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Tourism Geographic Information System using Google API Banten

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Abstract

Banten Province as a Province adjacent to the Capital City of Jakarta and Banten Province is a province that is very well known because it has tourist areas in districts and sub-districts in Banten that have the main attraction to be visited by tourists, but the lack of information about existing tourist objects , and in searching for tourist information there are still many using maps manually, so we need an application that provides information services about tourist attractions in Banten, Web information system design provides information about the potential of the region as a tourist attraction in Banten Province. The geographic information system of web-based tourism in the province of Banten by using the Google Map API that can facilitate tourists searching, the location of users, interesting places and to find out the natural beauty and history in the province of Banten. This system is designed to make it easier for users to use and be more interactive. Supported by facilities to show the direction to the tourist attractions chosen by the user, as well as the addition of data visualization. This system is expected to be a guide and dissemination of travel information in Banten Province. Presentation of information in the form of images and maps will make it easier to understand users who will get the information effectively and efficiently. With the presence of this application is provided to meet the information needs of attractions in Banten Province.

I. INTRODUCTION

Province of Banten province in the Western Region in Java. Banten never been part of West Java province, 2000 Baten into expansion territory, with the decision of the Law No. 23 of 2000, dated October 4, 2000, Banten province officially became a new province, and become self-sufficient province. Banten provincial administration center in the city of Serang.Banten province situated between 5º7'50 "-7º1'11" South latitude and 105º1'11 "-106º7'12" East, based on the Law of the Republic of Indonesia Number 23 of 2000 total area is 9160.70 km² Banten. Banten has 4 cities, 4 districts, 154 districts, 262 villages, and 1,273 villages. [1,2]

Tourism is one sector which has an important role in the development of a region [3,4]. Banten Province tourist destination for many attractions that lure tourists. Banten province has great tourism potential, natural attractions, culture (history), education, amusement parks and industrial centers of handicrafts. Diversity tourism potential Banten Province is expected to optimally support the development of the region.

Management sights professionally promote the growth of the tourism industry as a whole can move public economic activities, expand and equalize employment and business opportunities, increase income and welfare of the community, supporting acquisition of an optimal regional revenue. [5]

One measure of the tourism development is the growth in the number of tourists due to the increase in the number of tourists will directly be followed by the development of facilities and infrastructure, tourism and regional development in accordance with the service for tourists. [6]

Banten Province has targeted five leading tourist from several sectors, such as maritime, religious, cultural, shopping and industry. The five leading tourist could eventually become income to revenue (PAD) Banten. Five tourism sector can be seeded in Banten. First, marine tourism is beach tourism, beach tourism Anyer and Carita Beach travel. Second, the shopping tour. The travel can be developed in Tangerang Raya, which is supported by international airports, namely Soekarno-Hatta Airport. Third, the religious tourism. The tour is very likely developed

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because Banten have religious tourism that has been known to a few countries, namely Banten Lama. Fourth cultural attractions, such as the Indigenous Bedouin, Lebak and to travel five industries in Cilegon, Serang regency,

Using the map, the user can quickly locate a tourist attraction not only in name, but the areas around the district and district even knowable through the displayed map. Using the map, each attraction can be listed by the district or sub-district. That requires timely and accurate information to disseminate the information. The spread of Geographic Information Systems (GIS) in the form of spatial data (area) and non-spatial data in the form of information about the existence of the region. [7]

Banten tourism requires information systems that can provide object information. Geographic information systems (GIS) have the ability to manipulate the data storage and information based on geographical data. Geographic Information System (GIS) that will be developed in the delivery of information can be used via the website. Geographic Information System (GIS) based website can be one of the main tools to show attraction.

With website Geographic Information System (GIS) on the introduction of Banten Province tourism, can be used as a promotional medium tourist spots in the province of Banten. Inside this website contains information about a tourism spot in the form of descriptions, photos, video, ticket prices, and tourism plans. In addition to being a media campaign, this website can also be used as a medium for directions to a tourist spot. So simply by opening a geographic information system website can find out all about tourism in the province of Banten.

With these capabilities, Geographic Information Systems (GIS) can be used in any planning because basically all the planning will be related to the dimensions of space and time. Thus each object tourism in Banten province can be developed and published in order to determine the steps to be taken kedepannya.Menelaah phenomenon of the problem, this research focuses on the development of a Geographic Information System (GIS) -based website in Banten Province.

II. Related Works/Literature Review

According to Goodchild [8] GIS as a computing application that allows users to create, store, manipulate, visualize, and analyze geographical information. The most useful fields of GIS are resource management, utility management, telecommunications, urban and regional planning, vehicle routes and package delivery as well as all the sciences involving the surface of the earth.

