International Journal of Research and Review
Volume 11; Issue: 8; August 2024
Website: www.ijrrjournal.com
E-ISSN: 2349-9788; P-ISSN: 2454-2237
Research Paper

Designing a Photography and Videography Booking Website (Dizeto) Using Agile Software Development Method with Next.js Framework

Tedjo Darmanto[1], Desi Suci Nopianti[2], Fajrian Nugraha[3], Gede Dewo Wahyu Mustika Wiwaha[4], Intan Meilanie Nugraha[5], Muhammad Irfan Febrianto[6]

[1,2,3,4,5,6]Informatics Engineering, Universitas Islam Nusantara, Bandung, Indonesia

Corresponding Author: Dr. Tedjo Darmanto, M.T.

DOI: https://doi.org/10.52403/ijrr.20240848

ABSTRACT

This research aims to design a web-based photography and videography service ordering system that makes it easier for consumers and service providers to carry out transactions. The Agile Software Development method was used in developing this system. Research data was obtained through a survey of 40 respondents consisting of consumers and service providers. The results of data analysis show that the majority of respondents, with an average support of 78.6%, stated that they agreed or strongly agreed that developing an online photography and videography services ordering application would be useful. The highest percentage of support was seen in the aspect of providing more choices of service providers (94.3%) and the tendency to use the platform in the future (100%). With this data, it can be concluded that the development of online ordering applications for photography and videography services has strong support from potential users, both consumers and service providers. These findings indicate that there is a large market need for this application. The resulting system is expected to increase efficiency and transparency in ordering photography and videography services.

Keywords: Photography, Videography, Ordering, System Design, Agile Software Development

INTRODUCTION

The photography and videography industry has grown rapidly, as the demand for high-quality visual content for various purposes increases. Even though there are many photography and videography service providers, the ordering and project management process is still often done conventionally, takes time and is less efficient. Lack of transparency in pricing, availability schedules, and portfolio also poses challenges for customers.

To overcome this problem, the author designed a website called "Dizeto", which is an integrated and easy to use photographer and videographer booking platform. Dizeto will work with freelancers or photography and videography workers to provide flexibility and variety in service offerings to customers. Through the various service packages offered, customers can choose according to their needs and budget.

The development method chosen is Agile Software Development using the Next.js framework. This method was chosen because of its flexibility which allows us to respond quickly to changing user and market needs.

In this case study of ordering photography and videography, it is hoped that Dizeto can be the best solution for ordering photography and videography services online, providing a satisfying experience for users, and supporting the development of the photography and videography industry in Indonesia.

Referring to the description above, the author is interested in conducting research with the title **" Designing a Photography and Videography Booking Website (Dizeto) Using Agile Software Development Method with Next.js Framework".**

In this research, several references were taken from various previous studies to provide an overview of developments and innovations in photography service ordering platforms.

Research conducted by Faizal, M., Indriani, R., & Fajriyah, N. (2020). The impact of website design on customer satisfaction in the photography industry. International Journal of Engineering & Technology, 9(4.1), 337-343. This research investigates the impact of website design on customer satisfaction in the photography industry [1]. Research Yuliani, S., Nurhayati, I., & Indriani, R. (2020). Enhancing user experience of photography websites through responsive web design. International Journal of Advanced Computer Science and Applications, 11(1), 1-6. This article investigates how responsive web design can improve user experience on photography websites [2]. Gupta, A. K., & Sharma, M. K. (2019). An online platform for booking photography services. International Journal of Advanced Computer Science and Applications, 10(8), 1-6. This journal discusses the concept of an online platform specifically designed for ordering photography services [3].

Doshi, M., Hussain, M., & Sun, M. (2020). Agile methods for the development of mobile health applications: A systematic review. Information and Software Technology, 62(1), 102083. This study conducted a systematic review to examine Agile methods used in mobile health application development [4]. Verner, J. M., & Dingsoyr, T. (2021). The impact of agile software development on employee engagement: A meta-analysis. Information and Software Technology, 132, 102332. This study conducted a meta-analysis to examine the impact of Agile software development on employee engagement [5].

