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E-Tourism Developments in Indonesia District

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Abstract: Tourism is a place that is crowded by people from within the country and abroad, with the existence of a tourist area it can advance the welfare of the surrounding community. Ulubelu District has a very large tourism area, if the existing facilities and infrastructure are developed further, it is certain that the increase in tourism in Ulubelu District will increase. Utilization of Information Technology can advance tourist areas, so that tourist areas can be known by tourists who want to visit Ulubelu District. The tourist route application is designed using the Android platform, and the method used is a data collection method that includes observation and literature. The Route UBL application is designed with the concept of integrating tourist information with a smartphone using GPS and Map to find out the distance traveled and travel time so that tourists can more easily calculate the travel time to the desired tour

Keywords: Global Positioning System (Gps), Tourism, Android.

1. INTRODUCTION

1.1 Background of the Problem

According to the Lampung Province Central Statistics Agency, data regarding foreign tourists includes all foreign tourists who arrive in Indonesia through airports, ports and by land. There are 93 arrival gates throughout Indonesia, 65 of which are ports, 24 are airports and 4 are by land. The four main airports are Soekarno-Hatta (Jakarta), Ngurah Rai (Bali), Polonia (Medan) and Sekupang (Batam) [1].

In this current era, there is very rapid technological development such as the presence of smartphones, this technology combines telecommunications technology with computing which makes computing so that it can be used for human activities in various desired ways, Global Positioning Service (GPS) is one of the technologies that is currently developing and is widely used to find out location. Location services are systems capable of disseminating information that can be accessed by mobile devices connected to the Internet and GPS. The

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implementation of integrated GPS and Internet is very necessary so that tourists in Ulubelu sub-district can see tourist routes. With this travel application, it is hoped that it can help users find tourist attractions and other information they need using Android mobile technology. The development of information technology has had an impact on traveling activities. The high level of traveling activity has made this activity a trend in various circles. Traveling itself has become a person's lifestyle to fill their free time. With the development of information technology, traveling activities have become easier to find information about the things you need [2].

Not a few Indonesian people, when looking for tourist attractions in the Ulubelu District area, still use search engines or what we usually know as Google. Therefore, of course, people will be faced with many choices from the search engine results, which will make people a little hesitant in making a choice, and not all of them can be known by tourists due to the lack of information regarding the location of tourist attractions, accommodation such as resting places and culinary delights around this tourist attraction. Apart from that, tourists also prefer to use information systems that are simple, interactive and effective with an attractive appearance [3].

Ulubelu District is one of the areas in the mountainous highlands which produces several natural attractions such as waterfalls and others. Ulubelu District is in Tanggamus Regency, Lampung Province. Located in a mountainous area and the natural conditions are still beautiful, making Ulubelu District one of the areas destination for travel. This benefits from the existence of several natural tourist attractions and water tourism, both natural and modern. This waterfall, called the Lembah Pelangi waterfall, is one of the places and tourist information that is known to many tourists from various regions

1.2 Prolem Formulation

Based on the background of the problem above, the problem formulation that will be used as this research which include:

1. Presenting an application that can provide tourism guidance in Ulubelu District.
2. How is the Android-based Information System designed?
3. How is the Android-based information system implemented and tested?

1.3 Research Objectives

This research was conducted with the following aims:

1. Design an Android-based tourist guide application system.
2. Implementing and testing Android-based Information System Applications

1.4 Benefits of Research

1. Help tourists find tourist attractions they want to visit in Ulubelu sub-district and look for maps of the desired tourist location points.
2. Make it easier for tourists to find tourism locations in Ulubelu District.

