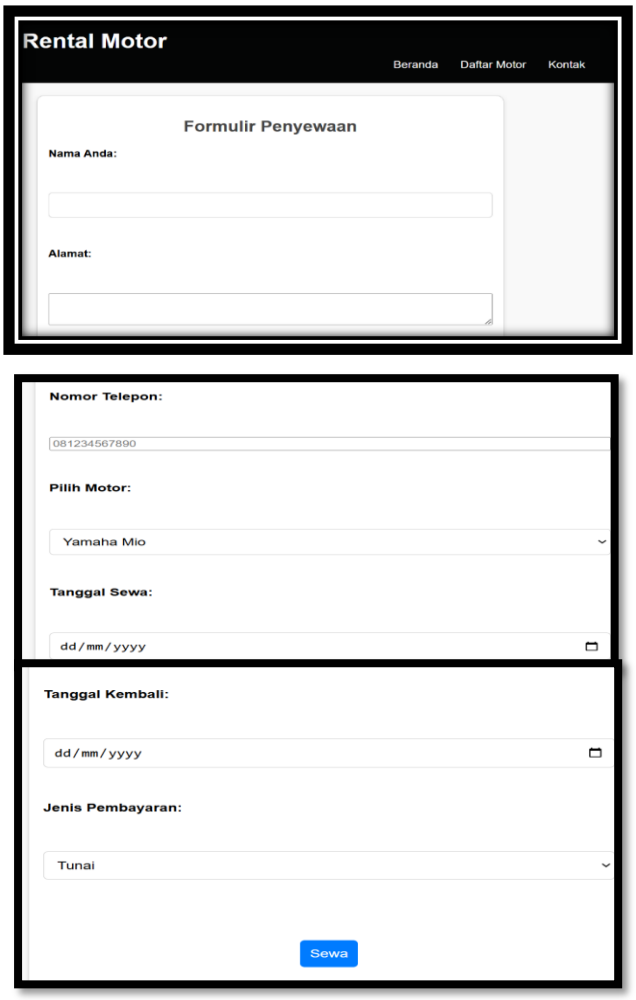

Figure 3. Rental Form Menu

In this rental form, renters can fill in all the fields that have been listed so that renters can order/rent motorbikes.

2. **Communication Via WhatsApp**: After booking, users can contact the rental owner via WhatsApp for confirmation and payment.

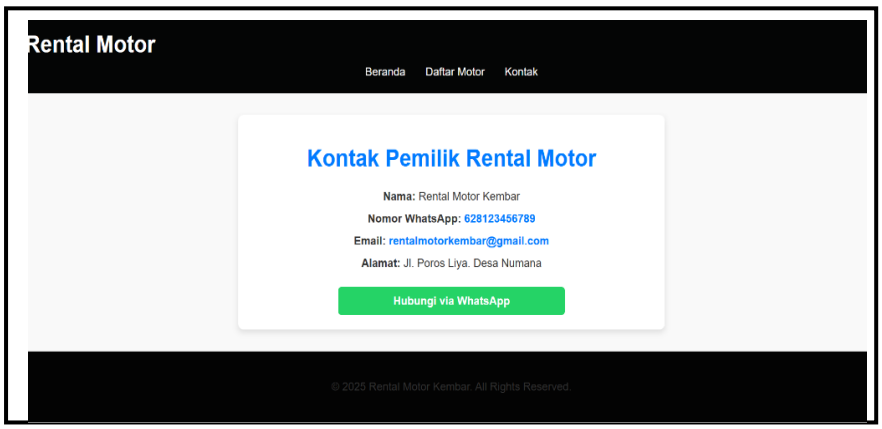

Figure 4. Rental Owner Contact Info

On this contact page, tenants can also directly contact the rental owner via WhatsApp

3. **Admin Dashboard**: Admins can monitor all rental transactions and manage vehicle and user data.

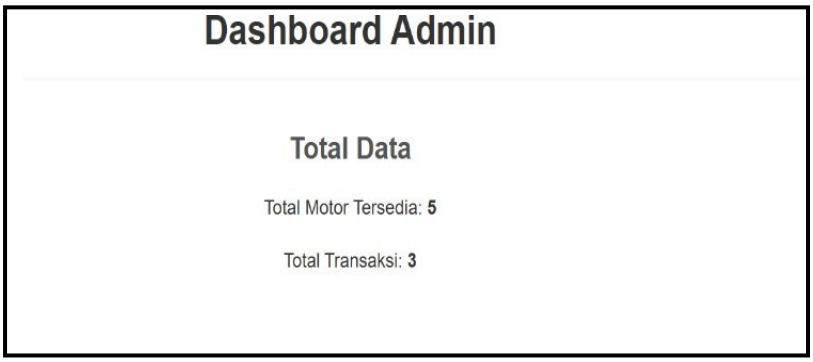

Figure 5. Dashboard Admin

On this admin dashboard, there is a total amount of data, both the total available motorcycles and the total transactions. In the admin dashboard, there is also tenant transaction data.