Sarker, S., & Deshmukh, P. (2019). Design and Development of a Mobile Application for Online Appointment Booking and Service Delivery. International Journal of Mobile Human-Computer Interaction, 13(2), 1-17. This research looks at the process of designing and developing a mobile application for booking appointments and online services [6]. Vidro, M., & Basili, V.R. (2020). Designing User-Friendly Websites for Service Booking: A Case Study of a Home Cleaning Service. International Journal of Human-Computer Interaction, 36(12), 1133-1150. This research focuses on designing a user-friendly website for booking services, using a case study of a home cleaning service [7].

De Giorgio, V., & Licastro, D. (2023). Next.js: A modern React framework for high-performance, SEO-friendly web applications. Journal of Web Engineering, 29, 100679. This article provides a comprehensive overview of Next.js, including its architecture, features, and benefits. This article also discusses some best practices for building web applications with Next.js [8].

MATERIALS & METHODS

In this research, the system to be built is website-based and developed using the Agile Software Development method.

The Agile Software Development method is a management method for developing a project for continuous improvement in software [9]. This method was chosen because of various development principles that are easy to adapt to various forms of change that occur in a relatively short time.

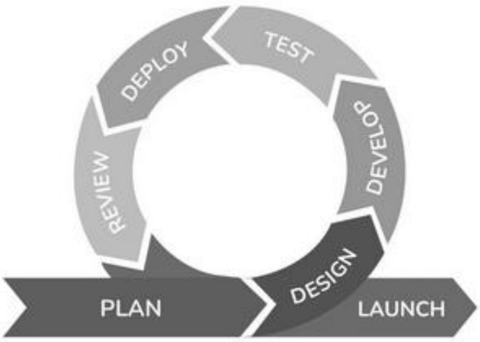

Figure 1. Agile Software Development

Agile Method Development Stages.

1. Planning: This stage is carried out to identify problems and gather needs. The main problem is the process of ordering and managing photo or video projects which still uses conventional methods. There is a lack of transparency regarding pricing, availability schedules, and service provider portfolios. Some online platforms also do not provide a good ordering experience for customers. Data was collected from interviews and questionnaires with 40 respondents, including users and providers of photography and videography services in Bandung. Key features required include vendor portfolio views, online communications, service package options, project scheduling, payment systems, and project status.
2. Design: At this stage, planning is implemented by designing the solution that will be implemented. This includes modeling workflows and system structures using UML diagrams. The user interface (UI) design is also structured so that users can interact with the system intuitively. All these designs are created keeping in mind user needs and project goals.
3. Develop: This stage is the process of implementing the design that has been created into program code using the JavaScript programming language for the front-end, by utilizing the React.js library and the Next.js framework. For data integration, the Golang programming language is used in the back-end. This is done to ensure that the system can operate smoothly and in accordance with user needs.
4. Testing: This stage is carried out to ensure all features function properly. Testing was carried out manually using the black box method. The aim is to ensure that if an error occurs on the website during use, the cause can be easily found on the production server.
5. Deploy: Rolling out software to a production environment or end users. At this stage, the system is prepared and made available to end users, namely Dizeto Admin and Customers. Relevant domain names are determined and suitable hosting is sought to optimize project performance and security. Monitoring and verification is carried out during the deployment process to ensure everything runs smoothly.
6. Review: At this stage, an evaluation is carried out on the results of developments that have been carried out to improve processes and products in the future. Sprint reviews are held periodically to get feedback from stakeholders and the development team. This feedback is used for improvements and improvements in the next sprint, so that the project can continue to develop according to expectations.

The research methodology used in this research contains a framework used to solve problems, namely as follows:

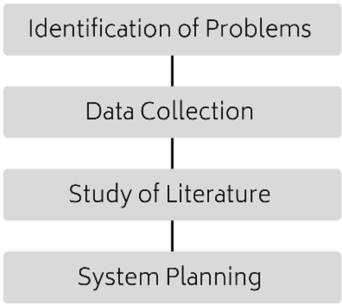

Figure 2. Research Framework

1. Identification of problems

This stage is used to identify problems and collect various information related to the case study being carried out. The main problems in this research are the ordering process and project management which is still carried out conventionally, the lack of transparency in terms of prices, availability schedules and service provider portfolios, as well as the inability of several online platforms to provide an efficient and satisfying ordering experience for customers.