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2. THEORETICAL BASIS

2.1 Understanding Information Systems

According to Abdul Kadir in Ayunda Mugiasih and Sutejo (2019), the concept of an information system as a result of processing information that is more realistic and valuable for the recipient explains the real opportunities used to make decisions. The components of an information system are as follows:

1. Input component is the input data into the information system. This input includes imported data collection tools and can be large documents.
2. Model components is a combination of logical and mathematical model procedures to process data stored in a database in a predetermined way to produce the desired results.
3. Output components that produce quality information and documentation that is useful for all levels of management and everyone who uses the system.
4. Technology components are information system tools used to receive input and access data, produce and send output and monitor the entire control system.
5. A component database is a collection of related data stored in data hardware. Databases can be accessed using a software package called DBMS (Database Management System).
6. Control components are components that control disturbances in the information system. This means that there is a design and implementation of control components to ensure that things that can damage the system can be prevented [4]

2.2 Definition of Tourism

According to Karyono (1997:89) Tourism is one of the sectors that the government relies on to earn foreign exchange in addition to non-oil and gas income. The role of tourism in national development, apart from being a source of foreign exchange for the country, also provides many contributions in other fields [5].

According to Triambodo & Damanik (2015), tourism development in Indonesia in recent years has entered a new situation. The trend in tourism development in the archipelago is developing a tourism design model in line with tourism villages [6].

1. Android
   Android is software used for mobile devices including the middleware operating system and core applications released by Google. Android is a mobile operating system that uses a modified Linux operating system. In 2005 Android was acquired by Google from Android Inc. as part of a strategy to capture the mobile operating system market. Google took over all Android work including the team that developed Android [7].
2. Applications
   According to Jugiyanto in Imamuddin, Muhamad Muslihudin, and Joni (2020), an application is an application that stores work problem data in a media or medium that can be used to implement or contain existing things or problems so that they can be changed to new forms without loss basic values of the data and the problem itself.
3. Google Maps
   Google Maps is a free online map application from Google. Google Maps can be accessed via a web browser or via a mobile device. To integrate Google Maps into a standalone site you need to use an Application Program Interface (API) which is a

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framework that provides functions for manipulating and adding content. Examples of using the Google Maps API include providing map markers and providing line segments that determine the distance between points and so on. Apart from that, there is also the Google Maps Android API, namely Google Maps which provides a framework for Android applications. The API automatically manages all access to the Google Maps server such as downloading data, displaying maps and responding to map cues [8].

3. RESEARCH METHODS

3.1 Data Collection

1. Observation

This observation is carried out to determine the actual state of the object under study, through this activity it is possible to obtain a clearer picture of how the system behaves for the object of research thus providing appropriate steps to deploy the resulting system.

2. Literature Study

In literature studies, this can be done by taking notes and reading various submersible books and writing research papers related to research problems and objectives [9].

3.2 Design Model

According to Albi, A., & Johan, A. (2020), this research uses a Waterfall Approach with sequential software system development and the process is always top-down through many successive stages in the form of requirements (needs analysis) design (requirements design) and modeling implementation (application) verification or testing and maintenance.

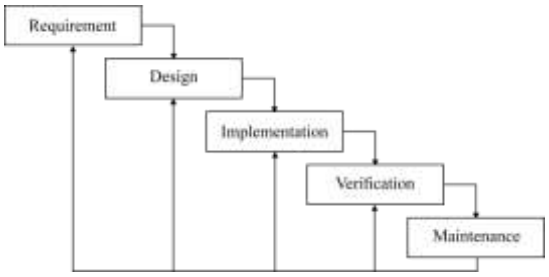

Figure 1. Waterfall Method

a. Requirement

This step is to analyze system requirements. Researchers will search for and extract as much information as possible from users to create program applications that are able to carry out the tasks desired by the user.

b. Design

The design process translates requirements into a predictable software design before implementation. This process shows the detailed procedures (flowchart).

c. Implementasion

This step is a real work step in a system. This means that computer use will be maximized during this period. This is the stage where the entire design is transformed into the program

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source code and produces a modular form and then transferred into the system to check that the software requirements have been verified.

