

Application get in hand - mobile-based geopark educational tourism Ciletuh-Sukabumi

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Abstract. Ciletuh-Palabuhanratu Geopark covering 74 villages with 19 exotic natural tourist destinations ranging from beaches, waterfalls (waterfalls), hills with beautiful views, to Kasepuhan. Although many tourists visit the Ciletuh-Palabuhanratu Geopark because there are so many destinations with large tourist areas, but because the area is very large and time is limited, tourists visiting Ciletuh Geopark cannot visit all existing tourist destinations. In addition, the problem is that tourists who have visited the Ciletuh-Palabuhanratu Geopark do not get knowledge and education from the tours they have visited because of limited information about these tourist objects, most of which are still conventional. Based on the existing problems, we will create an edutourism application with the name GET Ciletuh-Palabuhanratu which is useful to guide tourists' journeys from start to finish during a visit to the Ciletuh-Palabuhanratu Geopark by providing information related to tourist destinations to historical stories about the location. In addition, this application also records tourist trips with proof of photos that have been uploaded into the system according to the tourist destinations that have been visited. This application also provides a knowledge test about the Ciletuh-Palabuhanratu Geopark and if tourists successfully complete their edutourism assignments, they will be given an award in the form of a certificate issued by the Sukabumi Regency Tourism Office which can be exchanged for a free stay voucher at a hotel that has collaborated with the Regional Government. This application is mobile-based and can be downloaded via tourists' smartphones that can be used anywhere. By using the Ciletuh-Palabuhanratu GET application, users will easily carry out various activities ranging from finding information about accommodation, facilities, and infrastructure in tourist destinations in the Ciletuh-Palabuhanratu Geopark

1 Introduction

Geopark is a region that holds geological values where the local community is encouraged to participate in protecting and enhancing the functions of natural heritage, including its archaeological and cultural values [1–5]. The term Geopark is an abbreviation of "Geological Park," which means Geological or Earth Park. The initial goal of Geopark was to protect

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geological heritage in European countries by a non-governmental organization called the EGN (Europe Geopark Network) in 2001.

Despite the many tourists visiting Geopark Ciletuh-Palabuhanratu due to its numerous destinations and vast tourist areas, the extensive area and limited time prevent visitors from exploring all the available attractions. Additionally, the issue arises that tourists who have visited Geopark Ciletuh-Palabuhanratu do not gain knowledge and education from their visits due to the limited information about these mostly conventional tourist attractions.

Based on these issues, we aim to create an educational tourism application named GET In Hand - Geopark Educational Tourism Ciletuh-Palabuhanratu, which will guide tourists from the beginning to the end of their visit to Geopark Ciletuh-Palabuhanratu by providing information on tourist destinations and historical stories about the location. This application also records the journey of tourists with photo evidence uploaded into the system according to the visited destinations. Furthermore, the application offers knowledge about Geopark Ciletuh-Palabuhanratu, and if tourists complete their educational tour tasks, they will be awarded a certificate issued by the Sukabumi District Tourism Office, which can be exchanged for a free stay voucher at one of the hotels that have partnered with the local government. This mobile-based application can be downloaded on tourists' smartphones and used anywhere. By using the GET In Hand - Geopark Educational Tourism Ciletuh-Palabuhanratu application, users can easily perform various activities, from finding information about accommodation, facilities, and infrastructure at tourist destinations in Geopark Ciletuh-Palabuhanratu.

Previous research [6] aimed to determine the impact of geotourism development in Karangsamsung-Karangbolong National Geopark becoming a UNESCO Geopark on economic progress. Subsequently, Barat's study [7] aimed to identify local economic strengths in the Ecotourism Region of Pesisir Barat Regency and to develop strategies to promote local economy-based ecotourism development as part of poverty alleviation programs in Pesisir Regency. Moreover, research [8] aimed to facilitate or recognize tourist attractions in East Java and simplify the identification of tourist destinations in East Java. It was developed in a mobile format to be easily accessible from anywhere. The design of the East Java tourist attraction introduction application allows users to better know and recognize the tourism in East Java.