In today's digital era, many individuals and companies seek the services of photographers and videographers through online platforms. Even though there are currently many photography and videography service providers, the ordering process is still carried out conventionally. Based on a survey conducted, 55.9% of people agreed that the conventional method of ordering photographer and videographer services is currently less efficient. The manual booking process requires customers to contact photographers by phone or email to inquire about availability, determine event details, and come to an agreement on price and services provided. This process generally takes around 30-60 minutes or even several hours depending on the complexity of the event.

This shows the need for an ordering platform that is integrated, easy to use, and can meet user needs quickly, easily and safely. To overcome this problem, there needs to be an ordering platform that is integrated and easy for users to use. The booking process through our website allows customers to view the photographer's portfolio, select dates, available package options and make payment online in less than 15 minutes. Dizeto will be the right solution for those who need photographer and videographer services in a fast, easy and safe way.

2. Data collection

At the data collection stage, we used two main techniques, namely interviews and questionnaires. Interviews were conducted to gain a deeper understanding of the respondents' direct experiences and views. We also used a questionnaire which was distributed to a minimum of 30 respondents with various backgrounds, both photography and videography service users, as well as photography and videography service providers in Bandung.

3. Study of literature

At this stage, data collection is carried out by reading and studying various books, journals and knowledge related to the problem to be studied, namely the Photography and Videography Services Ordering System.

4. System planning

System design is the process of transforming system requirements that have been analyzed in the previous stage into detailed and complete system specifications [10]. The system design itself is usually described using the Unified Modeling Language (UML).
UML (Unified Modeling Language) is a visual modeling language used to create diagrams and models that represent software systems.
The following are some diagrams used in UML including:

a. Use Case Diagrams

Use case diagrams are workflows that describe interactions between actors and systems to achieve certain goals [11]. Use

Case Diagrams provide a visual representation of how the system is used and help in understanding functional requirements.

b. Activity Diagrams

Activity diagrams are UML diagrams used to model the workflow of a business process. Activity diagrams show the sequence of activities that occur in a process, the decisions that may be taken, and the flow of data between these activities [12]. Activity Diagrams are useful for modeling business processes, workflows in systems, and control flow logic.

c. Class Diagrams

Class diagrams are used to describe the basic differences between classes, the relationships between classes, where the class sub-systems are. In the class diagram there are class names, attributes, operations, and associations (relationships between classes) [13]. This diagram is used to describe the static structure of an object-based system.

d. Sequence Diagrams

A sequence diagram is a visual representation used in software engineering, especially in the Unified Modeling Language (UML), to describe interactions between objects in a system chronologically. This diagram shows how objects interact with each other over a certain time series to achieve a certain goal.

RESULT

1. Survey Data Analysis

The results of survey data involving 40 respondents consisting of consumers and service providers, it can be concluded that the majority of respondents support the creation of an online photography and videography service ordering application. The following is a table showing the percentage of respondents' agreement with the creation of the system:

Table 1. Research Data

Question	Choice	Percentage
Agree that the conventional method of ordering photographer and videographer services is currently less efficient	Strongly agree	2.86%
	Agree	51.43%
	Don't agree	40.00%
	Strongly Disagree	5.71%
Agree that transparency in prices, availability schedules, and portfolios of photography and videography service providers is currently inadequate	Strongly agree	14.29%
	Agree	62.86%
	Don't agree	22.86%
Agree that the online booking experience can provide more choices for photography and videography service providers	Strongly agree	31.43%
	Agree	62.86%
	Don't agree	5.71%
Agree that an online booking experience can help manage schedules more efficiently	Strongly agree	22.86%
	Agree	60.00%
	Don't agree	17.14%
May use online booking platforms for photography and videography services in the future	Very likely	57.14%
	Possible	42.86%
	Impossible	0.00%
Agree that using an online ordering platform can help reach more potential customers (service providers)	Strongly agree	11.43%
	Agree	51.43%
	Don't agree	0.00%

Based on the survey results, the average percentage can be calculated as follows;

$$\boldsymbol{Total\ Percentage} = 54.29\% + 77.15\% + 94.29\% + 82.86\% + 100.00\% + 62.86 = \mathbf{471.75}\%$$

$$\boldsymbol{Average\ Percentage} = \frac{471.45\%}{6} = \mathbf{78.58}\% \approx \mathbf{78.6}\%$$

The majority of respondents, with an average support of 78.6%, stated that they agreed or strongly agreed that developing an application for ordering photography and videography services online would be useful. The highest percentage of support is mainly seen in aspects that provide more choices of service providers (94.3%) and the tendency to use the platform in the future (100%). With this data, it can be concluded that the development of online ordering applications for photography and videography services has strong support from potential users, both consumers and service providers.

