

Application Of Prototype Method In Periodic Service Information System Application (Case Study: Melet Tuning Workshop Medan)

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ABSTRACT

This study aims to build a website-based periodic service information system application, By applying the prototype method application development method through concepts, design, and evaluation provides solutions to problems. It was found that the use of periodic service applications in the Melet Tuning Medan workshop, which has been built is very useful because of the results of the application of methods and system design. can create satisfaction with the workshop's services to customers. get service and the workshop can manage service data well and efficiently. This study produces a prototype design and applies methods in building periodic service applications on the website system.

Keywords:

Periodic Service,
Prototype Method,
Medan Melet Tuning.



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INTRODUCTION

The advancement of information technology is developing very rapidly so that it can create and influence progress and convenience in various fields. One of the fields that encourages following these developments is systematic and computerized company management. We can see this from the many companies or business entities including workshops that are inseparable from the influence of technology in their activities, especially computer technology, making work more effective and efficient (Setiawan et al., 2021). Technology is something that is very influential in life in helping humans so that work can be easier and more practical, namely by implementing a periodic service information system application at the Medan Melet Tuning Workshop. In previous research by (Nugraha et al., 2018) concluded by utilizing a Prototype method as a software development method which is an early version of the software system used to demonstrate concepts, design experiments, and find more problems and possible solutions. A system with a prototype model allows users to know how the system works properly. The prototyping method used in this study aims to get an overview of the application that will be built through designing a prototype application according to needs and it is hoped that the software to be built will remain efficient and flexible to changes that occur. The implementation of periodic service at the Medan Melet Tuning workshop is a part that must be maintained between customers and the workshop company

to provide practical experience to customers in the workshop. However, currently, the implementation system is still manual, namely with notes written on paper, still facing a number of obstacles that hinder the efficiency and effectiveness of the management of the progress of this workshop. The obstacles faced include late service, late vehicle checks and loss of bookkeeping caused by the accumulation of customer history files and customer service data that are not systematic and not stored properly. Therefore, an innovative solution is needed through the development of a Website-based periodic service information system, which is expected to overcome administrative obstacles, accelerate the flow of information, and increase the transparency of the entire periodic service scheduling process at the Medan Melet Tuning Workshop. So that it can help facilitate the management and employees of the Company at the Medan Melet Tuning Workshop in carrying out workshop activities systematically and efficiently. Based on the description above, the Medan Melet Tuning Workshop company needs an application that applies a design method, namely the Prototype method as an application development solution in developing and designing applications properly according to the wishes of the Medan Melet Tuning Workshop company. In this study, the problem that exists in the Melet Tuning workshop is analyzed and solutions are sought by implementing the use of existing methods and designing an application using the Laravel framework for a well-systemized periodic service application..

METHODS

Prototype Method

Prototype method is a software development method that allows interaction between system developers and system users, so that it can overcome the incompatibility between developers and users. Often customers define a number of general software goals, but cannot identify detailed requirements specifications for the functions and features that the software to be developed will have. In other cases, software developers may feel uncertain about the efficiency of an algorithm to be used in software development, or also feel uncertain about the ability of the software to adapt to the human-computer used. In cases like this and in many other situations, the prototyping paradigm may offer the best approach. Prototypes act as a mechanism for identifying software requirements specifications. If a usable prototype is to be developed, it can use a pre-existing program or by implementing the use of 9 existing devices (eg report generator devices or applications for designing interfaces [window manager) that allow usable programs to be created easily and quickly Prototype method as the main foundation because its function is as an initial version of the system to be built (Setyawan et., al 2024). In the book Sommerville Software Engineering (2011:45), a prototype is an early version of a software system used to demonstrate concepts, try design options, and find out more about problems and possible solutions. Rapid and iterative prototype development is essential so that costs are controlled and system stakeholders can experiment with prototypes from the beginning of the software process. A prototype is not something complete, but something that must be evaluated and modified again. Any changes can occur when the prototype is made to meet user needs and at the same time allow developers to better understand user needs better.