The three studies above share a common similarity: they discuss how to develop the natural geotourism potential in geopark areas from both economic and tourism perspectives. The difference with this study is that this research focuses on the education provided to visitors of Geopark Ciletuh after they have completed their tour in the Geopark Ciletuh area. Visitors will receive education about the area because the designed application will contain educational content that visitors can view. The final outcome for visitors is an award in the form of a stamp each time they visit the Geopark Ciletuh area. This stamp is obtained after they complete a quiz provided at the end of the visit..

2 Material and Methods

The type of exploration used in this study is contextual analysis, where a specialist needs to uncover data with the aim of examining and interpreting its meaning. This research is located in the Geopark Ciletuh-Palabuhanratu area. The researcher chose this location because Geopark Ciletuh is a relatively new area and there is a government agency specifically dedicated to managing the Ciletuh-Palabuhanratu National Geopark, located at Jl. Citepus Km 3 Palabuhanratu, Sukabumi Regency, West Java. Therefore, the researcher can obtain the necessary data for the study.

2.1 System planning

System design is carried out so that the system development process is more focused and orderly. System design can be done in several ways, one of which is by describing the system flow with UML diagrams.

2.1.1 Use Case Diagram

Fig.1 explains that there are two actors, namely user and admin. Starting from the user who can access the tourist attraction page, then the user can see tourist attraction information such as place name, address, image and also the user can see the exact location of the place on the map. After that, users can access the page which routes they can take. After selecting a route, users can see what facilities and tourist attractions are on that route. Users can also see a brief description of the place such as a brief history. After completing the route, the user can complete a quiz, and if they complete the quiz, the user will receive an award in the form of a stamp. In the admin section you can see registered user information, route and tourist attraction pages and also pages of users who get or claim their stamps.

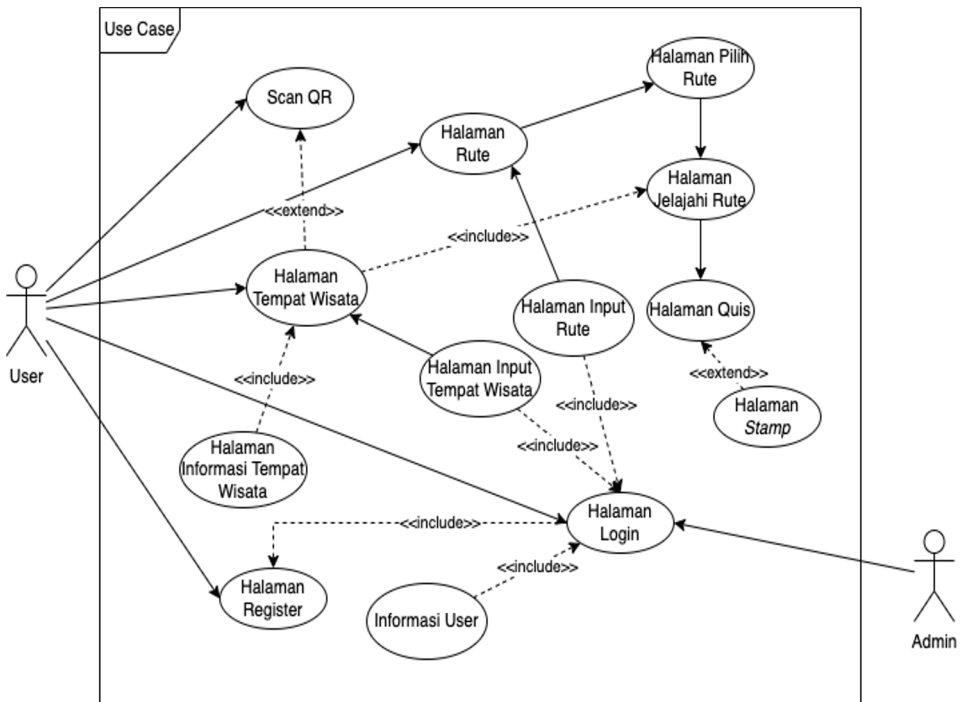


Fig. 1 Use Case Diagram

2.1.2 Activity Diagram

- Application Usage Activity Diagram

Fig. 2 explains user activities when using the application, starting from the user opening the application then registering or logging in if the user already has access. After that, users can choose the route they want based on the list of routes available in the application. After tracing the existing route, the user can fill out a quiz, and if the user completes the quiz, they will receive an award in the form of a Stamp.