Based on the results of the questionnaire, there are several obstacles in ordering photography and videography services, including:

a. Unclear pricing and service packages.
b. Limited schedule information available.
c. Obstacles in communication with service providers.
d. Lack of information regarding the service provider's portfolio

The combination of these two techniques is expected to provide sufficient information for further analysis in our study.

2. Job Process

In the work stage, there are several important points that need to be made in creating a website-based photography and videography service ordering system, including:

a. Current System Analysis

The following is an analysis of the system currently running on the Photography and Videography Services Ordering website (Dizeto).

See image number 3 (Attachment)

b. Functional Requirements Analysis

Functional requirements are requirements that explain what the system must do, what functions the system must provide, and how the system must react to input from the user. These requirements determine the basic functionality of the system and what the system must achieve [14].

1) Register Function: Allows new users to create an account by filling in information such as name, email, and password.
2) Login Function: Allows registered users to log in to their account using email and password.
3) Portfolio Highlights Function: Showcase users' featured projects or best work on their profile or portfolio page.
4) Pricing Function: Provides information about the various price packages or services offered, and allows users to select and pay for the desired package.
5) Counting Function: Calculates and displays statistical data such as the number of projects, users, or transactions that have been carried out.
6) Testimonial Function: Displays reviews and feedback from other users about their experiences using services or products.

c. Non-Functional Requirements Analysis

Non-functional requirements are requirements that describe how the system works, not what the system does. These needs are related to system quality, such as performance, security, and scalability. Non-functional requirements determine how the system should meet user expectations in terms of performance, reliability, and ease of use [15].

1) Hardware

Table 2. Hardware Requirements

No	Device	Specification
1	Laptop	-Prosesor intel core i5-1135G7 - Memory 8192 MB - SSD 500
2	Server	Procesor minimum2,4 ghz 4 Core RAM 8 GB Storage 200 GB

2) Software

Table 3. Software Requirements

No	Tool	Information
1	Code Editor	Visual Studio Code
2	Runtime Environtment	Node JS
3	Javascript Framework	Next Js
4	Version Control	Github
5	Backend Programming	Go Language
6	FE Platform Cloud	Vercel
7	BE Platfrom Clound	Railways

d. UML Diagrams

1) Use Case Diagrams
   See image number 4 (Attachment)
2) Activity Diagrams
   a) Activity Diagram Register
      See image number 5 (Attachment)
   b) Activity Diagram Login
      See image number 6 (Attachment)
   c) Order Activity Diagram
      See image number 7 (Attachment)
   d) Payment Activity Diagram
      See image number 8 (Appendix
   e) Activity Diagram Manage Packages (Admin)
      See image number 9 (Attachment)
3) Class Diagrams
   See image number 10 (Attachment)
4) Sequence Diagrams
   a) Sequence Diagram Registers
      See image number 11 (Attachment)
   b) Login Sequence Diagram
      See image number 12 (Attachment)
   c) Ordering Sequence Diagram
      See image number 13 (Attachment)
   d) Payment Sequence Diagram
      See image number 14 (Attachment)

3. Working result

a. Customer View

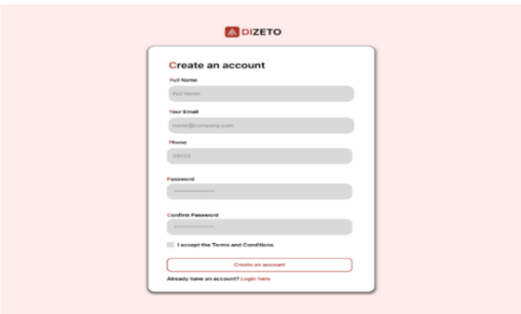

Figure 15. Register Page

The image is a view of the register page. The registration page functions to collect user data, verify identity, provide access to special features, protect security and privacy, and personalize services based on the information provided.

