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

Ketut Nila Arta[1*], A. A Kompiang Oka Sudana[2], Gusti Agung Ayu Putri[3] iD

[1,2,3] *Universitas Udayana, Badung, Indonesia*
*Corresponding author: ketutnilaarta@gmail.com

Abstrak

Bengkel merupakan sebuah usaha yang bergerak pada bidang otomotif yang melayani perbaikan kendaraan dan penjualan berbagai macam sparepart kendaraan. Marketplace merupakan tempat jual beli atau pasar yang menggunakan media internet. Marketplace yang ada saat ini masih sangat umum, sehingga sulit untuk menemukan marketplace yang fokus dengan bidang otomotif serta sulit untuk menemukan informasi mengenai bengkel yang tersedia di sekitar. Sistem marketplace bengkel dapat membantu untuk melakukan proses jual beli sparepart kendaraan dan membatu dalam menemukan berbagai sparepart serta informasi mengenai bengkel yang tersedia berdasarkan lokasi pengguna. Sistem ini dikembangkan dengan berbasis web yang menggunakan bahasa pemrograman PHP dengan framework Laravel serta diintegrasikan dengan Leaflet API, RajaOngkir API, dan Midtrans Payment Gateway sebagai fitur tambahan dalam pembuatan marketplace. Leaflet API digunakan untuk menampilkan peta yang memuat lokasi dari bengkel yang terdaftar pada marketplace. RajaOngkir API digunakan untuk memberikan informasi mengenai ongkos kirim ke tempat pembeli dari tempat penjual. Midtrans Payment Gateway digunakan untuk menjembatani proses pembayaran yang dilakukan oleh kedua belah pihak sehingga dapat berlangsung dengan baik. Metode yang digunakan dalam penelitian ini yaitu dengan menggunakan System Development Life Cycle (SDLC) metode waterfall . Hasil penelitian berupa sistem marketplace bengkel yang diuji dengan metode black box mendapatkan hasil yaitu seluruh menu dapat berjalan dengan normal tanpa error/bug.

Keywords: Marketplace, Bengkel, Midtrans Payment Gateway

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
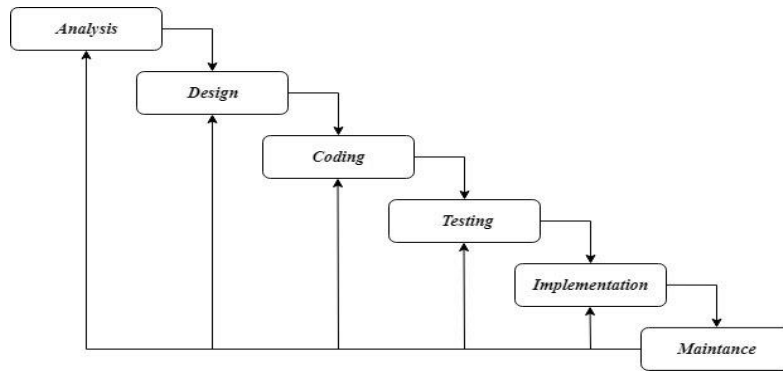
by designing a workshop marketplace system for workshops selling vehicle spare parts (Armanda et al., 2019; Arta et al., 2022; Martini, 2017). There is an impact of Covid-19 on business actors, especially the micro sector and small and lower medium-scale traders (Suparman et al., 2021). The waterfall 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.

Figure 1. Stages of the SDLC Waterfall Method

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.