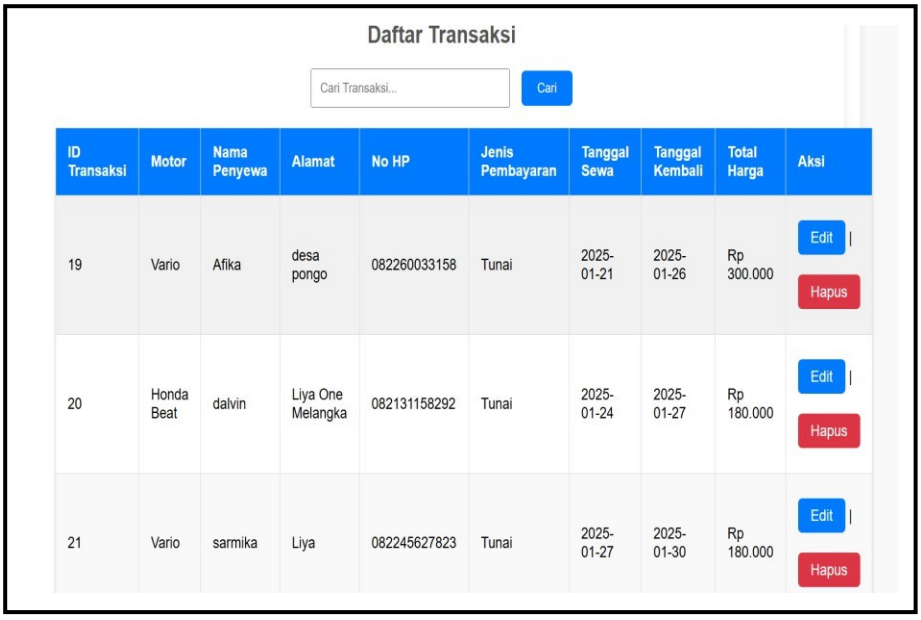

Figure 6. Transaction List

This list of transactions exists if a tenant books and fills out a rental form on the user's page, so their data will be stored on this list of transactions.

4. **Vehicle Data Management**: Rental owners can add, edit, or delete vehicle data available for rent.

Figure 7. Vehicle Data Management

In the admin dashboard there is also a motorcycle available. Admin can add a motorbike if there is a motorbike that you want to rent.

Application Trial Results

As for after development is complete, the application is tested to ensure that all features work properly. The trial was carried out by involving several users representing potential customers and rental owners. The test results show that:

- All the key features work according to the set specifications.
- Users feel Interface Application Easy Understood and used.
- The ordering and communication process through WhatsApp ran smoothly without technical problems.

System Evaluation

The evaluation of the system is carried out to assess the effectiveness of the application in meeting the needs of users. Based on the results of the evaluation:

- The app successfully improves operational efficiency in motorcycle rental companies by reducing the time required to manually record rentals.
- The security of user data is well maintained through the use of security protocols in manual payment systems.
- This application is expected to continue to be developed by adding new features based on user feedback.

CONCLUSION

Based on the results of the analysis and discussion of the design of a web-based motorcycle rental application for Twin Motorcycle Rental in Numana Village, several conclusions can be drawn as follows: 1) Rental Process Efficiency: The application is designed to allow the motorcycle rental process to be carried out faster

and more efficiently. With the online booking system, users can make reservations without having to come directly to the rental location, thus saving time and effort. 2) Better Data Management: This application facilitates rental owners in managing vehicle data and rental transactions automatically. Data that was previously manually managed can now be accessed and updated in real-time, minimizing the risk of errors in record-keeping. 3) Easy Communication: With the integration of communication features via WhatsApp, users can easily contact rental owners for booking and payment confirmation. This improves interaction between tenants and owners, as well as providing a more personalized experience. 4) Informative Admin Dashboard: The admin dashboard feature allows rental owners to monitor all rental transactions in real-time. It helps in better decision-making based on accurate and up-to-date data.

Although this application has been successfully developed, there are still some suggestions for further development 1) Addition of Notification Feature: It is recommended to add a notification feature to users regarding the status of the order and return of the motorcycle so that they do not miss important information. 2) Data Security Improvements: Although the app has implemented several security measures, it is important to keep the security system updated to keep user data protected from potential threats. 3) Development of Promo and Discount Features: Adding a promo or discount system can attract more customers and increase interest in motorcycle rental services. 4) User Interface Improvements: Regularly update the user interface to keep it attractive and in line with the latest technology developments and design trends.

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