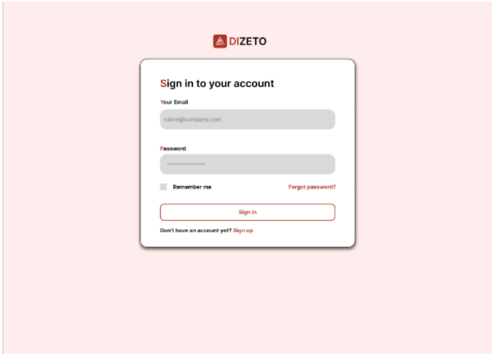

Figure 16. Login Page

The login page serves to authenticate users by asking them to enter credentials, such as email and password, to ensure that only authorized users can access their accounts and data within an application or website.

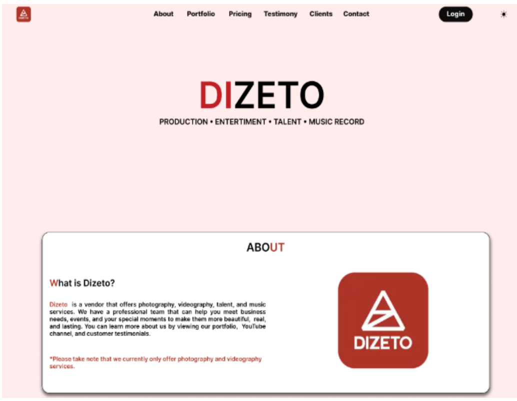

Figure 17. About page

The "About" page on the Dizeto website also functions as a home page, providing comprehensive information about what Dizeto is. There is intuitive navigation that allows users to explore every available feature, ensuring an easy and informative experience when using the website.

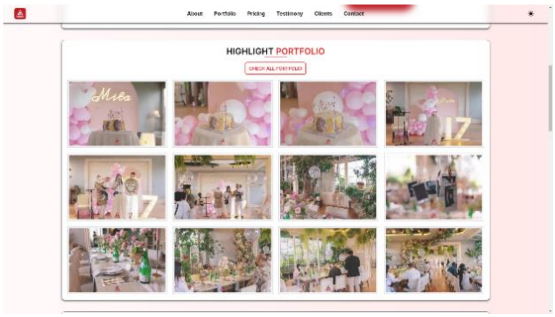

Figure 18. Portfolio Highlights Page

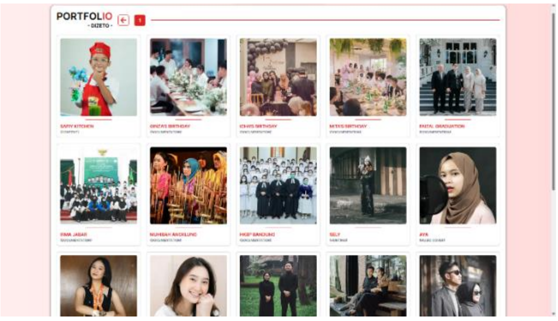

Figure 19. Portfolio List Page

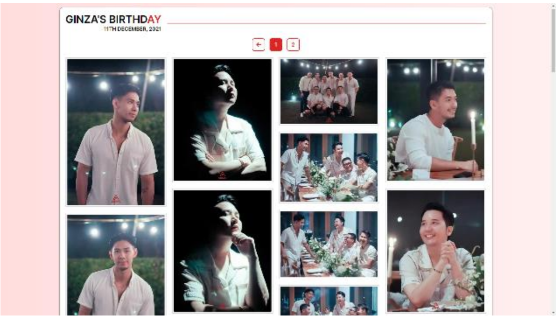

Figure 20. Portfolio Section Page

These images show the photographer's portfolio which contains a series of photographic works that show his photography skills, style and expertise. So consumers can see the consistency of the photographer's work over a longer period of time.

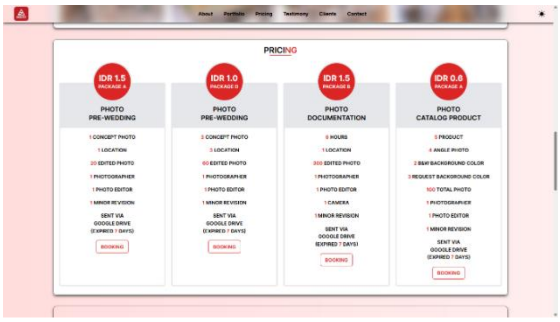

Figure 21. Pricing Page

The pricing page displays available photography package options, allowing customers to choose a package that suits their needs. After selecting the desired package, customers can continue by selecting the appropriate payment method, so that the ordering process can be carried out smoothly and efficiently.

