

Android Based Serayu Larangan Village Tourism Application

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Abstract

Technological progress at this time is developing very fast. This includes information technology applied to tourism. One of them is tourism objects in Serayu Larangan village which has natural and cultural tourism potential that can be improved, there is history and interesting tourist sites for us to know. However, facilities in an effort to develop this tourist attraction are still minimal. Therefore, an android-based tourism application was created in Serayu Larangan village. This android application system aims to make it easier for visitors and tour managers to get information about tourism potential, by displaying the level of crowds of visitors at tourist attractions. The method carried out by the author is Rapid Application Development (RAD) is very suitable to be applied, because the Android-based application development project taken has a short time limit. The results of research by collecting tourism information data have also been carried out, to find out what is the basis for designing and making android-based tourism applications in Serayu Larangan village.

Keywords: *Tourism, Android, Rapid Application Development*

1. Introduction

Page layout Currently, technological progress is increasingly rapid, and technology and information are developing very quickly [1]. This progress has brought about major changes because technology has allowed us to obtain information quickly without time and place restrictions[1]. Moreover, almost all fields of human work currently require information technology, including information technology applied to the tourism sector[2]. In this case, other technology needs to be used to provide this information, and the technology commonly used is an Android application that runs on a smartphone[3].

Android is an Operating System (OS) designed by the Google company based on the Linux Kernel which runs on mobile devices and is open source. This operating system supports various tools and APIs for creating mobile programs, including access to Google Maps[4]. This basis is a benchmark for researchers to choose Android as a platform for creating information systems in the tourism sector.

Tourism is an important field for regional development. As an effective promotional tool to introduce the natural beauty and unique culture of the area, the development of the tourism sector in a region will invite other sectors to grow, because their products are needed to support the tourism industry, such as the agricultural, livestock, fisheries, and MSMEs[5], [6]. Apart from that, tourism development also encourages and accelerates economic growth[7]. The application is one means of providing solutions in introducing local tourism[8]–[13]. Tourism in Serayu Larangan Village, this area which is located in Purbalingga Regency has the potential for natural and cultural tourism that can be improved, there are history and interesting tourist locations for us to know[14].

The interview was conducted and Mr. Fajar Prasetyo the Village Head and manager, who explained the conditions of tourism in Serayu Larangan Village, such as natural tourism for cormorants, river tubing, and the Lohjinawi traditional market which used to be an icon of the village. However, after the impact of the Covid-19 pandemic which has harmed the tourism industry, no tourists are visiting Serayu Larangan Village anymore. The tourism sector is only starting to develop again after the COVID-19 pandemic ended, so it requires sufficient funds and aspects that can help in developing the tourism potential in Serayu Larangan Village. However, in efforts to develop tourism in Serayu Larangan Village, there are still several problems that need to be overcome. One of them is the lack of available information about the number of visitors who come because the tour is still open to the public without charge. Currently, there is no system to monitor the level of visitor crowds in Serayu Larangan Village. This causes difficulties for managers in organizing tourist activities and knowing actual conditions regarding crowd levels at these tourist attractions.

In developing a system to monitor visitor crowd levels, researchers used the Rapid Application Development (RAD) system developer method. The Rapid Application Development (RAD) methodology is a life cycle strategy that is intended to provide much faster development and obtain better quality results compared to results achieved through traditional cycles[8]. From the definitions of the RAD concept, it can be seen that application development using the RAD method can be carried out in a relatively faster time, and its implementation involves users in the development so that it can increase satisfaction in using the system [9]. Researchers use the Rapid Application Development (RAD) method because the software development process model is classified as an incremental (multilevel) technique and emphasizes short, brief, and fast development cycles[15].

Based on the background, the solution that the researcher proposes is to develop a tourism application on the Android operating system with the title "Android Based Serayu Larangan Village Tourism Application" using the Rapid Application Development (RAD) method. This research aims to develop an Android mobile-based application that can provide information about the level of crowds of tourist visitors in Serayu Larangan Village.

2. Methodology

Rapid Application Development (RAD) is a software development method that is incremental, especially for short processing times. RAD is a software process model that emphasizes short development life cycles, and a rapid adaptation version of the Waterfall method using component construction [16], [17].

