Workshop Marketplace System Using Rajaongkir API, Leaflet API and Midtrans Payment Gateway

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Abstract

The automotive shop is a business engaged in the automotive sector that serves vehicle repairs and sales of various kinds of vehicle spare parts. A marketplace is a place for buying and selling or a market that uses internet media. The current marketplace is still very common, making it difficult to find a marketplace that focuses on the automotive sector and difficult to find information about available automotive shops around. The automotive shop marketplace system can help to carry out the process of buying and selling vehicle spare parts and assist in finding various spare parts and information about available automotive shops based on the user's location. This system was developed on a web-based basis using the PHP programming language with the Laravel framework and integrated with the Leaflet API, RajaOngkir API, and Midtrans Payment Gateway as additional features in creating a marketplace. The leaflet API displays a map containing the location of the automotive shop listed on the marketplace. RajaOngkir API provides information about shipping costs to the buyer's place from the seller's place. Midtrans Payment Gateway bridges the payment process carried out by both parties so that it can take place properly. The method used in this research is to use the System Development Life Cycle (SDLC) waterfall method. The results of the research conducted were tested using the black-box method.

Keywords: Marketplace, Workshop, Midtrans Payment Gateway

1. INTRODUCTION

The internet is a very influential factor in developing a business. The business of buying and selling vehicle spare parts carried out by the workshop is still done directly through physical stores (Awali, 2020; Ezenwoke & Adigun, 2021). This can limit the dissemination of information about spare parts, which results in a limited range of sales markets. Sales media that are only carried out through physical stores are ineffective in this era of globalization. The application of technology in buying and selling vehicle spare parts...
by designing a workshop marketplace system for workshops selling vehicle spare parts (Armanda et al., 2019; Arta et al., 2022; Martini, 2017). There is an impact of Covid-19 on business actors, especially the micro sector and small and lower medium-scale traders (Suparman et al., 2021). The waterfall method consists of system preparation, system analysis, system scheme, system implementation, system experiments and system maintenance (Komalasari & Solikin, 2018; Setyawan & Atapukan, 2018). The system's design is depicted in the form of use case diagrams and activity diagrams. A marketplace focuses on MSME players, especially the micro sector affected by the Covid-19 outbreak. Design a photo and video service ordering marketplace (Pratama Yudha et al., 2020). This system is created due to the lack of information when looking for a photo and video documentation services and the minimum of market coverage for service providers (Ade et al., 2017).

The development of this research uses the Agile method with the Extreme Programming model. The design of the system is depicted in the form of a context diagram. The results of this study are in the form of a marketplace used to order wedding photo and video documentation services with features of managing documentation results and work schedules (Armanda et al., 2019; Ezenwoke & Adigun, 2021; Regards, 2020). Designing a marketplace to participate in enlivening the potential of the e-commerce market or online store in the Indonesian market (Ridwan et al., 2021). The development of this research uses the SDLC methodology, which has structured stages of system planning, system analysis, system design, system implementation, system testing and system maintenance. A marketplace is a place to make it easier for sellers or store owners in the field of computers, gadgets, electronic games, and the like to market their products (Ezenwoke & Adigun, 2021). Designing a marketplace application used for private tutoring service providers in Pontianak City. The design of this system was carried out because the search for tutors took a long time, it was challenging to find the appropriate location and time between prospective tutors and students, as well as a lack of information about the tutor's competence. The design of this marketplace system is carried out using the waterfall method with the Laravel framework. System design is depicted as system architecture design and uses case diagrams. The final result of this study is in the form of a private tutoring service marketplace application in Pontianak City with social media integration using the OpenGraph API and WebPush using the OneSignal API. The design of this system is carried out to help expand marketing and efforts to increase sales volume for MSMEs of Lampung's unique handicrafts (Setiawan & Widodo, 2021). The system's design is depicted with use case diagrams and activity diagrams. E-marketplace, which is then analyzed by the ISO 9126 feasibility analysis method.

2. METHODS

The research was conducted at the Bukit Jimbaran Campus, Information Technology Program, Faculty of Engineering, Udayana University, from August 24, 2021, until December 23, 2021. The methodology used in the research of the Workshop Marketplace System was to use the development of the SDLC (Development Life Cycle System) waterfall method. The waterfall model was widely used in designing, building and developing information systems. Waterfall models are often also called sequential linear models or classic cycles. This method consists of 6 stages: analysis, design, coding, testing, implementation and maintenance, as presented in Figure 1.
The stages of the SDLC (System Development Life Cycle) method with the waterfall method consisted of 5 processes used in making a workshop marketplace system. The first stage began with the analysis stage by determining the needs in the system's design. This stage was carried out by observation, problem analysis and literature study. Literature studies allow data collection to be carried out by collecting, combining and analyzing information in books or literature. The second stage was the design stage. This stage involved an overview, PDM (Physical Data Model), and system interface design. Design stages were needed to adapt the system to the needs. The third stage was writing code or coding. In this stage, the author carries out the implementation process of the system design that had been made and followed the system needs analysis. The fourth stage was the testing or testing stage carried out using the black box method. Black box testing was carried out by testing inputs and outputs on the system that had been created without looking at the program code. The fifth stage was the stage of launching the system after the black box testing was completed. The maintenance stage was a maintenance stage that was carried out if bugs, errors, or business process design errors were found.