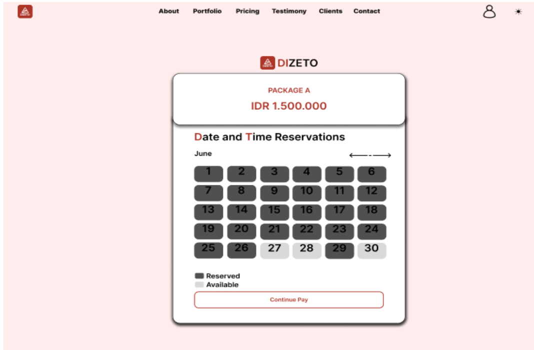

Figure 22. Booking Page (Select Date)

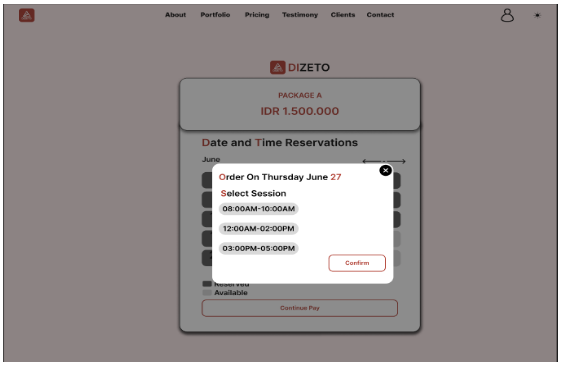

Figure 23. Booking Page (Select Hours)

The order page is designed to make it easier for customers to order the photography services they need. The order form is provided with columns that allow users to select the type of service desired, the date and time of the shoot, the location of the shoot, and fill in their contact information.

Figure 24 . Payment Page

Once users proceed to the checkout page, they will see a summary of the order along with the total price paid. This page is equipped with a payment form that provides various payment options, such as bank transfer or other payment methods.

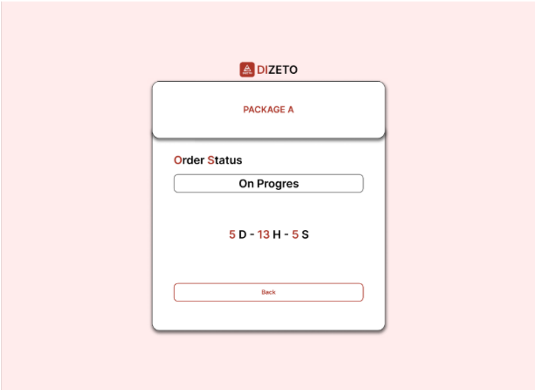

Figure 25. Order Status Page

After the user successfully makes a payment, this page will display the status of the order, whether the project is complete, pending, revised or still in process.

Additionally, users can also access their order history and status through their user account. On this page, users can view a list of previous orders along with their status (successful, in progress, or failed) to monitor the progress of their orders. In case of any questions or problems regarding the order, users can also contact customer service for further assistance.

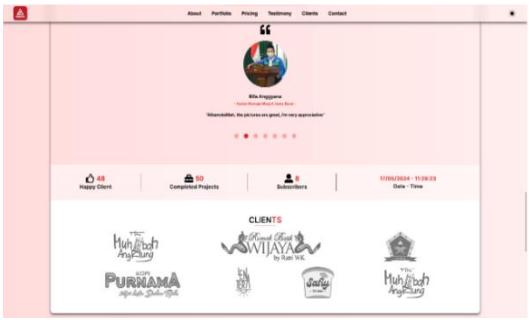

Figure 26. Testimonials Page

The Testimonials page displays reviews or feedback from previous clients regarding their experience working with the photographer. This gives consumers the opportunity to see how others have experienced the services offered, as well as helping them make more informed judgments before making a decision