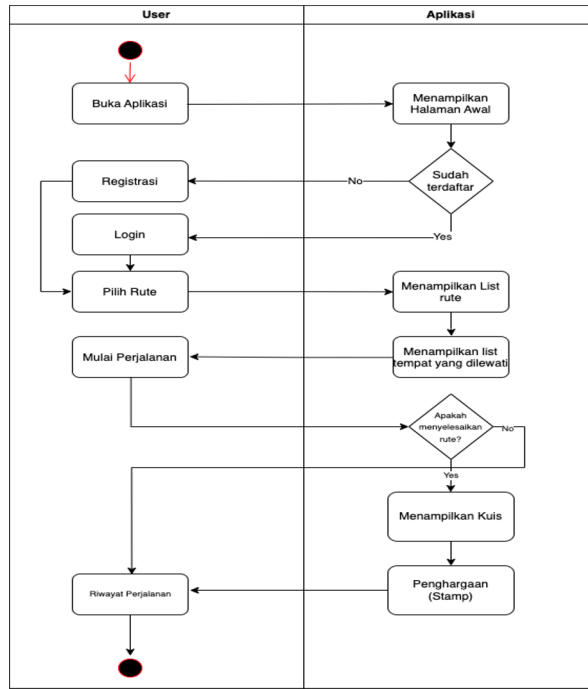


Fig. 2 Application Usage Activity Diagram

- Admin Activity Diagram

Fig. 3 explains the admin's activities in managing content or data that will be displayed in the application. Starting with the admin, he needs to open the available system for inputting data. Next, the admin needs to input existing tourist attractions. After inputting tourist attractions, the admin can create a route from existing tourist attractions.