Figure 2. Marketplace Dashboard Interface

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.
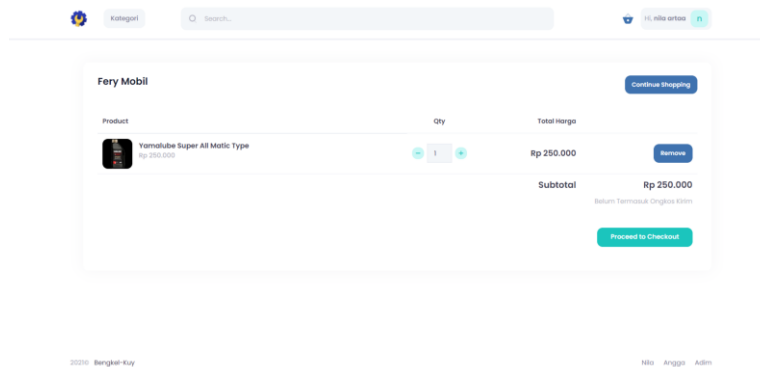

Figure 3. Cart Menu Interface

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.
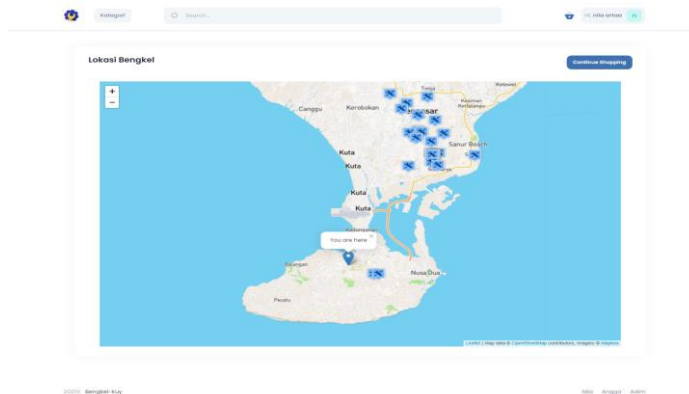
Figure 4. Maps interface

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.
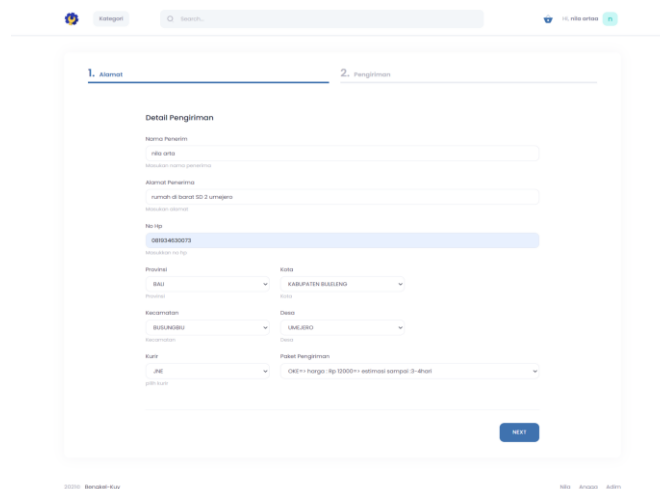
Figure 5. Checkout Interface

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.
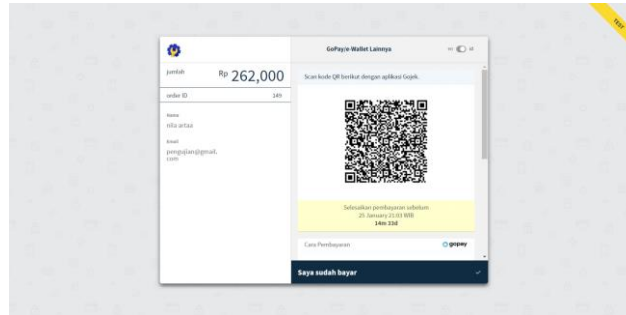

Figure 6. Payment Menu Interface

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

Activity	Test Scenarios	Expected Result	Result	Conclusion
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

Ade, L. P. K., Akanbi, A. M., & Tubosun, A. I. (2017). The Influence of Marketing Intelligence on Business Competitive Advantage (A Study of Diamond Bank Plc). *Journal Of Competitiveness*, *9*(1), 51 – 71. https://doi.org/10.7441/joc.2017.01.04.

