



# Promotional Media Design for Dua Rasa River Tourism Negeri Gugung Village Using the Rapid Method Application Development

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## Abstract

Negeri Gugung Village, Sibolangit District, Deli Serdang Regency, has unique natural tourism potential in the form of the Dua Rasa River, which is known for the phenomenon of two river flows with different temperatures, namely cold and hot. Promotion carried out so far, such as installing banners and using social media such as Instagram and TikTok, is considered less effective in attracting the attention of tourists at large. To overcome these limitations, this research aims to design a website-based promotional media to expand the reach of information and increase tourist attraction to the Dua Rasa River tourist attraction. System development is carried out using the Rapid Application Development (RAD) method, which includes the stages of Requirement Planning, User Design, Construction, and Cutover. The designed website displays main features, including the home page, gallery, facilities, location, contact, and about sections. The system is also equipped with a special login feature for the admin to facilitate content management. The test results using the Black Box method indicate that all functions in the system operate correctly. This website is an informative, interactive, and easily accessible promotional medium, and has the potential to support the publication of the tourism potential of Sungai Dua Rasa more effectively and widely.

**Keywords:** *Dua Rasa River, promotional media, website, Rapid Application Development (RAD), Tourism*

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## 1. Introduction

The Tourism sector has an important role in encouraging economic growth in a region [1], this sector also contributes regional income and reduces unemployment, and also with the use of information technology in the tourism sector can encourage the regional economy and open business opportunities for the community environment, Tourism is one of the tourist destinations that has its own charm for visitors such as tourism in the area of North Sumatera [2]

North Sumatra, one of the provinces in Indonesia, is famous for its stunning natural beauty and a variety of enchanting natural tourist destinations. One area that offers interesting tourist attractions is Negeri Gugung Village, which is divided into two hamlets: Dusun I Negeri Gugung and Dusun II Negeri Suah. The village is located in Sibolangit district, Deli Serdang Regency. The natural tourism potential of this village is extraordinary, especially the Dua Rasa River tourist attraction which presents stunning natural beauty. Unfortunately, this potential has not been widely recognized due to the village's remote location and lack of promotional efforts. Until now, promotional media such as brochures, advertisements, and other supporting tools have not been available. This is due to the lack of public access to these tourist attractions, coupled with the condition of the area which is still classified as rural with limited technological advances and inadequate internet networks. The lack of effective promotional media is one of the inhibiting factors for tourists to know and visit the Dua Rasa River, therefore Dua Rasa River Tourism requires an effective promotional media that will help in attracting local and foreign tourists, in this study, the RAD method will be used to design promotional media for two flavors. *Rapid Application Development (RAD)* is a system development model that focuses on accelerating the process by involving users intensively. This model relies on rapid, iterative, and gradual prototyping to produce a working system that eventually develops into a final system [3]. the system to be built is web-based where this method has advantages in the process of making the system which is fairly fast but also has quite good results [4]. The RAD method has a number of advantages, one of which is in the *Requirement Planning* stage. Requirement planning does not require a long time because the development of information systems, such as websites, is carried out by adjusting the needs and desires of *users (users)* which can change at any time. This flexibility allows accelerating the development process to the next stage [5]. The design process will involve users in the design of the system. With the RAD method, development will be carried out iteratively and using prototypes, allowing active involvement from stakeholders and users to ensure that the resulting website truly meets the needs of Gugung Sungai Dua Rasa Village Tourism Promotion. Based on the above background, the authors are interested in conducting research with the title "Promotional Media Design for Dua Rasa River Tourism Negeri Gugung Village Using the Rapid Method Application Development".

## 2. Research methods

### 2.1. Problem analysis

The analysis of the problems that arise is related to promotion, which is still limited to word of mouth and the manager's personal social media. The following are the points of the problem analysis:

1. Promotion Limited to Word of Mouth Currently, the promotion of Sungai Dua Rasa still relies on the traditional method of word of mouth. Although this method is effective in building relationships and gaining loyal visitors, its scope is limited to the social environment or acquaintances of previous visitors. This results in a wider tourism potential that cannot be reached optimally.
2. Promotion Limited to Manager's Personal social media the manager uses personal social media to introduce Sungai Dua Rasa, but the promotion only covers the manager's personal circle of followers. Without the use of social media accounts dedicated to tourism promotion, the marketing campaign is difficult to reach a wider range of potential tourists, both geographically and demographically.
3. Limitations in Content and Information Shared Promotions through the manager's personal social media often do not include complete information about the tour such as facilities, atmosphere and visitor testimonials. The lack of detailed information can reduce the interest of potential tourists to visit due to the lack of transparency.

