

Design of A Web-Based Viar Electric Motor Unit Ordering System Using the Waterfall Method

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Abstract

The development of electric vehicles, particularly electric motorcycles, is gaining increasing public interest due to their environmental friendliness and lower operational costs. One emerging electric motorcycle brand is Viar. However, the current system for ordering Viar electric motorcycles is still done manually, such as by telephone or directly with dealers, which is inefficient and potentially prone to errors in recording. To address this issue, this study designed a web-based Viar electric motorcycle ordering system with the goal of making it easier for customers to order online, improving data accuracy, and speeding up the transaction process. The system was developed using the Waterfall method, which consists of the following stages: (1) needs analysis, (2) system design, (3) coding, (4) testing, and (5) implementation. The result of this study is a web application that allows customers to view the Viar motorcycle catalog, select a unit, place an order, and receive real-time order confirmation. Dealers can also manage stock and transactions in a more structured manner. This system is expected to improve Viar's business efficiency and make it easier for consumers to purchase electric motorcycles. Keywords: Viar Electric Motorcycles, Online Ordering, Web, Waterfall Method.

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1. Introduction

Introduction The rapid development of information and communication technology has brought significant changes to various aspects of life, including the trade and marketing sectors. One emerging innovation is a web-based ordering system, which allows consumers to conduct online transactions more easily and efficiently. In this context, ordering Viar electric motorcycles has become a primary focus, given the growing public interest in environmentally friendly vehicles.

2. Theoretical Basis

2.1. Ordering System

This Motorcycle Ordering and Sales Information System is designed to increase efficiency and simplify the work process in providing services to customers wishing to purchase Viar motorcycles. This system integrates various requirements to strategically support operational management and provides necessary reports to stakeholders. According to L. James Havery, a system is a logical and orderly way of organizing various interrelated components. According to Pratama (2014:7), "a system is a collection of interrelated procedures that work together to complete a task together. According to Susanti (2017:2) in the journal "E-Commerce in Digital Books," an order is an agreement between two or more parties, namely the provider and the user of services or goods, to fulfill a need by ordering the goods or services for use.

2.2. Waterfall

The waterfall method is an approach considered highly appropriate and effective in developing booking systems and digital web designs. This method offers ease of control and scheduling of the system development process, thus facilitating better project management. This research aims to build a booking system and digital web design using the waterfall method as a framework. The author concludes that the waterfall method is an approach with well-structured and sequential stages. This method emphasizes the importance of completing each stage systematically before moving on to the next. In the context of developing a website-based Viar electric motorcycle booking system, the development stages using the waterfall method are as follows:

2.2.1. Requirement

At this stage, system developers need to communicate with each other to understand the software users expect and the software's limitations.

2.2.2. Desain

Design Software design is a multi-step process focused on designing and creating software programs.

2.2.3. Implementasi

Implementation At this stage, the system is first developed in small programs called units, which are integrated in subsequent stages. Each unit is developed and tested for functionality, a process known as unit testing.

2.2.4. Verification

Verification At this stage, the system is verified and tested to determine whether it fully or partially meets the system requirements.

2.2.5. Maintenance

Maintenance Maintenance is the final stage of the waterfall method. The finished software is run and maintained.

3. Research Methodology

The model used in this research is the waterfall model. The following is a diagram of the waterfall model:

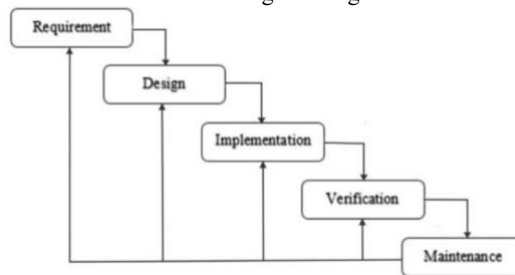


Fig. 1: Waterfall Diagram

3.1. Input Design

The input design for the proposed system includes:

- 1.1 Motor Data Management Form: This form is designed to add or delete data related to the Unit.
- 1.2 Admin Account Management Form: This form is designed to add or delete data related to the Admin.

3.2. Output design

The following details the system's output design.