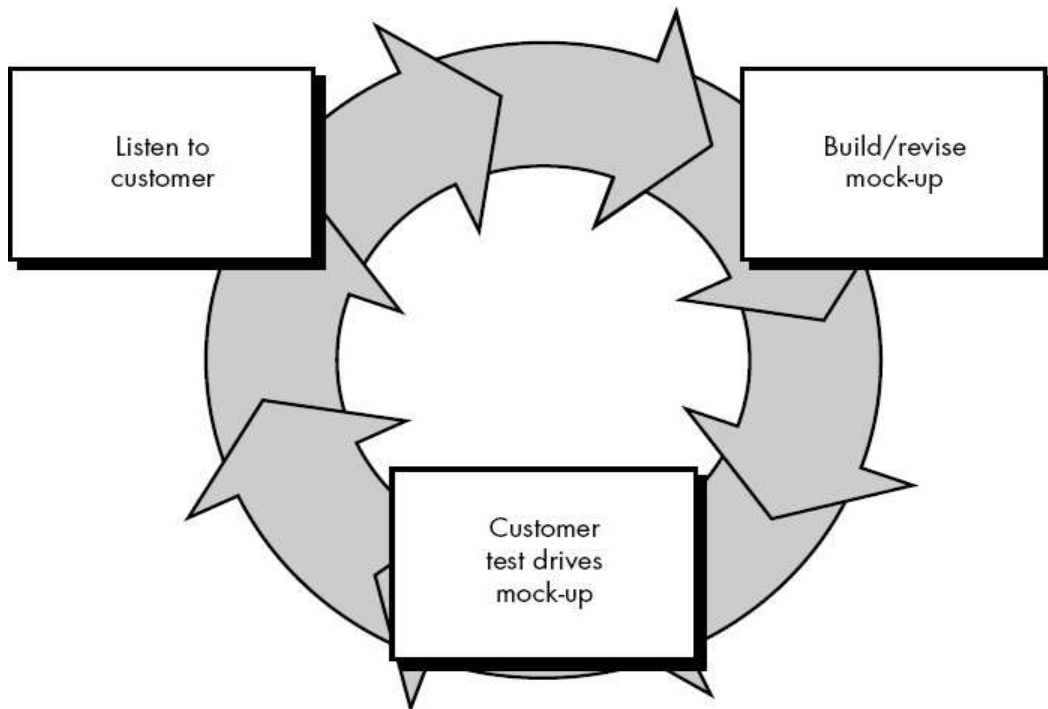


Figure 1. Diagram Alur Tahapan Metode Prototype

Melet Tuning Workshop Medan

The workshop offers general repair services, engine repairs, oil changes, brake pads, rings, and chain adjustments, with a conventional sales process. This means that customers must come to the workshop to get maintenance. Just like the Melet Tuning Medan workshop, it is a place for repair and maintenance services in the automotive sector located in the city of Medan, JL. Bridgjen Katamso Gg. Indra, Medan Maimun District, North Sumatra 20215, Indonesia. Founded by a mechanic named Tomi Syuhada in 2015 and is known to many young people with the nickname drag race children's workshop because the average customer who makes repairs, vehicle services, or vehicle modifications is a teenager aged 18-30 years and Melet Tuning also often appears and accompanies drag race racers on the racing track. and is nicknamed the drag race racer's workshop.

System Design

The system design that will be carried out in this study is divided into two stages, namely UML design and prototype design interface design. UML design aims to provide an overview of the process and flow of use of the system being developed. While the interface design is carried out to provide an overview of the interface of the system being developed. The following is a description of each design carried out in this study.

Use Case Diagram

Use Case Diagram describes an interaction between one or more actors with the system to be created. Use Case Diagram is used to find out the functions in a system and who has the right to use those functions. Use case represents an interaction between actors and system that will explain in detail simple system functions from the user's perspective

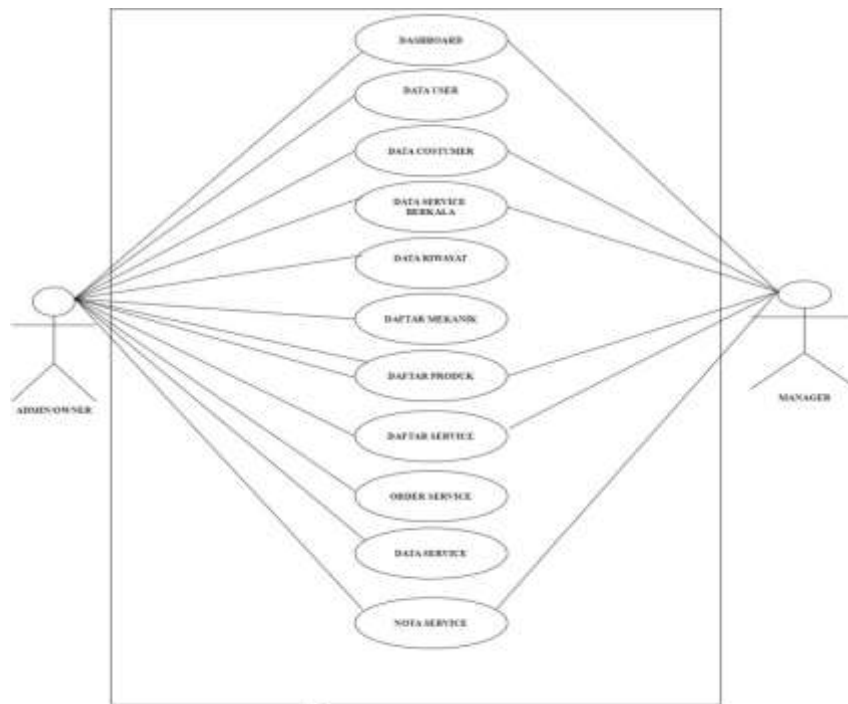


Figure 2. Use Case Diagram

admin is an actor who has overall access rights. And the manager has access rights to several permitted pages. In this system, what is meant is admin and manager. Admin can manage and add data (customer, periodic service, service history, mechanic list, product list, service list, service order, service data, and service notes). In contrast, the manager only displays pages that have been inputted by the admin, namely (displaying the dashboard page, displaying the customer page, displaying a list of periodic services, displaying a list of products, a list of services, and service notes).

RESULTS AND DISCUSSION

After the design and analysis of needs in the previous chapter, the next stage is the implementation of the system, results and discussion of the designed application. The application of the periodic service information system for the Melet Tuning Medan workshop produces a system that can be easily used by users. so that in this chapter will be discussed the results of the design of the prototype of the periodic service application for the Melet Tuning Medan workshop based on the website. The design of this application will later produce advantages and disadvantages in the system. The following are the results of the application design, application of methods, and displays on the system along with explanations for easy understanding. Testing this application can later use Google Chrome, Mozilla Firefox, or other web browser applications.

Tampilan Awal Hasil *Prototype* Initial View of Prototype Results

In this section, the initial display of the application service periodic Melet Tuning Medan workshop based on the website will be displayed. This display is the login page display, where users are asked to input their username and password in order to be able to enter the application.



Figure 3. Login Page View

Display of Prototype Results of Dashboard Page

In this section, the display page will display the company name, customer, periodic service, service history, mechanics, products, service, service orders, goods service, workshop company notes.

