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# Design of a Web-Based Car Spare Parts Service and Sales Information System with Agile Method at Anugerah Jaya Mobil

**Abednego Ginting [1]*, David [2], Feriani Astuti Tarigan [3]**

[1,2,3]*Information Systems Study Program, STMIK Time Medan, Indonesia*
abednego17januari@gmail.com[1]*, davidyang9991@gmail.com[2], ferianiastutitime@gmail.com[3]

**Abstract**

Anugerah Jaya Mobil is a car repair shop located in Medan City that still uses manual methods in managing its service and spare part sales. This creates several problems in managing service and sales. Customers feel uncomfortable because they have to come in person to inquire about the status of their vehicle. They also do not know when the service will be completed and whether the spare parts they need are available. To address these problems, the purpose of this research is to create a web-based information system that aims to simplify and accelerate the service process and data management. This system uses the Agile Development method. In this method, development is carried out in short cycles, called sprints. Each cycle produces a part of the system that can be tested. By getting direct feedback from users, the team can improve and adjust the system quickly. This makes the final product more in line with user expectations and can adapt to changes. It is expected that this system can improve operational efficiency and reduce losses at Anugrah Jaya Mobil.

***Keywords***: *Information System, Car Service, Spare Part Sales, Web, Agile, Anugerah Jaya Mobil*

## 1. Introduction

The business world is rapidly evolving, with growing competition pushing entrepreneurs to continuously improve performance and creativity. In the automotive service sector, the demand for vehicle servicing and spare part sales is increasing as car production rises each year. However, many workshops still rely on manual data management systems. Anugrah Jaya Mobil, located at Jl. Jamin Ginting No.112, Mangga, Medan Tuntungan, Medan, North Sumatra, is one such example [1]. The company faces challenges in managing services and sales due to the absence of computerized systems. Customers often feel inconvenienced because they must visit the workshop directly to inquire about the status of their vehicles, the estimated service completion time, and the availability of spare parts [2].This uncertainty reduces service efficiency and lowers customer satisfaction. In addition, the sales process for spare parts is often delayed, making it difficult for customers to make timely purchases. These problems can negatively impact both customer experience and overall sales performance. To overcome these issues, Anugrah Jaya Mobil plans to adopt the Agile methodology in developing a web-based management system. Agile is a flexible software development method that emphasizes collaboration with users and involves short development cycles called sprints, typically lasting two to four weeks [3]. Each sprint delivers a usable part of the system that can be tested and refined based on user feedback. This allows the team to quickly adjust the system according to real needs, ensuring that the final product is both functional and user-friendly. The new system is expected to support management in handling marketing reports, inventory, and customer information, while also enhancing communication among workshop staff, management, and clients [4]. Through this system, customers will be able to order services and spare parts online, track their service schedule and vehicle status in real-time. Ultimately, the system aims to improve operational efficiency and minimize financial losses at Anugrah Jaya Mobil [5].

## 2. Research methods

### 2.1. Analysis

Analysis is an activity carried out to understand and evaluate the system that is running and the system to be planned. The analysis process is carried out to gain a clear understanding of the needs, constraints, and potential improvements that exist in the system currently in use.

### 2.2. Running System Berjalan

An ongoing system analysis is carried out to comprehensively understand how current operational processes are implemented, especially in the context of spare parts services and sales. In this activity, there are several data that are managed, including:

1. Spare parts and service sales data are still recorded manually in the book.
2. The income data of incoming money is recorded manually in the book

## 2.3. Problem Analysis

From the results of the analysis of the ongoing system, a number of problems were found that occurred in current operations, including:

1. Spare parts and service sales data are still recorded manually in the book, so there is a risk of data inaccuracy due to input errors, loss of transaction records, in addition to searching and tracking customer history becomes difficult and time-consuming, especially when needed.
2. Recording of incoming income that is still done manually in the book causes delays in monitoring cash flow and increases the risk of mismatch between income and expenditure.In addition, making financial statements becomes more difficult and prone to miscalculations.
3. There is no computerized booking service system, making customers have to come directly or contact manually to make a reservation.

## 2.4. Analysis of the proposed method

In this section, the analysis of the methods used in this study will be described. The method proposed and used in the design of the service information system and the sale of car spare parts at the Medan Workshop Award is the Agile SDLC (Software Development Life Cycle) method.