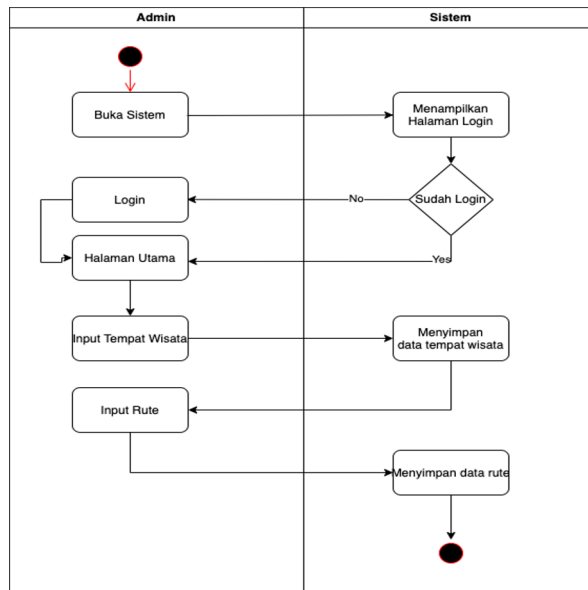


Fig. 3 Admin Activity Diagram

- Application Class Diagrams

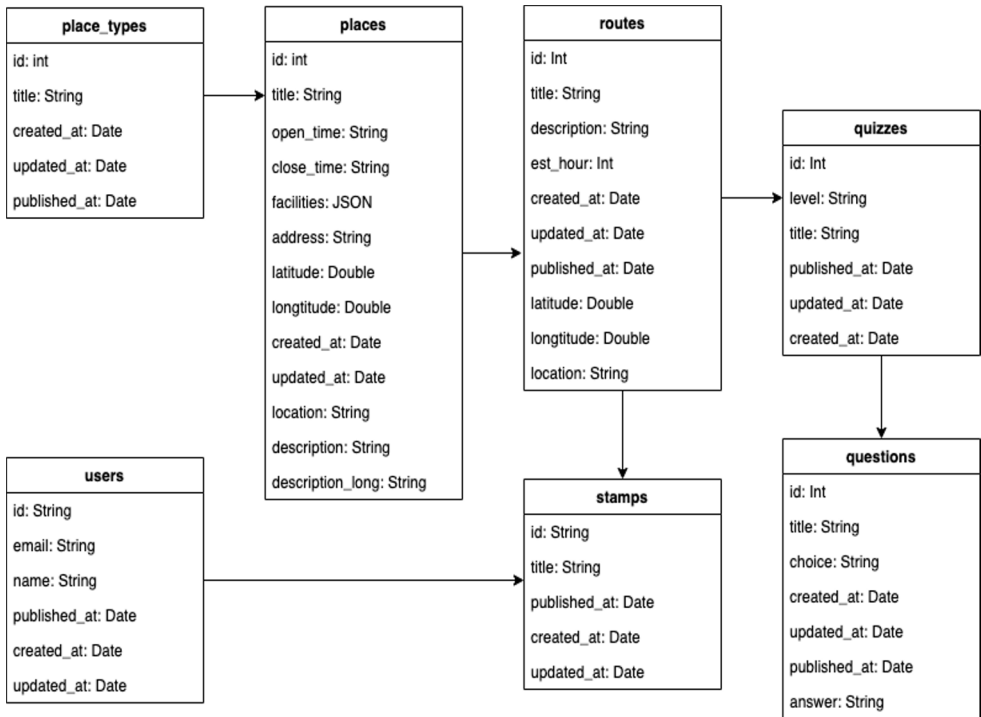


Fig. 4 Application Class Diagrams

The following is an explanation of the diagram above:

- Users, User data registered on the Application
- Place, Data on tourist attractions listed in the application
- Routes, Route data stored in the application
- Quizzes, Quiz data stored in the Application
- Questions, Question data stored in the Application
- Stamp, Stamp data registered on the application connected to reward data
- Place_types, Place type data stored in the application

3 Results and Discussion

3.1 Implementasi Antar Muka Aplikasi

In this research, the author used the Dart programming language with the help of the Flutter Framework to build an Application Interface, here are several pages that were successfully implemented.

- Home Page & Profile

The home page contains information about routes and tourist attractions that can be visited. There is also a splash screen page that appears for the first time in an application, usually appearing for around 3 seconds. The login page is also used by users when they want to visit the selected route, so that the user's travel history will be saved. The profile page displays user profile information such as name and email, users can also change accounts on this page.

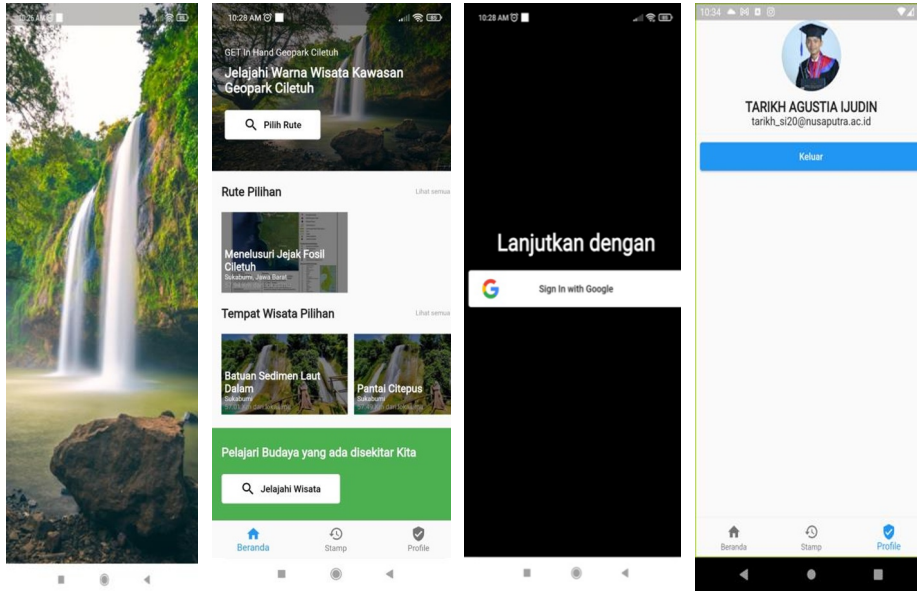


Fig. 5 Application Home Page

- Travel, Route, Quiz and Stamp Pages**

The tourist page displays detailed information regarding the place you are going to, on this page you can also insert the history of the place so that users can get education. On the route page, users can see the places on the route and also their explanations, so the user will know what places are on the route. After tracing the route in the application, the user will be directed to fill in the quiz, after filling in the quiz the user will get an award in the form of a stamp. On the stamp page, users will get an award if they have completed the quiz.