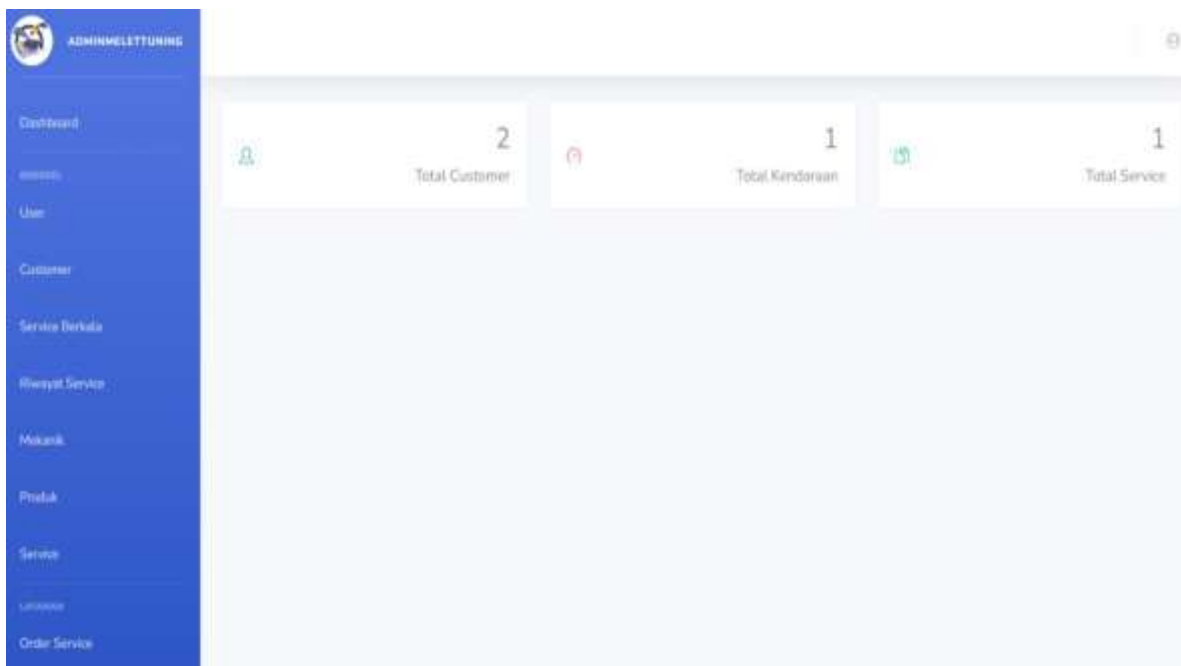


Figure 4. Dashboard Page View

Dashboard page display

On the User page display, a user description menu is available.

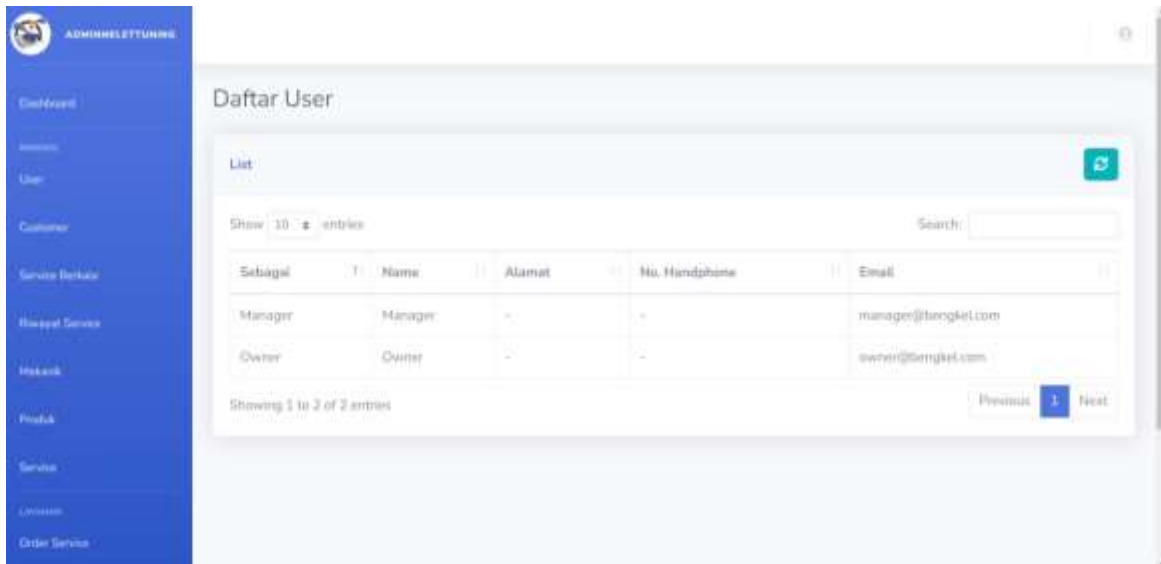


Figure 5. User Page View

Display of Prototype Results of Customer Page

In the customer page display, there is a customer information menu that can be seen in the image. Customer information contains a table by adding a member code by inputting full name, email, telephone number and address that can be seen in. If customer data has been inputted, the incoming customer data can be edited and deleted.