### 2.2. Analysis of methods used

The method used in the construction of the Dua Rasa River Tourism promotional website is *Rapid Application Development (RAD)*, which consists of four stages, namely [6]:

1. Requirements Planning  
Defines the main features: Home, Gallery, Facilities, Contact, Location, and About. Each page is designed to convey information in an informative manner, equipped with images, videos, icons, and interactive maps to make it easier for users to access tourist information.
2. User Design  
Focus on modern and responsive UI/UX using Figma. The design was tested directly by users and tourism managers, with positive feedback regarding ease of use and visual appeal. Layout is made device-friendly (desktop, tablet, smartphone).
3. Construction (System Development)  
The website was developed using Laravel Livewire and CodeIgniter, with the support of HTML, CSS, PHP, JavaScript technologies, and MySQL as a database. Wireframes were designed using Figma to guide implementation. Each feature, such as dynamic galleries, videos, and Google Maps, is built with interactive functions to support tourism promotion to the fullest.
4. Cutover (System Testing)  
Testing is done using the Blacbox method to ensure all login, navigation, gallery, facilities, contact, map, and about features function according to the sop standard.

### 2.3. Analysis of the proposed system

Analysis of the proposed system is modeled using Use Case Diagrams and Activity Diagrams.

1. Use Case Diagram

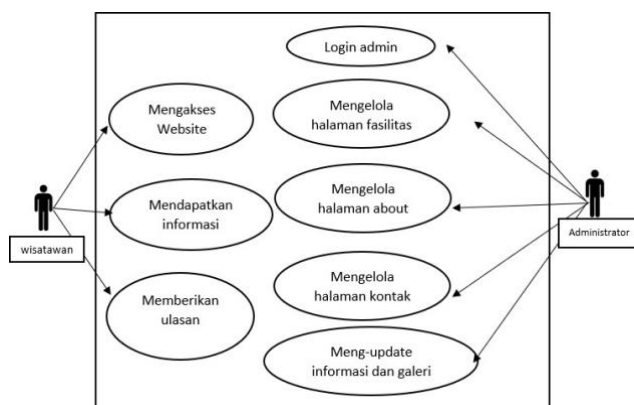


Fig. 1: Use Case Diagram media promotion of two-flavor river tourism

2. Activity Diagram  
depicts the flow of activity in adding reviews by website visitors where they can add comments and photos to be an experience after visiting the Dua Rasa River tour.

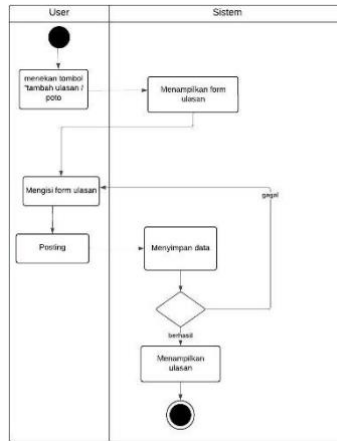


Fig. 2: Activity diagram of giving reviews by travelers

Furthermore, the admin login activity diagram is depicted so that it can enter the dashboard page in detail on the Sungai Dua Rasa tourism website in the village of Negeri Gugung to manage and update the appearance of the website page.

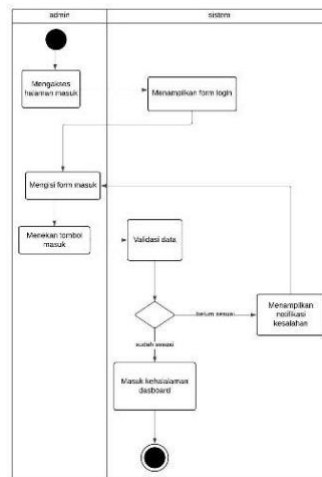


Fig. 3: Activity Diagram of admin login

### 3. Results and discussion

#### 3.1. Website display results

The following is the display result of the design of the Dua Rasa River tourism website that has been completed. The User Home Page is the main page that is first accessed by users when opening the Dua Rasa River Tourism Website. This page is designed in an attractive and informative manner, displaying a short video that describes the beauty of Dua Rasa River Tourism. In addition, the homepage also presents important information and navigation that makes it easy for visitors to explore other features such as Gallery, Location, Facilities, contact and about. The homepage is designed to give a strong first impression, attract visitors' interest, and become the main gate to get to know more about the charm of Sungai Dua Rasa tourism in Negeri Gugung Village.