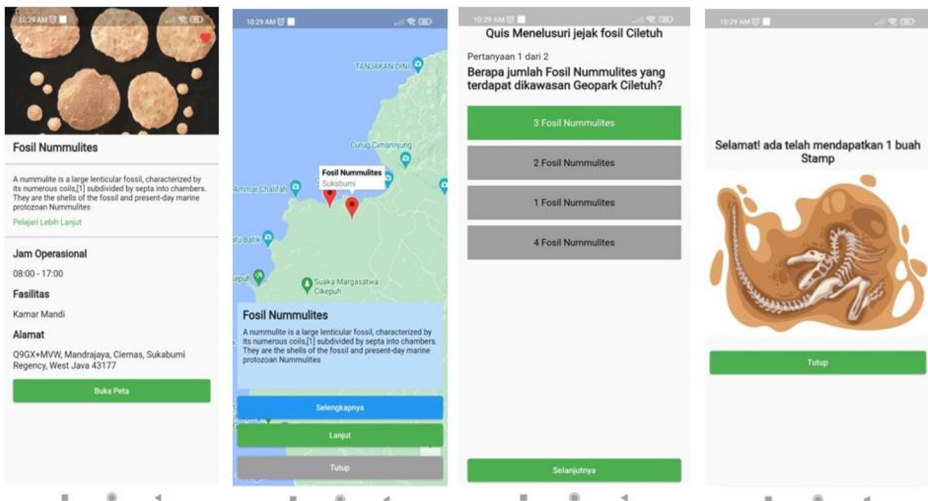


Fig. 6 Travel, Route, Quiz and Stamp pages

3.2 Application Testing

In testing this application the author used the Black Box testing method, where the author tested each function in the application manually using a mobile device in the form of an Android Poco Phone X3 NFC.

- Test Plan
The testing plan that will be carried out is to test the system in alpha and Beta. The test plan can be seen in Table 1.

Table 1 Test Plan

Tem Item	Test Details	Test Type
Halaman Awal	Memastikan aplikasi dapat mengakses menu beranda	Black Box
Wisata	Memastikan menu list tempat wisata, detail wisata berfungsi secara baik	Black Box
Rute	Memastikan menu list rute, detail rute berfungsi secara baik	Black Box
Kuis	Memastikan menu kuis berfungsi secara baik	Black Box
Profil	Memastikan menu profil berfungsi secara baik	Black Box

- Alpha Testing
Based on the test plan that has been prepared, alpha testing can be carried out, which is a test carried out independently by the researcher:

Table 2 Alpha Testing

Home Page	
Input Data	The user opens the application for the first time and tries to access the items on the home page
Which are expected	Can display information in the application according to existing data
Observation	The application can display information such as a list of routes and tours
Conclusion	Succeed
Travel Page	
Input Data	Users select the tourist spot they want to go to then view information about the route and see the exact location on Google Maps.
Which are expected	Can display information about tourist attractions and display the location of tourist attractions on Google Maps.
Observation	The application can display information about tourist attractions and can display the location of tourist attractions on Google Maps.
Conclusion	Succeed
Route Page	
Input Data	The user selects the route they want to go to then presses the explore button to start the route they want to go
Which are expected	Can display detailed information about the intended route and can also display a map showing the locations/tourist attractions available on that route
Observation	The application can display detailed information about the selected route and can display a list of places around the route
Conclusion	Succeed
Halaman Kuis	
Input Data	User completes the route and goes to the quiz menu
Which are expected	Can display available quizzes on the selected route so that users can fill in the quizzes
Observation	The application can display quizzes available on that route
Conclusion	Succeed

Profile Page	
Input Data	User visits the profile menu
Which are expected	Can view profile information and log out
Observation	The application can display the user profile and can log out
Conclusion	Succeed

Based on the test results with sample test cases that have been carried out, it is concluded that functionally the system can produce the expected output.

- Beta Testing

Beta testing is a test that is carried out objectively where the test is carried out directly in the field, namely the wider community and is not limited to only certain groups. This test was carried out by creating a questionnaire to find out the opinions of respondents regarding the GET In Hand - Geopark Educational Tourism Ciletuh-Palabuhanratu Application, and then distributed to several users to fill in which will later be used as a sample and calculations will be carried out to draw conclusions regarding the results of making the application This.