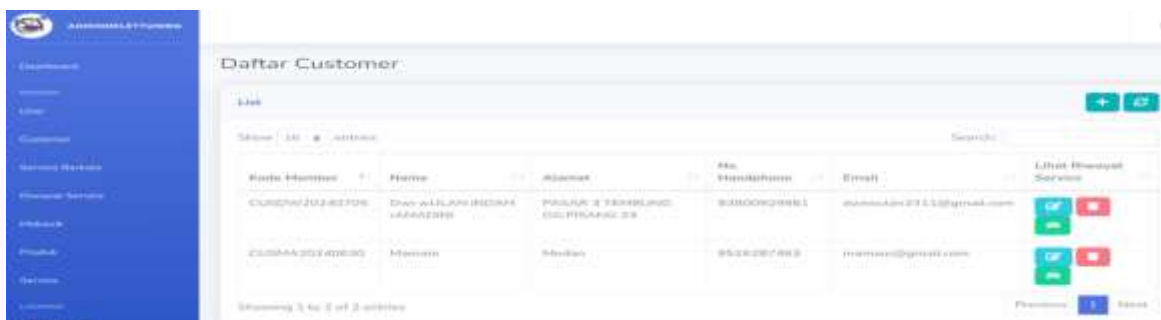


Figure 6. Customer Menu List

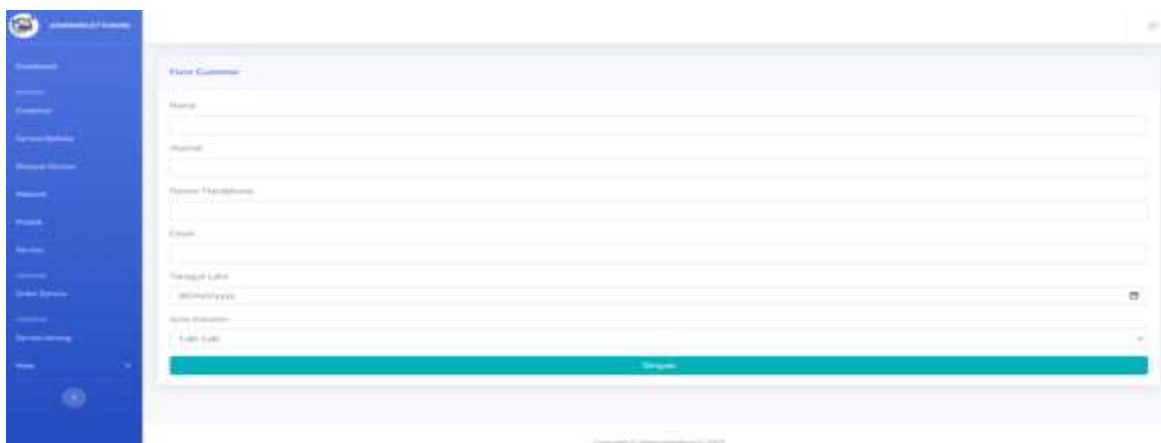


Figure 7. Input list Menu form member Customer

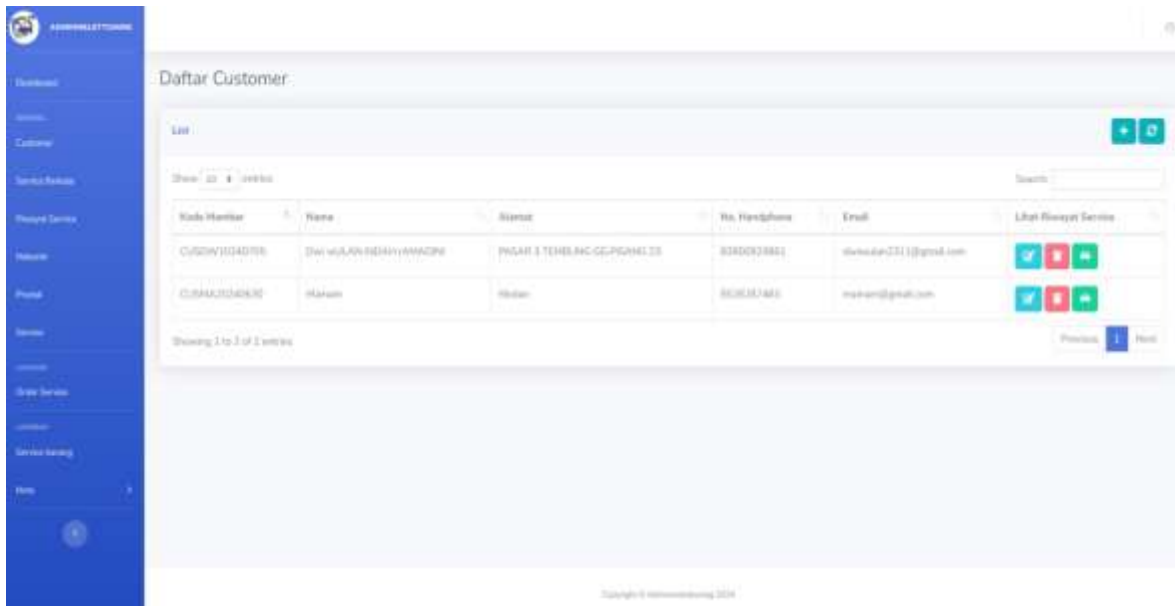


Figure 8. List of Customer Data Page Views that have been entered

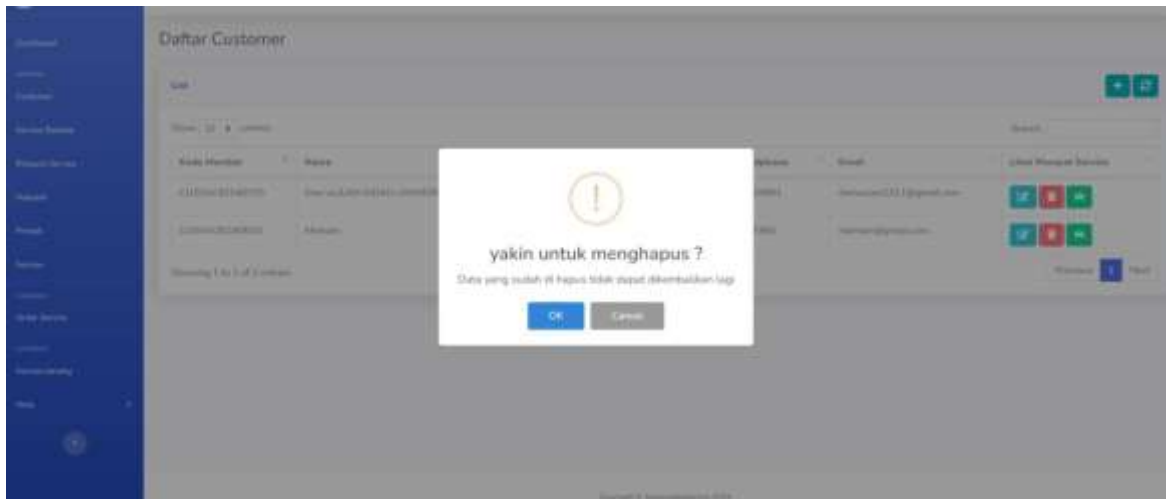


Figure 9. List of Customer Data Page edit views that have been entered

Periodic Service Page Prototype Results View