- 1.1 Order Report to show the number of sales from VIAR Medan.
- 1.2 Sales Statistics Report to show the fluctuations in sales.
- 1.3 Available Stock Report.
- 1.4 Shipper Report to show the number of units to be prepared and delivered

4. Results

The results of the research on designing a web-based Viar electric motorcycle ordering system using the waterfall method. To visualize the web-based application, the following are some of the results used:

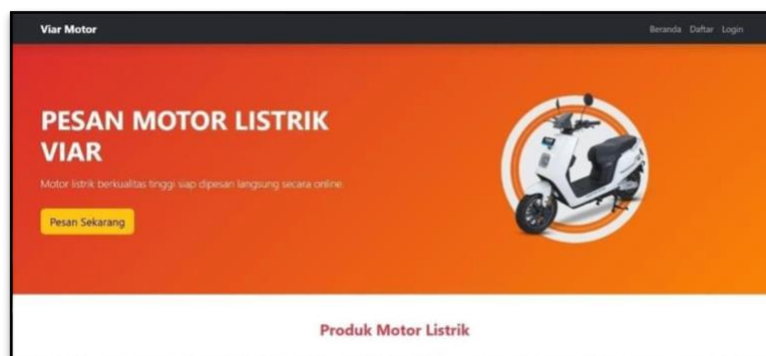


Fig. 2: Main View

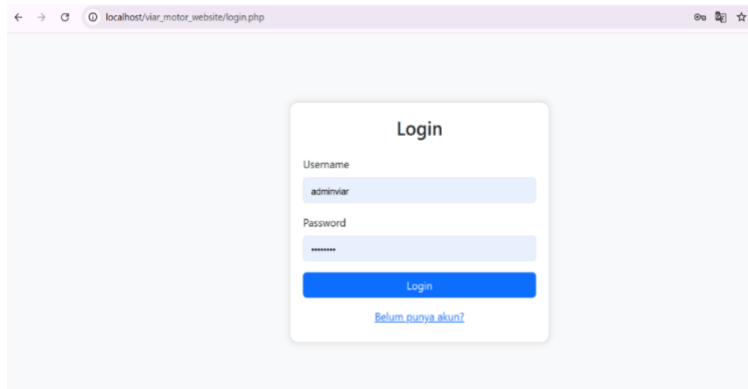
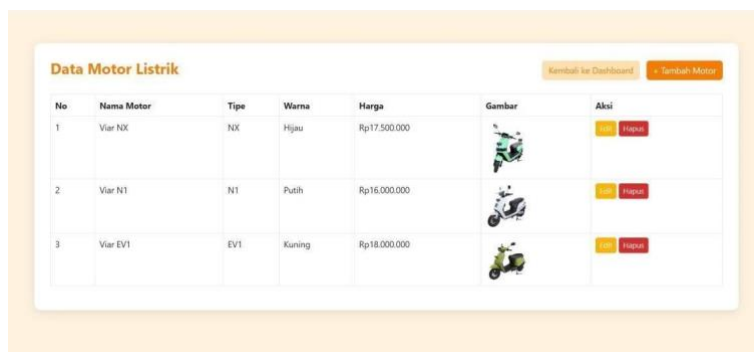


Fig. 3: Login Form

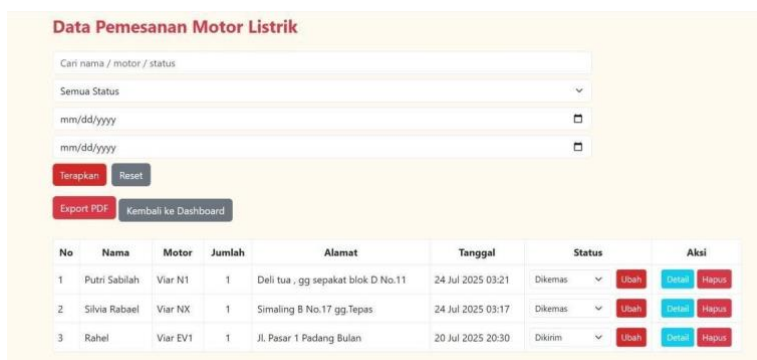


Fig. 4: Admin Dashboard



No	Nama Motor	Tipe	Warna	Harga	Gambar	Aksi
1	Viar NX	NX	Hijau	Rp17.500.000		Hapus
2	Viar N1	N1	Putih	Rp16.000.000		Hapus
3	Viar EV1	EV1	Kuning	Rp18.000.000		Hapus