1. User review view



Fig. 4: User home page display results

2. User gallery page

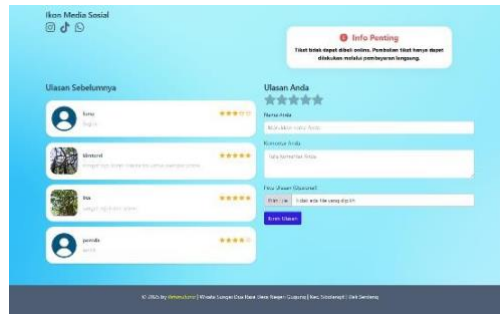


Fig. 5: User review page display results



Fig. 6: User Gallery page display results

3. User Location Page Display

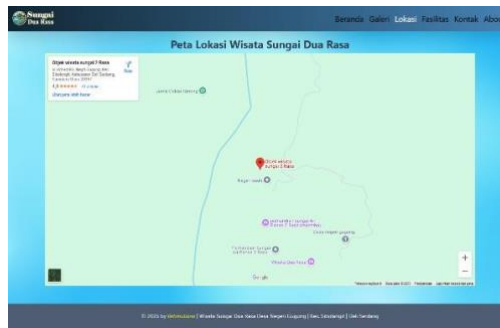


Fig. 7: User location page display results

4. Admin login view that can only be accessed by admin

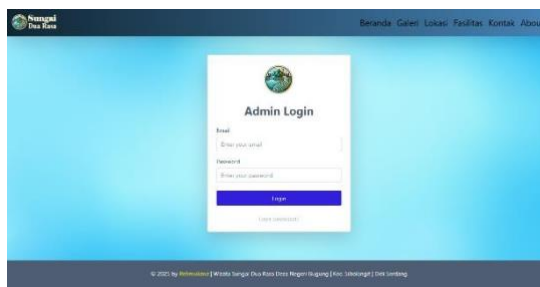


Fig. 8: Display result of Admin Login page

5. Display of the dashboard page where the admin can edit add and delete content from the user interface.



Fig. 9: Results of the Admin dashboard page display.

### 3.2. System testing (cutover)

At this stage, the system is tested using the Black Box Testing method by Mrs. Dewi who represents the Dua Rasa River Tourism manager through direct testing of the system that has been built.

Table 1: User testing of the review addition page.

no	Test Scenario	Scenario Description	Test Case	Test results
1	Reviews (user)	The user fills in the rate, name, comment and selects a photo, then presses the Submit button.	Thank you! Your rating: 5 stars	checked
2	Reviews (user)	Fill in the comment name and photo without filling in the rate field and then press send	Message "invalid or Please select a rating first" Return to the initial form to fill out the review form.	checked

Table 2: User testing of the review addition page

number	Test Scenario	Scenario Description	Test Case	Test results
Login (admin)	Not filling in email or password, then pressing the login button	Please fill in password/email	checked	Login (admin)
Login (admin)	Fill in the wrong email or password, then press the login button	The email or password you entered is incorrect.	checked	Login (admin)

## 4. Conclusion

After completing the process of analyzing and designing a website as a promotional media for Dua Rasa River tourism, it can be concluded as follows:

1. Designing and building a website as a promotional media can answer the needs of promoting Sungai Dua Rasa tourism in the village of Negeri Gugung can be completed using the Rapid Application Development (RAD) method. In the research the authors have designed and built a website to meet the needs of existing promotional problems. The features built on this website include home page, gallery, location, facilities, contact, and about.
2. The application of the Rapid Application Development (RAD) method to the design of this promotional media has proven to be able to accelerate the system development process because the process is fast and allows flexibility in responding to changing needs and increasing user involvement in the development process so as to produce a system that suits user needs and tourism promotion goals.

## 5. Suggestions

The author suggests that the management of the Dua Rasa River tour can continue the system that has been designed to a further development stage. This proposed system does not include additional features such as online ticket booking. Therefore, further development is highly recommended so that this promotional media becomes more interactive, complex, and able to attract more tourists.

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