On the Periodic Service page display, a list of services and customer data are displayed who have had service at the Melet Tuning workshop and the customer's name, last service date, and next service schedule are displayed..

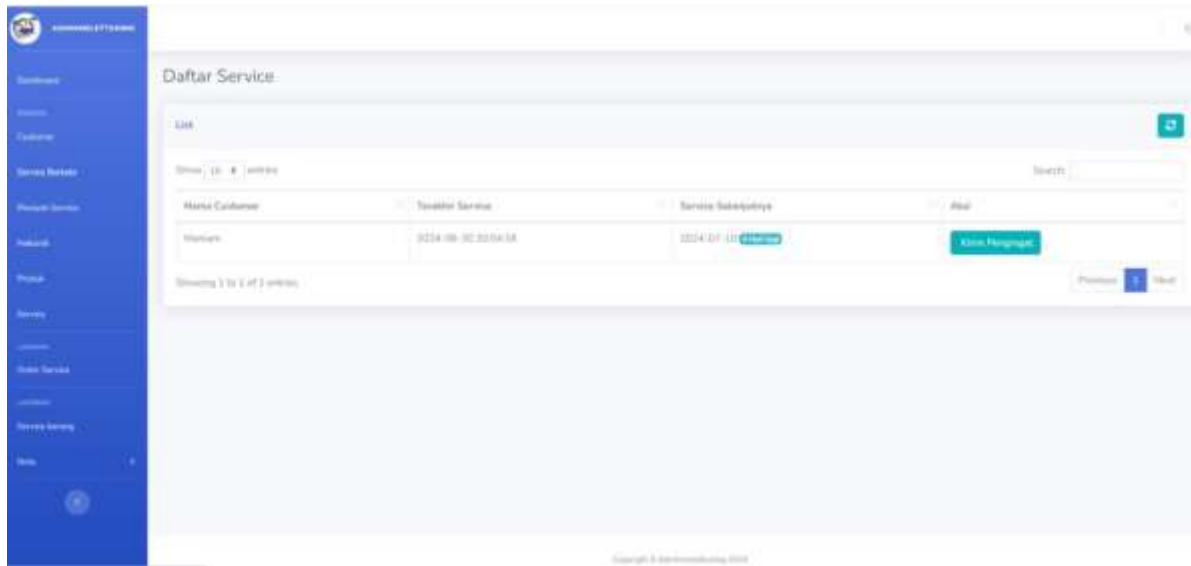


Figure 10. Periodic Service Page View List



Figure 11. customer Reminder Display Using Whatsapp

Prototype Results View of Service History Page

On the Service History page, to display the Service History, you must input the member code which will be displayed in the image.