Fig. 5: Unit data form



No	Nama	Motor	Jumlah	Alamat	Tanggal	Status	Aksi
1	Putri Sabilah	Viar N1	1	Deli tua , gg sepatok blok D No.11	24 Jul 2025 03:21	Dikemas	Ubah Detail Hapus
2	Silvia Rabael	Viar NX	1	Simaling B No.17 gg.Tepas.	24 Jul 2025 03:17	Dikemas	Ubah Detail Hapus
3	Rahel	Viar EV1	1	Jl. Pasar 1 Padang Bulan	20 Jul 2025 20:30	Dikirim	Ubah Detail Hapus

Fig. 6: Order form

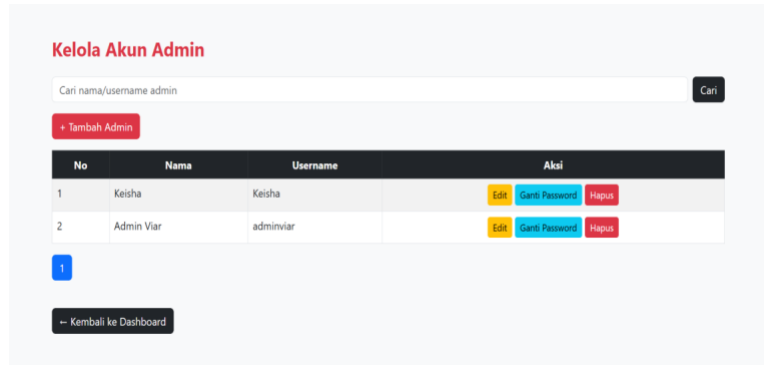


Fig. 7: Admin Account Form

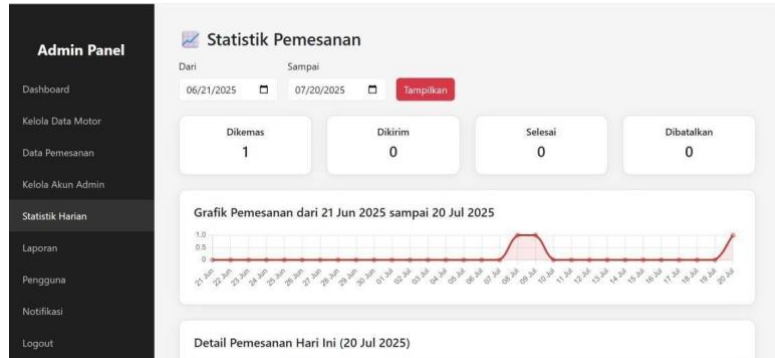


Fig. 8: Statistics Form

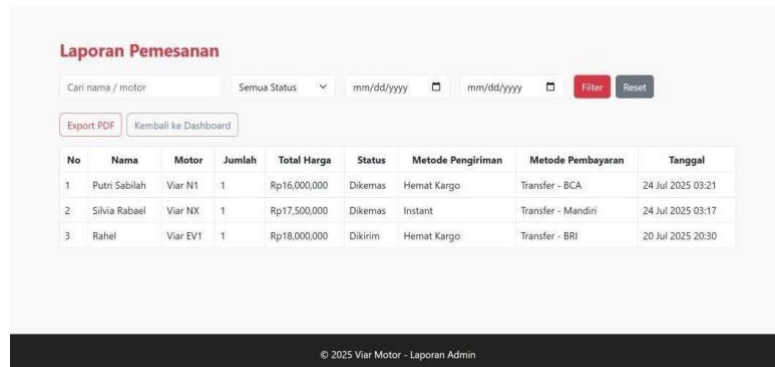


Fig. 9: Order Report Form

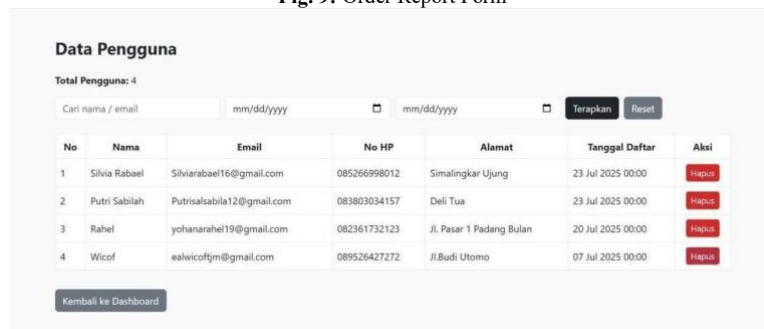


Fig. 10: User Form

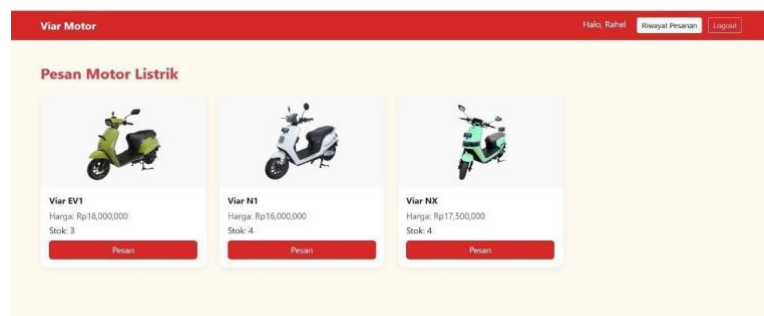


Fig. 11: Customer Dashboard

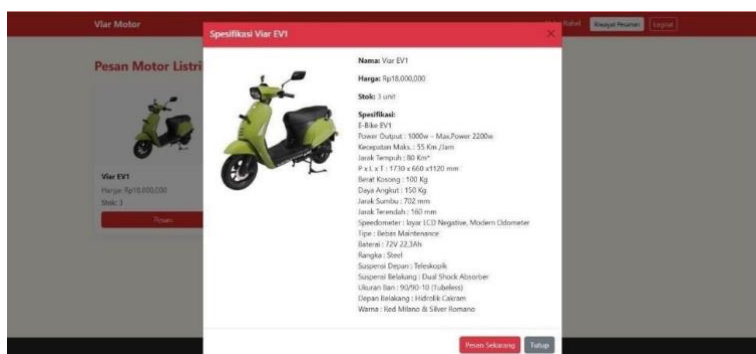


Fig. 12: Unit Specification Form

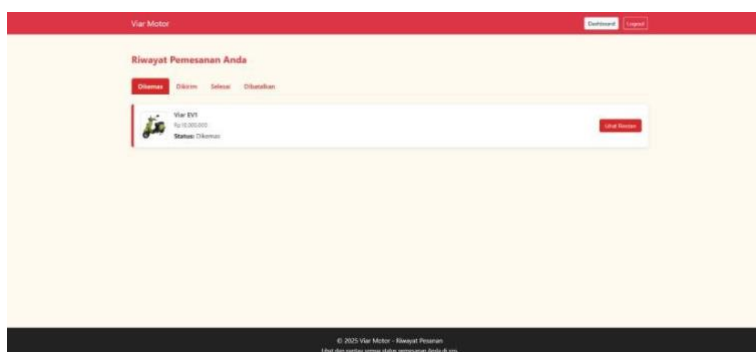


Fig. 13: Order History Form

5. Conclusion

After completing the analysis and design process for the information system, the following conclusions can be drawn:

1. The design of the Viar electric motorcycle ordering website can support the development and needs of Viar Motor. Features such as user registration, product ordering, order notifications, and data management by the admin have been successfully implemented, thus supporting the efficiency and effectiveness of electric motorcycle sales services.
2. The implementation and use of the waterfall method in the design of the Viar electric motorcycle ordering system significantly simplifies the process, as system requirements are clearly defined from the outset, and each stage can be executed sequentially.
3. This system also benefits sales personnel in terms of transaction data management and reporting, which were previously handled manually.

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