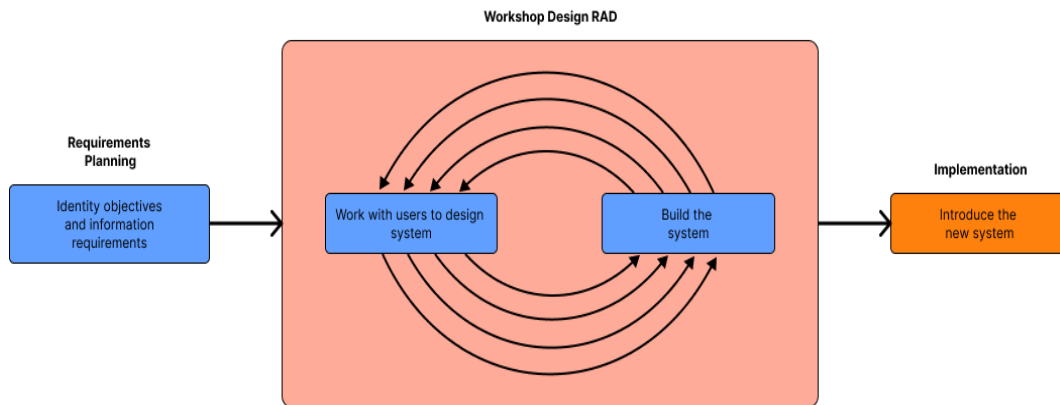


Fig. 1: Stages of the Rapid Application Development [16], [17]

RAD is divided into three stages that are structured and depend on each other, namely:

- a. Requirements Planning (Requirements Planning)

At this stage, users and analysts hold a kind of meeting to identify the goals of the application or system and identify the information needed to achieve the goals. At this stage, the most important thing is involvement from both parties, not just approval of the proposal that has been made. Furthermore, user involvement is not only from one level of an organization but several levels of the organization so that the information needed for each user can be fulfilled properly.
- b. Design Process (Design Workshop)

At this stage, we carry out the design process and make improvements if there are still design discrepancies between the user and the analyst. For this stage, the activeness of the users involved is very decisive in achieving the goal, because users can immediately provide comments if there are discrepancies in the design/
- c. Implementation

After the design of the system to be created has been approved by both the user and analyst, at this stage the programmer develops the design into a program. After the program is completed, either in part or as a whole, a testing process is carried out on the program whether there are errors or not before it is applied to an organization. At this time the user can provide feedback on the system that has been created as well as approval regarding the system.

3. Result

In the image below is a class diagram of a tourism application, in the "Users" table it has a relationship with the "TotalvisitorsPerUser" table, namely id and user_id, in the "Tourism" table it has a relationship with the "Today's Visitors" table, namely id andwisata_id and the "Tourism" table also has a relationship with the "TotalvisitorsPerUser" table, namely id andwisata_id.

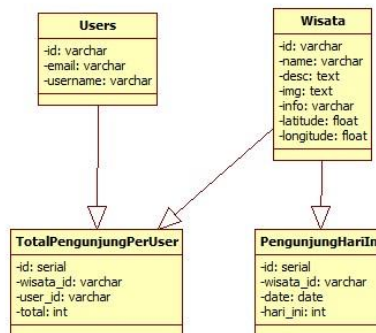


Fig. 2: Class Diagrams Serayu Larangan Village Tourism Application

The results at this stage consist of several main components, namely: splash screen page which is equipped with the application logo as a symbol of the Serayu Larangan village tourism application, onboarding page, login page, register page, password reset page, home fragment page, chart fragment page, scan page fragment, fragment profile page, number of user tour visits page, tour details page and navigation for the tour route. The following displays the application that has been built:

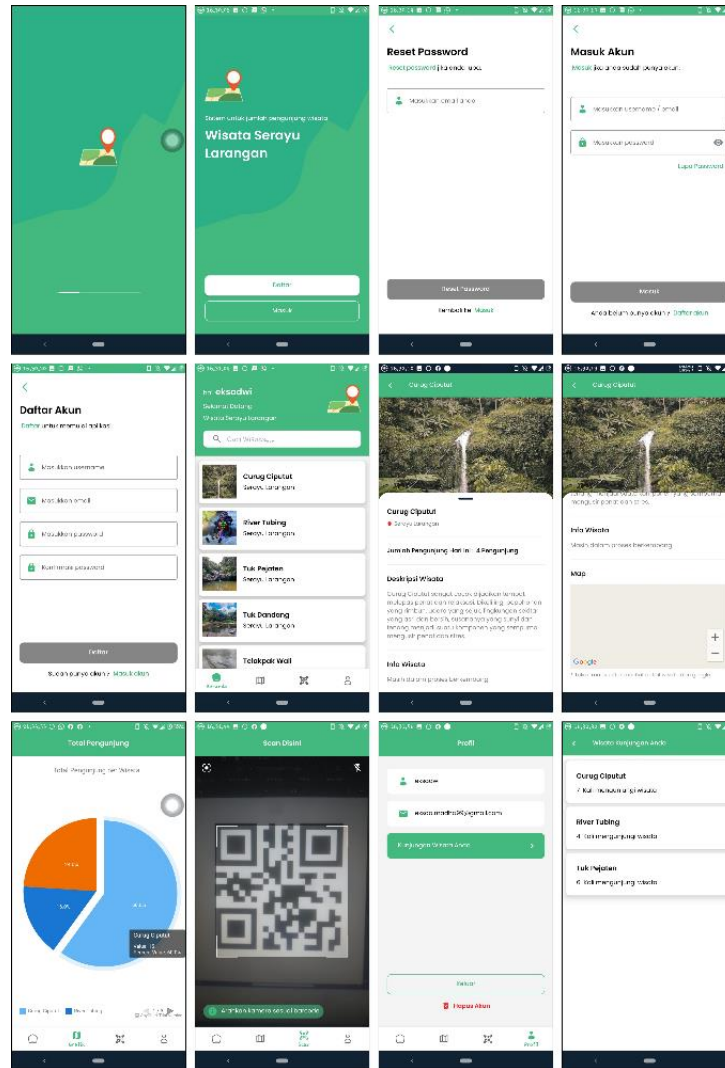


Fig. 3: Serayu Larangan Village Tourism Application Results

Testing is carried out to ensure that the application functions as previously planned. Apart from that, this process is also used for problem-solving. Testing of the application is also carried out to answer whether the purpose of making the application is as expected. The test carried out is using the following scenario

Table 1: Black-Box Scenario

No	Test Scenario	Test Case	Expected Results	Test Results	Conclusion
1	User starts the travel application	Travel application with an internet connection	Displays a splash screen with the travel application logo and displays the next page		
2	User starts the travel application	Travel application without internet connection	Displays the splash screen with the travel application logo does not display the next page		
3	The application displays onboarding, the user clicks the register button.	Testing button	Displays the user account registration page		
4	The application displays onboarding, the user clicks the login button	Testing button	Displays the user account login page		
5	On the register page, click the login button text	Test button	Displays the account login page		
6	On the register page, click the back button	Testing button	Displays the application onboarding page		
7	On the registration page, filling in the form is incorrect or blank	Username, email and password (empty or inappropriate)	Displaying the list button is still disabled		
8	On the registration page, fill in the form correctly and completely	Username, email and password (appropriate and complete)	Displaying the enabled register button		
9	On the register page, click the register button which enables	Testing button	Successfully saves data and displays the user login page		
10	On the login page, click the back button	Testing button	Displays the application onboarding page		
11	On the login page, click the test button registration button text.	Testing button	Displays the account registration page		
12	On the login page, fill in the form incompletely or the username or email and password are still empty	Username, email and password (incomplete or empty)	Displaying the login button is still disabled		
13	On the login page, fill in the form with uncomplete	Username, email and password (uncomplete)	Displays the message "Username or password is invalid"		

Table 3: Black-Box Testing Result Second Respondent

Scenario Test								Test Result	
1	2	1	2	1	2	1	2	Success	Failed
✓	✓	✓	✓	✓	✓	✓	✓	37	1
9	10	11	12	13	14	15	16		
✓	✓	✓	✓	✓	✓	✓	✓		
17	18	19	20	21	22	23	24		
✓	✓	✓	✓	✓	✓	×	✓		
25	26	27	28	29	30	31	32		
✓	✓	✓	✓	✓	✓	✓	✓		
33	34	35	36	37	38				
✓	✓	✓	✓	✓	✓				

Table 4: Black-Box Testing Result Third Respondent

Scenario Test								Test Result	
1	2	3	4	5	6	7	8	Success	Failed
✓	✓	✓	✓	✓	✓	✓	✓	37	1
9	10	11	12	13	14	15	16		
✓	✓	✓	✓	✓	✓	✓	✓		
17	18	19	20	21	22	23	24		
✓	✓	✓	✓	✓	✓	×	✓		
25	26	27	28	29	30	31	32		
✓	✓	✓	✓	✓	✓	✓	✓		
33	34	35	36	37	38				
✓	✓	✓	✓	✓	✓				

Table 5: Summary of Black-Box Testing Result

Recapitulation of Percentage Black-box Testing Results				%
No.	Respondent	Test Case	Testing Successful	
1.	R1	38	38	100%
2.	R2	38	37	97%
3.	R3	38	37	97%

4. Conclusion

Based on the results of the design and testing carried out by researchers, several conclusions can be drawn as follows:

1. An Android mobile application-based information system built using the RAD method functions to provide tourist information in Serayu Larangan village which includes: tourist information, information on the number of visits per day on tourism, tourist information using Google Maps, scanning barcodes for application users every time they visit a tourist attraction. and information on the total number of tourist visitors in graphical form.
2. The results of testing the Android-based Serayu Larangan village tourism application by applying black-box testing produced a percentage that could conclude that the application was certain to operate according to plan and meet the criteria. The test results for R1 produce a percentage of 100%, for R2 it produces a percentage of 97% and for R3 it produces a percentage of 97%.

Suggestions for further research. Future application system development could include updating the barcode scanning system to determine the number of visitors to tourism in Serayu Larangan village so that it is more accurate and the application can be used by various groups. It's best to use direct or indirect socialization using promotional media so that more users know about the Serayu Larangan village tourism application.

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