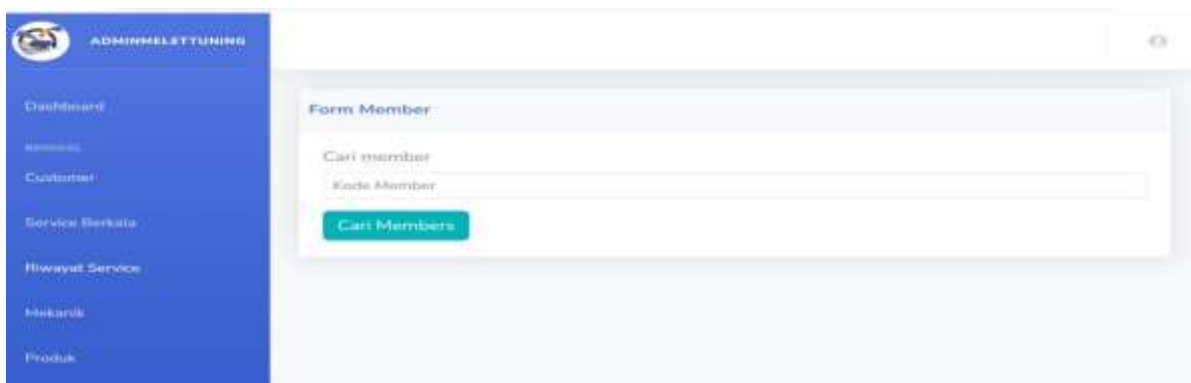


Figure 12. customer Service History Page View



Figure 13. The display has been entered with the Customer Service member code

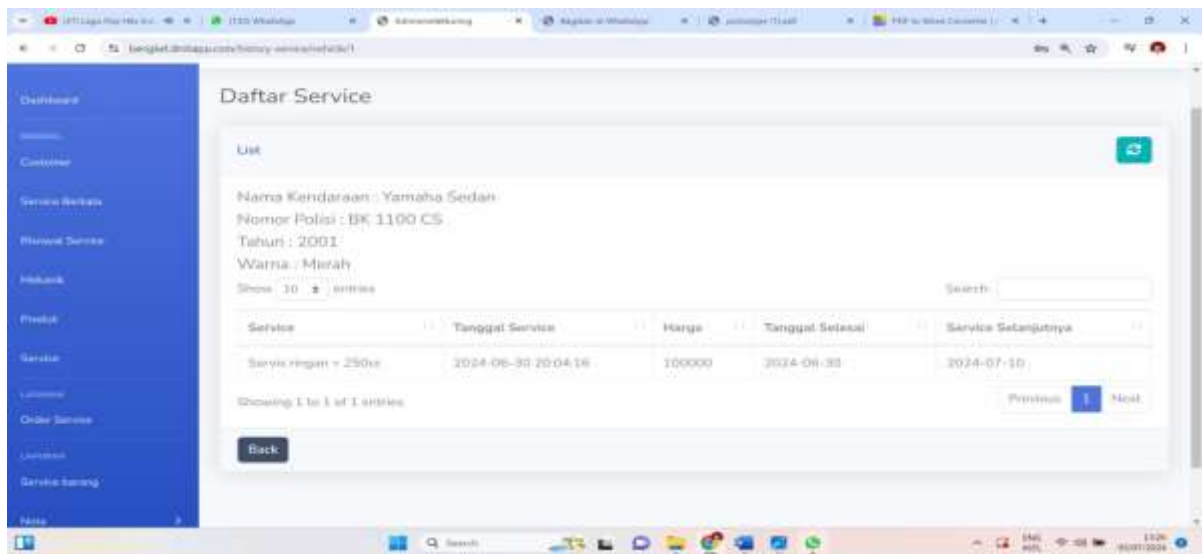


Figure 14. View Customer Service member code history

Echanical Page Prototype Result View

On the mechanical page display, there is a mechanical list display that can be input to add mechanical data, name, telephone number, address, shown in the image.