## 2.5 Database Design

Database design is the process of structuring data for the application being developed. It is carried out using an Entity Relationship Diagram (ERD), which serves as a basic data model that defines the relationships between entities. ERD helps model data structures and their relationships using standardized notations and symbols. The stages in the Agile SDLC method that will be used are as follows:

1. Planning
   The planning stage is an important step in the Agile SDLC method. At this stage, planning is carried out to build an information system used in the service process and sale of car spare parts at the Medan Workshop Award.
2. Analysis
   At this stage, an analysis is carried out to understand the needs of the system that will be built at the Medan Workshop Award.
3. Design
   At the design stage, the design of the system to be built is carried out. The design process involves creating a workflow diagram and system structure as a basis for implementation.
4. Implementation
   At the implementation stage, the system that has been designed will be built and implemented.
5. Testing The testing phase aims to ensure that the built system functions properly according to the needs of the user.

In this stage of analysis, the authors identify the functional needs of the system through a Use Case Diagram. Use Case Diagram for the proposed Workshop Information System website

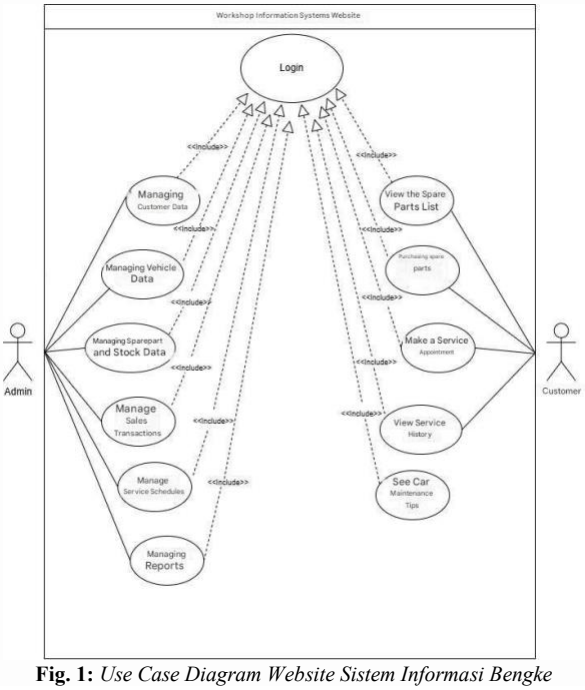


**Fig. 1:** *Use Case Diagram Website Sistem Informasi Bengke*

# 3. Result and discussion

## 3.1. Website display result

The result of this research is the successful design and construction of a web-based car spare parts service and sales information system at Anugerah Jaya Mobil by applying the Agile SDLC method. The initial view of the system is in the form of a landing page.

a. Landing Page Display below.