d. Verification

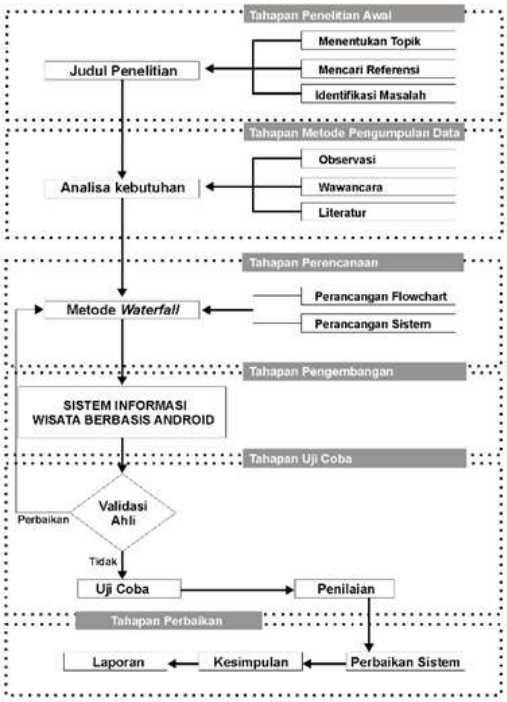
This stage can be said to be the final step in the process of loading a system. This is a user verification step. The user will check whether the application has been created according to the user's wishes..

e. Maintenance

The final stage in developing the Waterfall model system is maintenance which includes the process of repairing and installing the system according to the user's wishes and based on the contract [10].

3.3. Research Framework

Below is the process of carrying out research from start to finish until it produces the desired output.



Figur 2. Research framework

The description of the research framework above is namely:

1. Initial stage of research. This stage is the initial stage of identifying research objects, looking for references and defining the problem to determine the search title.
2. Data Collection Method Stage. This stage is carried out using observation, interviews and documentation methods in analyzing needs.
3. Planning Stage. This stage carries out flowchart design and system design to solve these problems systematically so that they are sorted using the Waterfall method.

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4. Development Stage. At this stage, it is a continuation of the planning stage, namely implementation by designing and implementing an Android-based tourism information system application.
5. Testing Stages. The next step is to test the system to see whether the system is able to run as desired.
6. Remedial Steps. The next step is to make improvements to the completed system so that it runs according to plan and carry out maintenance on the system.

4. DISCUSSION

In this stage the author will explain the various forms and systems used in application design, including

4.1 Analysis of Research Results

The results of research on Android-based Tourism Information System Applications can be concluded as follows;

1. Traveler.

With the application, it is hoped that it can help tourists find tourist attractions briefly. The results show that tourists are interested in tourism based on information and photos in information media. So this can attract other tourists to visit the tour.

2. Tourist

As this application was created for an information system, it can be concluded that the presence of the Route UBL application is able to become a new tourism promotion medium and increase visitors who have never visited this tourist attraction.

4.2 System Design

According to Mulyani, S (2016), system design is a complete design (blueprint), as a guide for programmers in creating applications [11]. The designs used are flowcharts and use case diagrams.

Table 1. System planning

Inputs	User	System	Output
Login	Register on the UBL Route application	Stored Registration Data	Successfully registered and logged in
Home page	View and select tours that have been displayed by the admin	Displays the tourist homepage	Succeed
Tourism Profile	View profiles on selected tours	Displays tourist profile	Succeed
Link Goole Maps	Click on the link that the admin has included for each selected tour	Include a tourist Google Maps link	Succeed

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1. Flowchart

The flowchart below is used to describe the running process of the Android-based Tourism Information System application system. The process begins with the user entering personal data, username and password to enter the application, then the user will be directed to the home page. Users can select tourist attractions on the home page or explore page. When choosing, there is a Google Maps link to determine tourist location points. Otherwise the user will be directed to the home menu to select another tourist attraction. If the user chooses to browse maps, the maps application will open to show tourist location points.