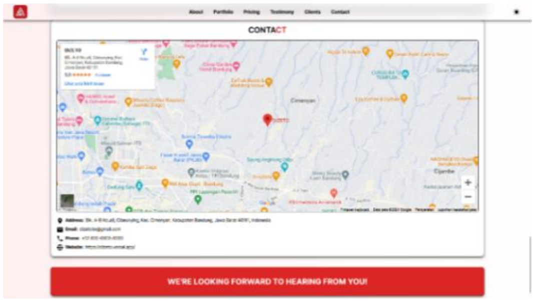

Figure 27. Contact Information Page

The image displays a contact page which presents complete information, including the physical office address, telephone number, email address, and contact information from the Dizeto office.

b. Admin View

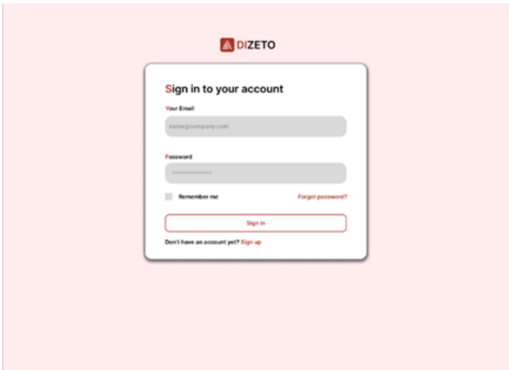

Figure 28. Admin Login View

The Login page serves to authenticate Admins by asking them to enter credentials such as email and password to ensure only authorized admins can access and manage data in the system.

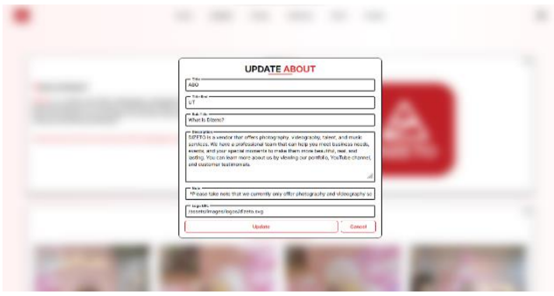

Figure 29. Edit About display

On this About page, the admin is able to update comprehensive information about Dizeto, such as the company description, mission, vision, and features available on the website.

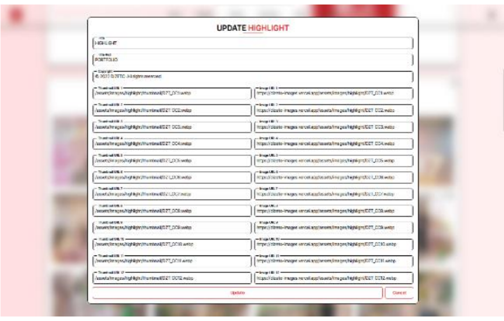

Figure 30. Edit Portfolio Highlights page

Admin can create and update photographer portfolios. This includes uploading new images, editing the portfolio description, and setting the portfolio display order.

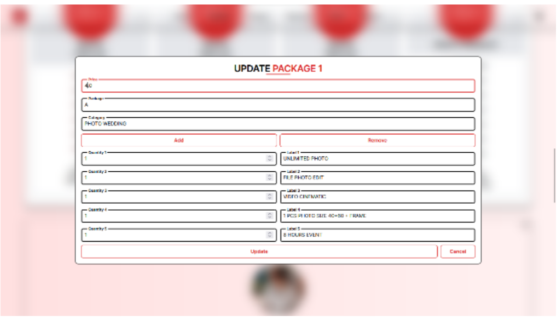

Figure 31. Edit Pricing Page

On this page the Admin can manage the price packages offered. Admins can add new packages, edit existing package details, and update prices according to the latest policies.

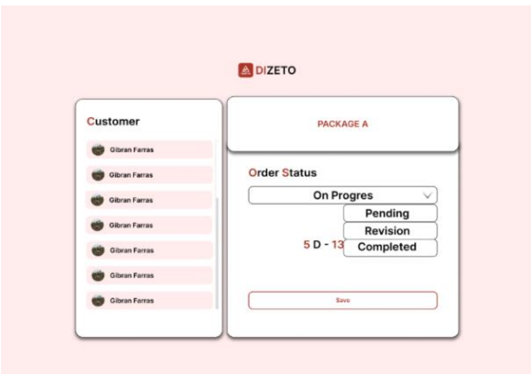

Figure 32. Order Page

On this page, Admin can view and process all photography service orders. Admin can update order status.