Table 3 Questionnaire Table

No	Questions	Calculation Formula
1	Is the appearance of the Get In Hand application attractive?	$Y = P/1 * 100\%$
2	Is the Get In Hand app easy to use?	Information : P = Number of respondents' answers to each question. Q = Number of respondents Y = Percentage value
3	Does the Get In Hand application provide the necessary edutourism information?	
4	Does the Get In Hand application provide education about tourism in the Ciletuh Geopark area?	
5	Is the Get In Hand app useful?	

Beta test results are as follows:

- Is the appearance of the Get In Hand application attractive?

- Interesting = 6 Respondents
- Quite Interesting = 4 Respondents
- Normal = 2 Respondents
- Not Interesting = 0 Respondents

Table 4 Test results Is the appearance of the Get In Hand application attractive?

Answer Categories	1	2	3	4
Number of Respondents	12	12	12	12
Answer Frequency	6	4	2	0
Total Percentage	50%	33,33%	16,67%	0,0%

- Is the Get In Hand app easy to use?

- Easy = 5 Respondents
- Quite Easy = 4 Respondents
- Ordinary = 3 Respondents
- Not Easy = 0 Respondents

Table 5 Test results Is the Get In Hand application easy to use?

Answer Categories	1	2	3	4
Number of Respondents	12	12	12	12
Answer Frequency	5	4	3	0
Total Percentage	41,67%	33,33%	25%	0%

- Does the Get In Hand application provide the necessary edutourism information?
 - Informative = 7 Respondents
 - Quite Informative = 2 Respondents
 - Ordinary = 2 Respondents
 - Not Informative = 1 Respondent

Table 6 Test results Does the Get In Hand application provide the necessary educational tourism information?

Answer Categories	1	2	3	4
Number of Respondents	12	12	12	12
Answer Frequency	7	2	2	1
Total Percentage	58,33%	16,67%	16,67%	8,33%

- Does the Get In Hand application provide education about tourism in the Ciletuh Geopark area?
 - Informative = 7 Respondents
 - Quite Informative = 2 Respondents
 - Normal = 1 Respondent
 - Not Informative = 2 Respondents

Table 7 Test results Does the Get In Hand application provide education about tourism in the Ciletuh Geopark area?

Answer Categories	1	2	3	4
Number of Respondents	12	12	12	12
Answer Frequency	7	2	1	2
Total Percentage	58,33%	16,67%	8,33%	16,67%

- Is the Get In Hand app useful?
 - Useful = 8 Respondents
 - Quite Useful = 3 Respondents
 - Normal = 2 Respondents
 - Not Useful = 0 Respondents

Table 8 Test results Is the Get In Hand application useful?

Answer Categories	1	2	3	4
Number of Respondents	12	12	12	12
Answer Frequency	8	3	2	0
Total Percentage	66,67%	25%	16,67%	0,0%

From the beta testing that has been carried out, namely by testing the calculation of answer category choices from questionnaires that have been distributed in the field, it can be concluded that the Get In Hand Application has an attractive appearance, is easy to use, provides information about tourism in the Ciletuh Geopark Area and can be useful for the world user.

4 Conclusion

With the implementation of this application, it will provide tourists with more experience in conducting educational tourism to Kawasa Geopark Ciletuh and will also indirectly affect Sukabumi Regency tourism in the field of tourism promotion. The GET In Hand - Geopark Educational Tourism Ciletuh-Palabuhanratu application was designed using the Object Oriented Programming (OOP) approach method using tools in the form of UML diagrams.

Therefore, the author can conclude that: 1. Based on the results of testing that the author carried out using black box and white box using the Alpha and Beta methods that the application functions as it should and also from the results of a survey of the application, 60% of respondents felt that the application created was usable, easy to use and provided information about tourism in the Ciletuh Geopark Area. 2. This application will make it easier for visitors who want to visit tourist attractions in the Ciletuh Geopark area but don't know what tourist attractions are in the area. 3. With the information contained in the application, visitors will gain new knowledge about tourist attractions in the Ciletuh Geopark Area. 4. With the Quiz feature in the application, visitors can get an award (Stamp) which may later be used as a promotional tool by related agencies in the Ciletuh Geopark Area.

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