3. RESULT AND DISCUSSION

Result

The workshop marketplace system research results were in the form of interfaces that have been applied to web applications. The interface on the workshop marketplace system consists of 6 interface menus. The dashboard interface was an interface that displays a list of spare parts sold in the marketplace by registered workshops. The marketplace dashboard interface is presented in Figure 2.
The dashboard interface displayed a list of spare parts sold on the marketplace by registered workshops. The dashboard menu displayed some of the latest and best-selling spare parts in Figure 3.

**Figure 3. Cart Menu Interface**

The Cart interface was used to accommodate purchased spare parts before checkout. The cart menu allows users to change the number of spare parts purchased.

**Figure 4. Maps interface**

The map interface (Figure 4) displayed a list of workshops located around the users of the workshop marketplace system. The view of the map used made use of the Leaflet API.

**Figure 5. Checkout Interface**
The Checkout interface (Figure 5) was used to purchase spare parts. The purchase of spare parts required information from the recipient and the calculation of shipping costs that utilize the RajaOngkir API.

Figure 6. Payment Menu Interface

The payment menu interface (Figure 6) displayed a QR code that can be used to pay through the GoJek application. This payment menu utilized Midtrans Payment Gateway so that it allowed payments to be verified automatically. Testing of the workshop marketplace system was carried out using the black box method by paying attention to the inputs and outputs of the system. The test results are presented in Table 1.

Table 1. The test results are presented

<table>
<thead>
<tr>
<th>Activity</th>
<th>Test Scenarios</th>
<th>Expected Result</th>
<th>Result</th>
<th>Conclusion</th>
</tr>
</thead>
</table>
| Add the spare parts to the cart | - Go to the dashboard page  
- Choose spare parts  
- Press add to cart | Successfully added spare parts to the cart | Fulfilled | Successful |
| Spare parts checkout      | - Go to the cart page  
- Press the checkout button  
- Choosing a shipping package  
- Press the submit button | Successfully selected the delivery package and successfully checkout the purchase | Fulfilled | Successful |
| Booking Payment           | - Go to the payment page  
- Choosing a payment method  
- Pressing the pay now button | Successfully displayed the payment QR code and successfully verified the payment | Fulfilled | Successful |
| See Nearby Workshop       | - Go to Dashboard Page  
- Tap the maps menu | Successfully display the map along with the workshops around the user | Fulfilled | Successful |

Testing the workshop marketplace system using the black box method is carried out with 4 aspects of testing that get the results of each test, namely success.
Discussion

The development of this research uses the Agile method with the Extreme Programming model. The design of the system is depicted in the form of a context diagram. The results of this study are in the form of a marketplace used to order wedding photo and video documentation services with features of managing documentation results and work schedules (Armanda et al., 2019; Ezenwoke & Adigun, 2021; Regards, 2020). Designing a marketplace to participate in enlivening the potential of the e-commerce market or online store in the Indonesian market (Ridwan et al., 2021). The development of this research uses the SDLC methodology, which has structured stages of system planning, system analysis, system design, system implementation, system testing and system maintenance. A marketplace is a place to make it easier for sellers or store owners in the field of computers, gadgets, electronic games, and the like to market their products (Ezenwoke & Adigun, 2021). Designing a marketplace application used for private tutoring service providers in Pontianak City. The design of this system was carried out because the search for tutors took a long time, it was challenging to find the appropriate location and time between prospective tutors and students, as well as a lack of information about the tutor's competence. The design of this marketplace system was carried out using the waterfall method with the Laravel framework. The system design was depicted as a system architecture design and used case diagrams. The final result of this study is in the form of a private tutoring service marketplace application in Pontianak City with social media integration using the OpenGraph API and WebPush using the OneSignal API. This system's design is carried out to help expand marketing and efforts to increase sales volume for MSMEs of Lampung handicrafts (Setiawan & Widodo, 2021).

4. CONCLUSION

The conclusion that can be drawn from the workshop marketplace system research is that this research aims to overcome current marketplace problems, such as the lack of focus on the marketplace field and the difficulty of obtaining information about the surrounding workshops. The research results in the form of a workshop marketplace system tested with the black box method showed that the entire menu could normally run without errors/bugs.

5. REFERENCES