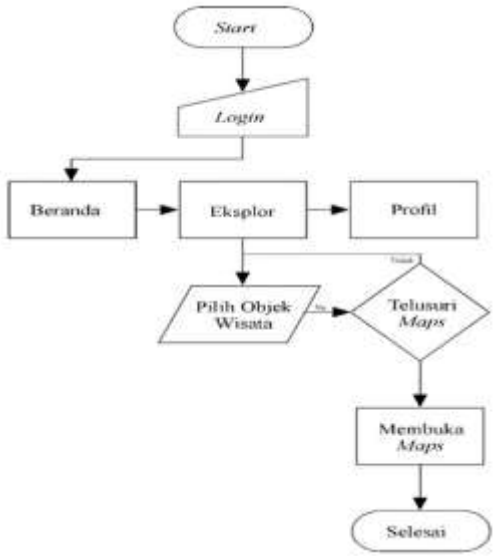

Figure 3. Flowchart

b. Use Case Diagram

A use case diagram is a sequential and interdependent step (scenario), both automatic and manual, depicted as an ellipse/oval. Following is a use case diagram that shows the operations performed by the user on the system.

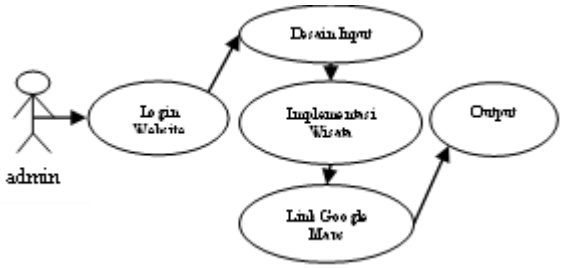

Figure 4. Use Case Diagram Admin.

Explanation:

a. The admin, or application creator, logs in to the website to create an application design.

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b. Input Design, namely the Admin creates a design for users to be able to see the selected tourist images and profiles.
c. Tourism Implementation, namely entering tourist attractions starting from the name, picture and tourist profile
d. Google Maps Link, Includes the Google Maps tourist link that has been entered into the application.

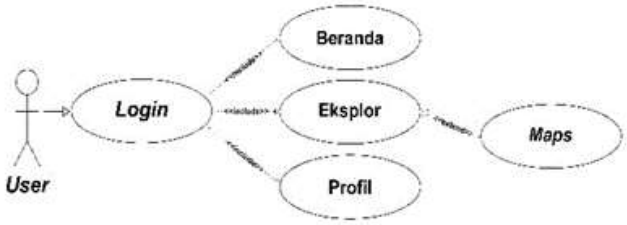

Figure 5. Use case diagram

Explanation:
a. User is a person who accesses the tourist information system application.
b. Case Login, in this case section, after the user completes the username and password on the login page, the user gets inclusive access in the form of advanced access to the application menu such as; home, explore and profile pages.
c. Home Case, in this case the user can see the tourist attractions listed according to the user's wishes.
d. Explorer case, in this case the user can display information about tourism and display a map of the desired tourist attraction.
e. Case maps, the user gets an extension of the explore page to explore the map for further directions.
f. Profile case, in this case the user can find out which account is being used.

4.3 Design Input

Input design is an initial design for creating and changing application content starting from the login page to the home page. At this stage it can only be carried out or operated by the admin or application creator.

Figure 6. Input Design

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4.4 Design Output

Design Output is an application design that aims to plan the layout and navigation when opening the application. The login page and home page are attractively designed so that users are more comfortable in using them. On the home page there is a theme image that is larger than the others because the theme image is an icon that the application is truly a tourism application. There are also navigation icons such as home, explore, and profile that can switch pages when the user clicks on the icon. On the home page there are various choices of tourist attractions grouped by region and will be directly connected to the tourist attractions listed directly at the bottom of the regional page. Users can find out tourist information by selecting the tour they want to see. The following is an image of the Output design.