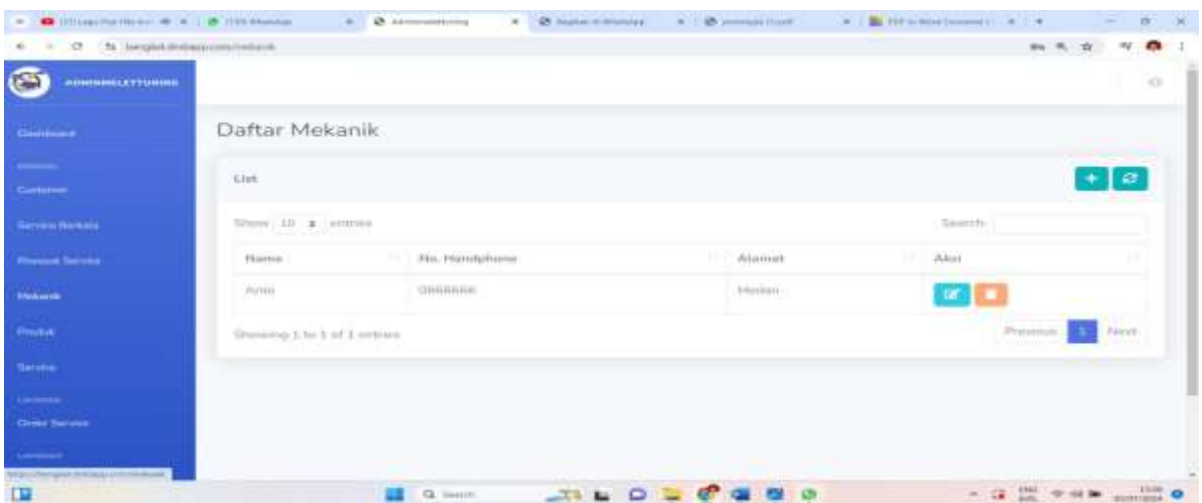


Figure 15. Mechanic List Menu View

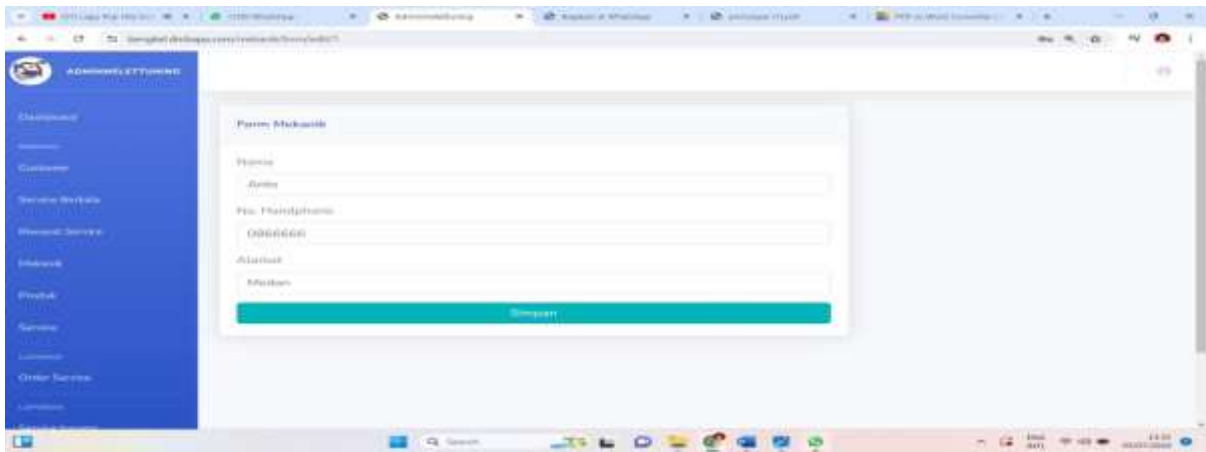


Figure 16. Edit Mechanic List Menu View

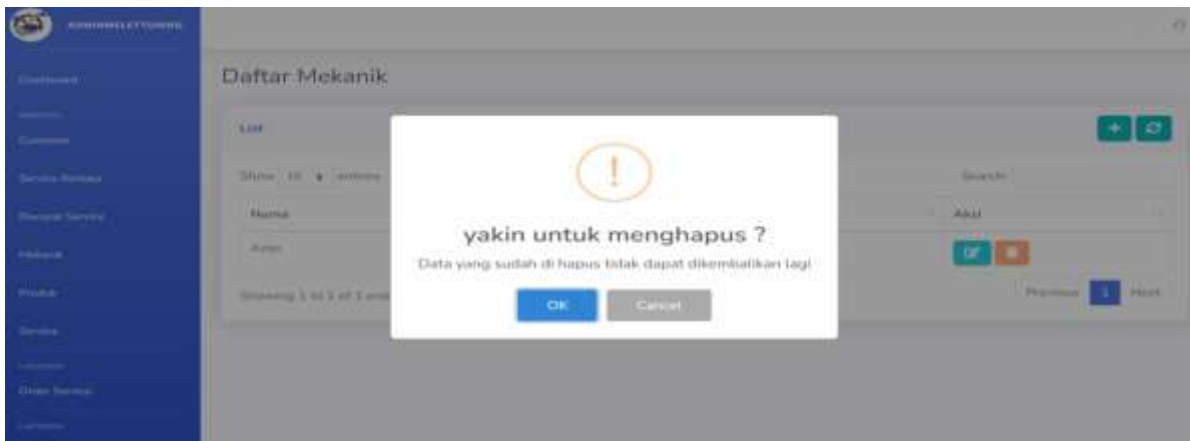


Figure 17. Delete Mechanic List Menu View

Product Page Prototype Results Display

On the product list page display, product data is displayed in the Image display and can be inputted in the form of name, unit, quantity, unit price and product photo.

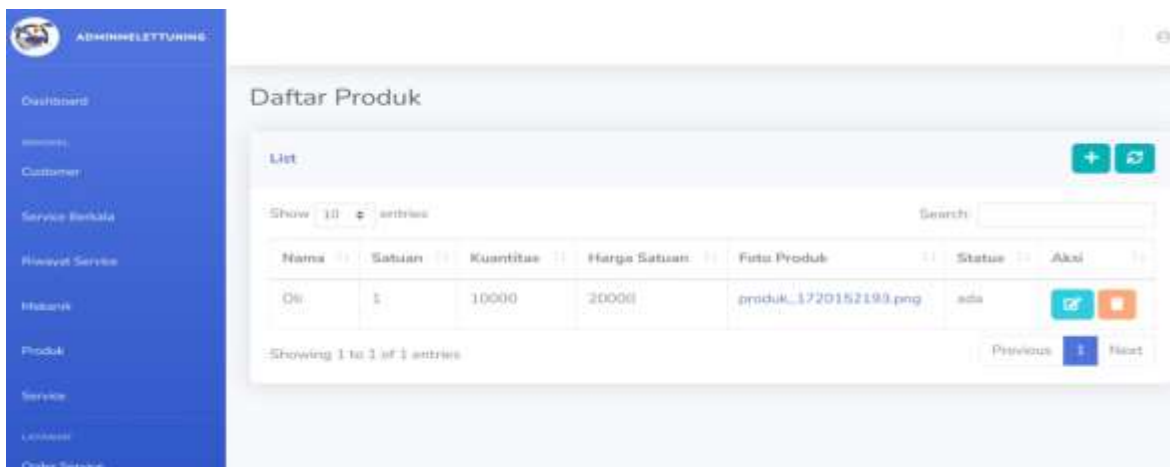


Figure 18. Product List Menu View



Figure 19. Product data input menu display



Figure 20. Display the menu for editing product data that has been inputted.

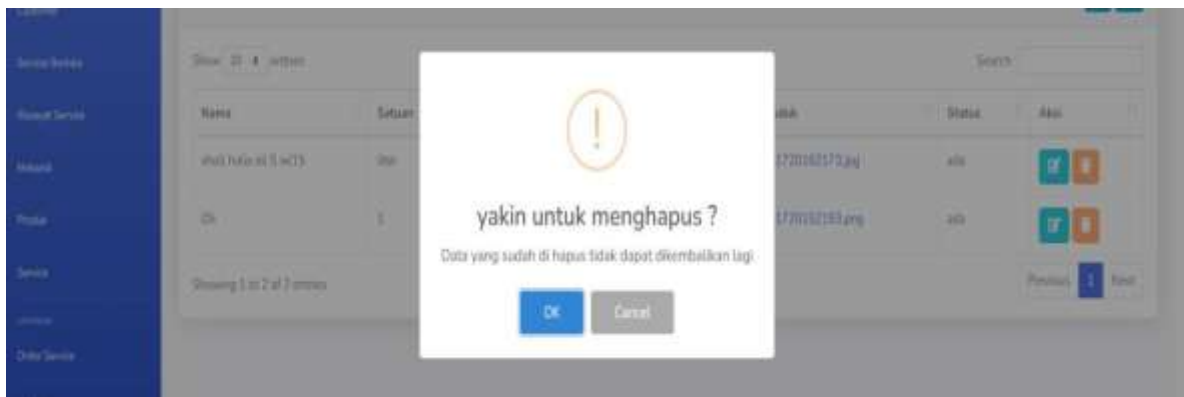


Figure 21. delete Product Menu View

Prototype Result Display of Order Service Page

On the result display of the order service page, the page displays the service activity list process and the display in the form of information on the note number, service, amount, mechanic, start process, completion of work, and action to save the payment note.