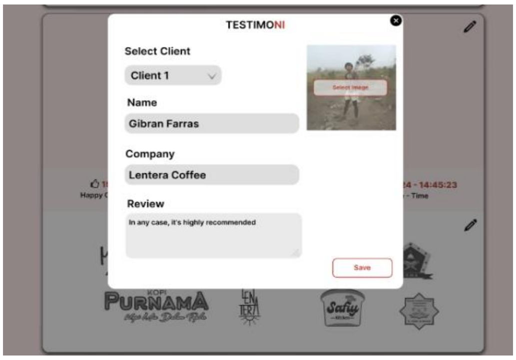

Figure 33. Testimonial & Client Edit Page

Admin can manage reviews or input from clients. This includes editing existing testimonials, displaying specific reviews on the main page, and editing clients.

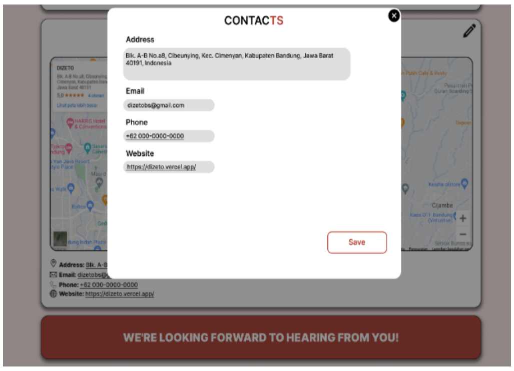

Figure 34. Edit Contact page

Admins can update the contact information displayed to users. This includes updating your office's physical address, phone number, email address, and other relevant contact information.

The admin has full control over every aspect displayed on the Dizeto website, ensuring that all information and services are always up-to-date and in accordance with user needs.

4. Testing

At the system testing stage, the Dizeto application was tested directly by the development team led by Gede Dewo Wahyu Mustika Wiwaha. Testing from the user side is carried out by the testing team using a dummy account.

The team ensures that features from the admin side, such as the about page, portfolio highlights, and testimonials, function well and can be managed efficiently. From the user side, testing is carried out using dummy data or by the team to ensure that the ordering and payment process runs smoothly. The ordering feature was tested to validate every step, from selecting photography/videography services to managing order status and integration with payment systems.

In addition, navigation and portfolio display as well as testimonial features were also tested to ensure the information displayed was in accordance with user needs. This testing is carried out to ensure that the Dizeto application not only functions properly but can also provide a satisfactory and safe user experience in every interaction they have with this platform.

No	Test Item	URL	Method	Total Testing	Total Test Successful	Total Failed Test
1	Login	/login	POST	10	9	1
2	Dashboard	/	GET	10	10	0
3	Highlight Portfolio	/	GET	10	10	0
4	Pricing	/	GET	10	10	0
5	Testimonial	/	GET	10	10	0
6	Contact	/	GET	10	10	0
7	Booking	/booking	POST	10	9	1
8	Payment	/payment	POST	9	9	1

Figure 35. Testing

CONCLUSION

This research succeeded in designing and developing a web-based photography and videography service ordering system, Dizeto, using the Agile Software Development method and the Next.js framework. The main findings include the majority of respondents' support for the development of online ordering applications for photography and videography services. The main problems identified were unclear pricing, limited schedule information, communication barriers, and lack of portfolio information. The Dizeto application provides benefits such as price transparency, ease of ordering, as well as increased efficiency and user experience. The use of Agile methods allows for rapid response to changing user needs, while the Next.js framework provides advantages in performance, SEO and ease of integration.

Future research could focus on developing additional features such as online payment integration, review and rating systems, and more sophisticated search features to improve application functionality. In addition, user experience (UX) testing is also an important opportunity, with deeper research into how users interact with the application, thereby increasing comfort and ease of use. This approach will not only enrich the features offered by Dizeto, but also ensure that the application contins to meet the needs and expectations of its users in the future.

Declaration by Authors

Acknowledgement: None

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

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How to cite this article: Tedjo Darmanto, Desi Suci Nopianti, Fajrian Nugraha, Gede Dewo Wahyu Mustika Wiwaha, Intan Meilanie Nugraha, Muhammad Irfan Febrianto. Designing a photography and videography booking website (Dizeto) using agile software development method with next.js framework. *International Journal of Research and Review*. 2024; 11(8): 450-461. DOI: *10.52403/ijrr.20240848*

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