Armanda, R., Supomo, H., & Baihaqi, I. (2019). Desain Aplikasi Website HUB Marketing Berbasis E-Marketplace untuk Pemasaran Produk Kapal dan Komponennya. *Jurnal Teknik ITS*, *81*(1), G1–G5. https://doi.org/10.12962/j23373539.v8i1.41908.

Arta, K. N., Sudana, A. K. O., & Putri, G. A. A. (2022). Sistem Marketplace Bengkel Terintegrasi Berbasis Web. *Smart Comp: Jurnalnya Orang Pintar Komputer*, *11*(2), 257–269. https://doi.org/10.30591/smartcomp.v11i2.3508.

Awali, H. (2020). Urgensi Pemanfaatan E-Marketing Pada Keberlangsungan UMKM di Kota Pekalongan di Tengah Dampak Covid-19. *BALANCA : Jurnal Ekonomi Dan Bisnis Islam*, *2*(1), 1–14. https://doi.org/10.35905/balanca.v2i1.1342.

Ezenwoke, A., & Adigun, M. (2021). Integrating fuzzy theory and visualization for QoS-aware selection of SaaS in cloud e-Marketplaces. *Cogent Engineering*, *8*(1). https://doi.org/10.1080/23311916.2021.1911592.

Komalasari, D., & Solikin, I. (2018). Penerapan Aplikasi Mading Digital Berbasis Web Pada MA. Miftahul Huda Kabupaten OKI. *Jurnal Sistem Informasi (JUSIFO)*, *4*(1), 27–36.

http://jurnal.radenfatah.ac.id/index.php/jusifo/article/view/2443.

Martini, D. (2017). Rancang Bangun E-Marketplace Hortikultura Berbasis Web (Studi Kasus: Kabupaten Barito Kuala). *Phasti: Jurnal Teknik Informatika Politeknik Hasnur*, *3*(2), 40–48. https://doi.org/10.46365/pha.v3i02.203.

Pratama Yudha, I. P. W. C., Suarjaya, I. M. A. D., & Raharja, I. M. S. (2020). Rancang Bangun Marketplace Pemesanan Jasa Dokumentasi Foto dan Video Pernikahan Berbasis Web. *Techno.Com*, *19*(4), 468–480. https://doi.org/10.33633/tc.v19i4.3947.

Ridwan, M., Fitri, I., & Benrahman, B. (2021). Rancang Bangun Marketplace Berbasis Website menggunakan Metodologi Systems Development Life Cycle (SDLC) dengan Model Waterfall. *Jurnal JTIK (Jurnal Teknologi Informasi Dan Komunikasi)*, *5*(2), 173. https://doi.org/10.35870/jtik.v5i2.209.

Salam, M. A. K. (2020). Perilaku Produksi di Tengah Krisis Global Akibat Pandemi Covid-19 dan Memanfaatkan Media Online Facebook Sebagai Alternatif Pasar. *Ekonomi, Manajemen Dan Akuntansi*, 1–21. http://eprints.umsida.ac.id/id/eprint/6834.

Setiawan, G., & Widodo, T. (2021). Rancang Bangun E-Marketplace Untuk Penerapan Web Responsive UMKM Kerajinan Khas Lampung. *Jurnal Edukasimu*, *1*(1), 1–11. http://edukasimu.org/index.php/edukasimu/article/view/3.

Setyawan, R. A., & Atapukan, W. F. (2018). Pengukuran Usability Website E-Commerce Sambal Nyoss Menggunakan Metode Skala Likert. *Compiler*, *7*(1), 54–61. https://doi.org/10.28989/compiler.v7i1.254.

Suparman, K., Triayudi, A., & Andrianingsih. (2021). *Rancang Bangun Marketplace pada UMKM Terimbas Pandemi Covid-19 menggunakan Metodologi Pengembangan Waterfall dan Metode FIFO*. *6*(1).