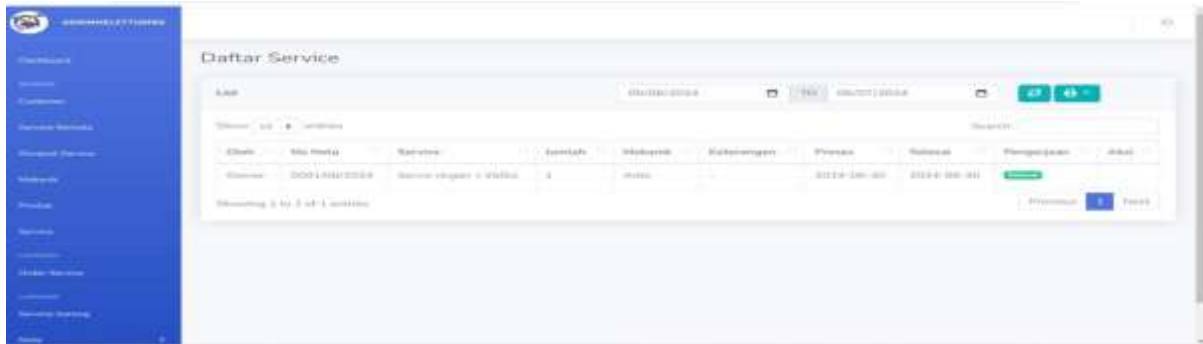


Figure 22. View Service Order List

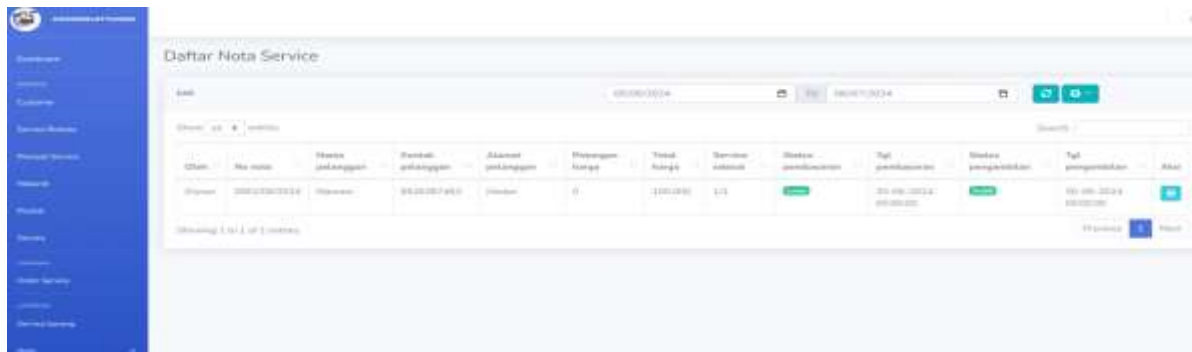


Figure 23. Service Note List View



Figure 24. Service Note Receipt View

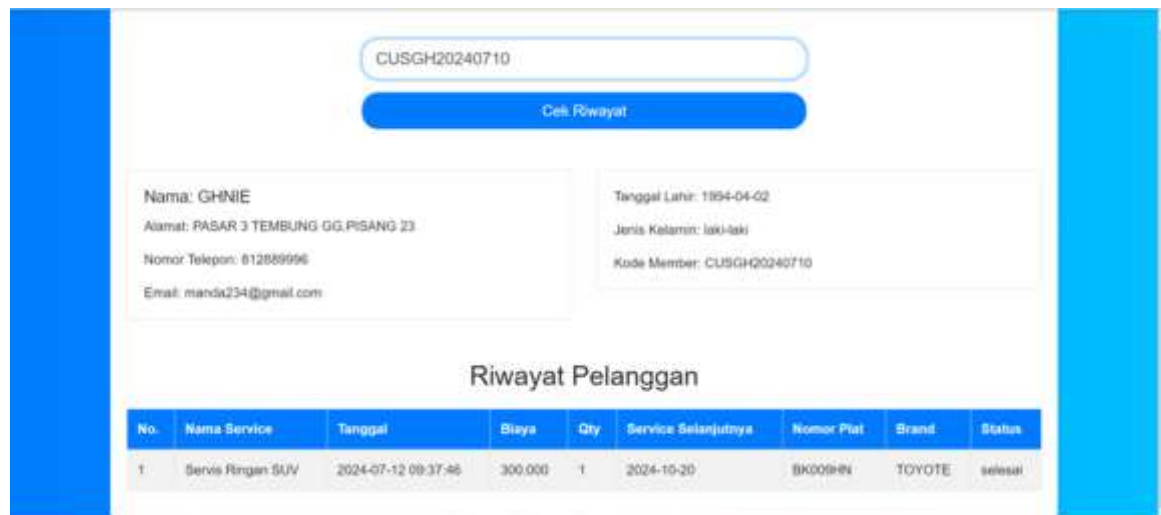


Figure 25. Customer service history page view

CONCLUSION

The conclusion that the author got from the results of the study of the design of periodic service applications using the application of website-based prototype methods is as follows: The design of periodic service applications for workshops has a very good influence on the company and is useful in maintaining relationships with customers. The periodic service application that is built can help the Melet Tuning workshop company easily record information about vehicles. The prototype method in the development of the Melet Tuning Medan periodic service application information system can help make it easier to create a website. The research that was built was able to create customer satisfaction because it made it easier for customers to see the service history and subsequent periodic services easily.

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