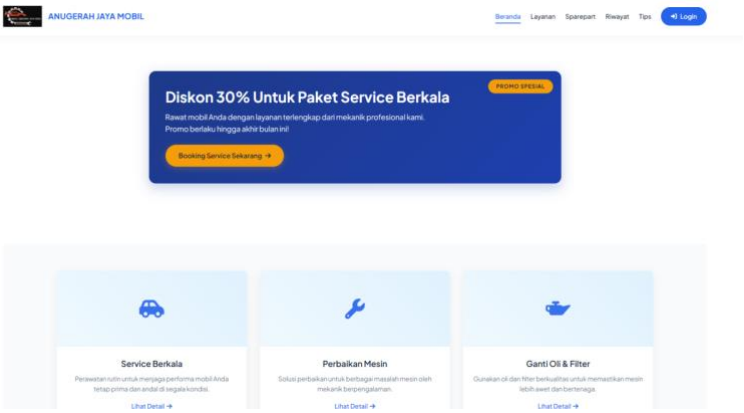


**Fig. 2:** Landing page display results

b. Results of the login page display

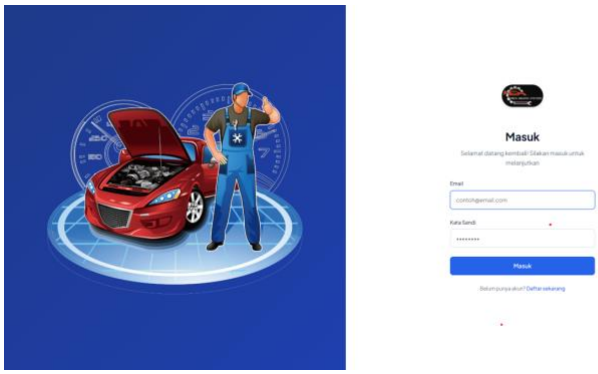


**Fig. 3:** Results of the login page display

c. Admin Dashboard Home Page

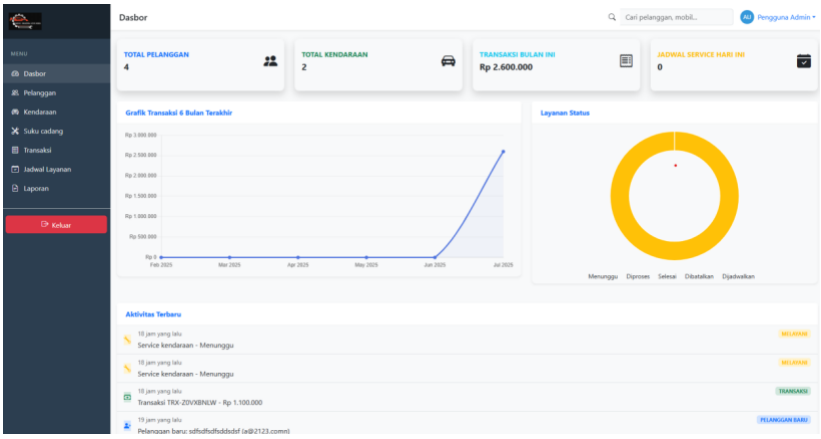


**Fig. 4:** Results of the Admin Dashboard Home page display

d. Display Report Results

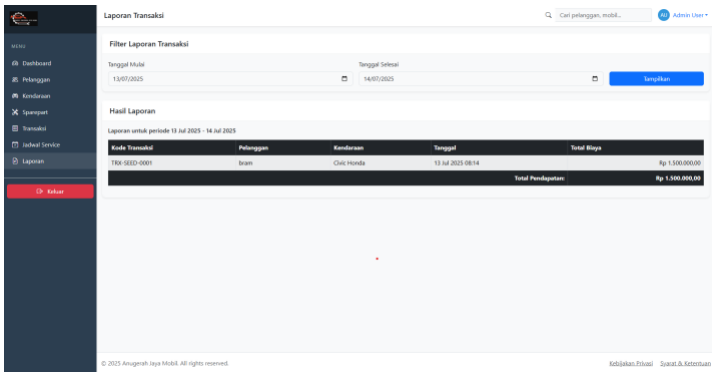


**Fig. 5** Results of the Report Display

e. Customer Dashboard Page

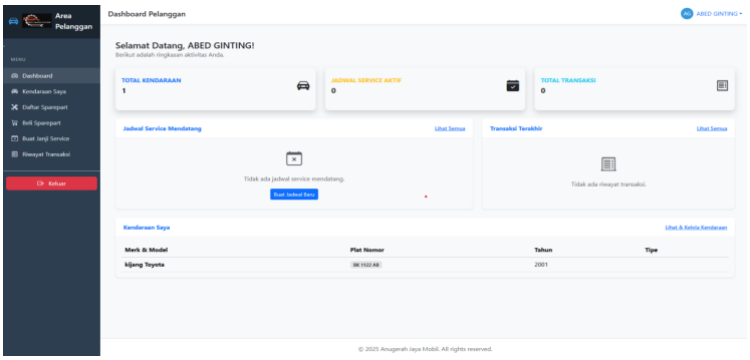


**Fig. 6:** Customer Dashboard page display results

f. Transaction History page

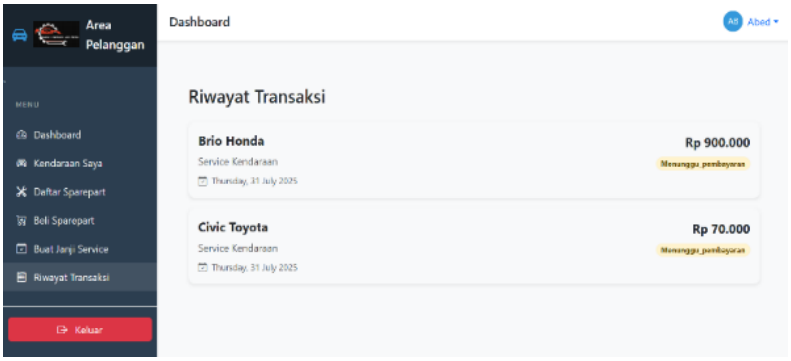


**Fig. 12:** Transaction History Page.

## 4. Conclusion

Based Based on the results of the research and design that has been carried out, the following can be concluded:

1. The web-based car spare parts service and sales information system created can help manage service and sales transaction data more easily, so that admins and customers can see information quickly at Anugerah Jaya Mobil.
2. The Agile method used in creating this system makes the development process faster and more organized, so that the system can adjust to user needs.
3. The system created meets the basic needs for managing service and sales of car spare parts, and can be accessed online through various devices such as computers and smartphones.

## 5. Suggestions

After compiling conclusions, the next step is to provide suggestions for future website development. This suggestion aims to support the improvement and improvement of the quality of the website system that has been created, including:

1. It is recommended that the system be developed again by adding a feature to manage spare parts stock directly and connect with online payments to make transactions easier
2. Further research needs to be done to find out the needs of users in more detail, especially features that can help customers such as service schedule reminders and promos
3. This system should be connected or used by mechanics or technicians so that there is a person responsible for the mechanic and can be processed and monitored directly by the admin.

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