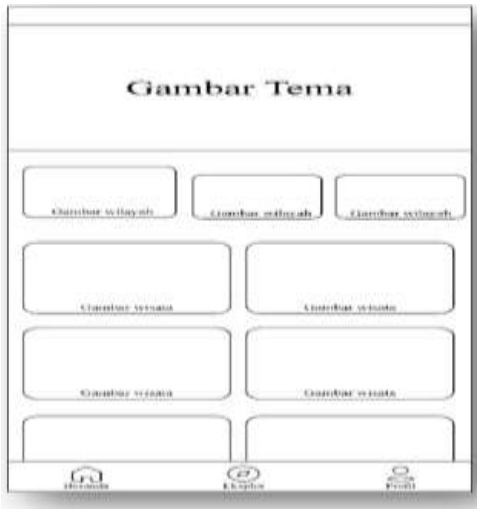

Figure 7. Initial homepage design

4.5 Implementation and Testing

The implementation consists of translating the resulting program logic into the selected language. To implement it, researchers need a basic series, namely Hardware, Software and Brainware [12].

Check or test system performance and output flow. The final stage of the system is tested for capability and efficiency to look for deficiencies and weaknesses in the system, then the application is reviewed and corrected to make it better and more perfect [13].

1. Login Page

On the Login Page, users must enter their username and password to enter the application. If the user already has an account, the user can select the login button to enter the account that was previously created. However, if the user does not have an account, the user is required to register first to fill in personal data.

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Figura 8. Login Page

2. Account Input Page

If the user already has an account before then the user will be directed to this page. This page is a page for entering user accounts who have previously created an account. If you already have an account, the user is directed to log in with the account they have by entering their username and password.

Figura 9. Account Input Page

3. Home Page

Users will be directed to the home page if they have completed the requirements on the login page. This page is a page that has been previously designed for the sake of maturity in creating the layout on the initial page. This page contains a page that contains a theme image that is larger than the others because the theme image is an icon that the application is truly a tourism application. There are also navigation icons such as home, explore, and profile that can switch pages when the user clicks on the icon.

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Figura 10. Home Page

4. Travel Explore page

On this page users can see the selected information to find out in detail starting from tourist images, tourist locations, types, and search. There is also information regarding the explanation of information or history on the tour. On this page, users can find out location points on a digital map by tracing the link listed on the page.

Figura 11. Travel Eksplore Page

5. Profile Page

The profile page shows that the owner or user account is associated with the application. With a profile page, users can confirm the account used in the application. On the profile page there is only the user's photo, username and email associated with the account.

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Figura 12. Profile Page

6. Link Maps

7. If the user chooses to browse the link, the user will be directed to another application, namely Google Maps. The Google Maps application will automatically open and immediately show the location point according to the selected tour.

Figure 13. Link Maps

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4.6 Testing

Table 2. Tourist Application Testing

Testing	Desired Outcome	Observation of Test results	Test result
Splashscreen	Displays and opens the application's main menu	The main menu of the application can be displayed	Succeed
Travel Profile Menu	Displays profiles on selected tours	Tourist profiles can be displayed	Succeed
Google Maps	Can load Google Maps on the tourist link included	The listed tourist Google Maps links can be loaded	Succeed

5. CONCLUSION AND SUGGESTIONS

5.1 Conclusion

From the results of the description and analysis carried out in the previous chapter, especially in the design and implementation of the system created, conclusions can be drawn, namely:
1. With the tourist guide application in Ulubelu sub-district, it makes it easier for the public and tourists to get information about tourism in Ulubelu. With this application, tourists can find it faster and save time in searching for tourist information in the Ulubelu area.

6. To help the public and tourists get the necessary information about tourism in Ulubelu, it is very important to use an Android smartphone because it can act as an information carrier allowing the presentation of information content that is more complete and effective.

5.2 Suggestions

From the results of the implementation in the previous chapter, there is still a lack of Android-based tourism application services for the public and tourists, such as opening and closing schedules for tourist attractions and communication links between tourists and administrators of tourist attractions. Easy to get information about tourist attractions

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