Environmental Systems Research Institute [9] GIS as an acronym for geographic information systems. This can be seen as a collection of computer software and data that is used to view and manage information about geographical places, analyze spatial relationships, and model spatial processes. GIS provides a framework for collecting and organizing spatial data and related information that can be displayed and analyzed. Therefore, GIS not only has a central database, but can also be used to organize, explore, analyze, edit and view geographical data. Geographic data can range from a single set of geo-reference features or point observations to more complex data collections in a database structure [10], According to Zlatanova [11], the five most common tasks of GIS are data collection, data structuring, data manipulation, data analysis and data presentation.

The mapping made in GIS can be as a set of intelligent illustrations that mark the relationship between Earths. The model of GIS is seen as a set of tools that allows users to change information to obtain new data sets from existing data sets [12]. The tool is used to extract information from existing data to implement analytic functions that write results into new derived datasets..

III. Methods

In this study, reviewing documents, collecting secondary data and data related to travel information systems, among other tourist sites, the potential that exists around tourist sites, tourist sites photograph and description of the existing attractions.

1. Systems Development Method

   Waterfall method is used for software with specifications needs have been well identified [13,14]. Waterfall method is a model of software process that takes activity basic processes of the specification, development, validation and evolution by presenting the phases of different processes such as analysis and requirements definition, software design, implementation and testing of the unit, integration and system testing, operation and maintenance [15,16].

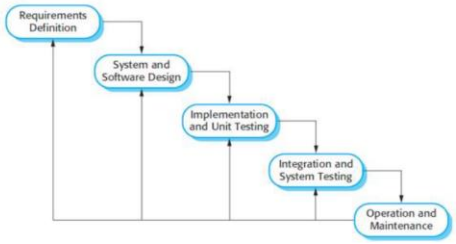

Fig. 1. Stages of Development System [10]

2. Analysis
   Analysts stage, is a process of analysis of the needs of a system. The activities undertaken at this stage of the analyst is to collect data as an ingredient in the development of the system. Data was collected by interview, observation, and questionnaire [17].
3. Design
   Stage design is a process of many steps that focuses on four attributes: data structures, software architecture, interface representations, and procedural details. Stage of the design process to translate the results of the analysis into the software representation.
4. Code
   The design phase is translated into the program. In the implementation phase of the program code will depend on the outcome of software design at an earlier stage.
   Test
5. After coding, testing of the system have been made. Tests to determine the outcome of a system that has been designed with the needs of the analysis phase.

IV. RESULTS

Model of geographic information systems (GIS) Banten travel is part of the concept pengengambangan Banten Province. Included in the prototype that will be part of a geographic information system (GIS) is a system Banten travel website, which is used for the Department of Tourism or related parties in conducting travel data management more effectively.

1. Network Architecture
   Geographic information system (GIS) of natural attractions Banten Province was built by two side program consisting of program server admin and user clien program. The program consists of a Server admin webservice, whereas MySQL database of user client program consists of the application of geographic information systems (GIS) are presented to the user. Geographic Information System Architecture Attractions Banten province can in Figure 2.

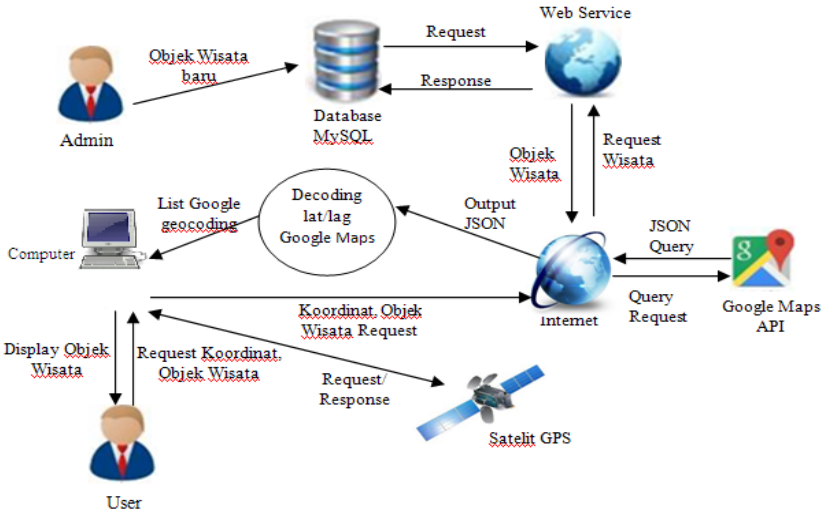

Fig. 2. Network Architecture

2. Use Case Diagram

In designing this system using use case diagrams for easier megatahui the course of this process and an overview of the design of this system. Following the design of use case diagram in shape.

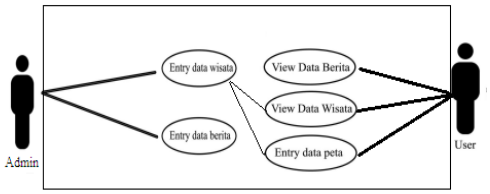

Fig. 3. Use Case

In designing the admin use case here, only admins were allowed to Masul (login) in admin. Due to maintain the security of the web. And only admins are allowed to edit and change the data in the event of a change, so that the information obtained is always updated.

3. Class Diagram

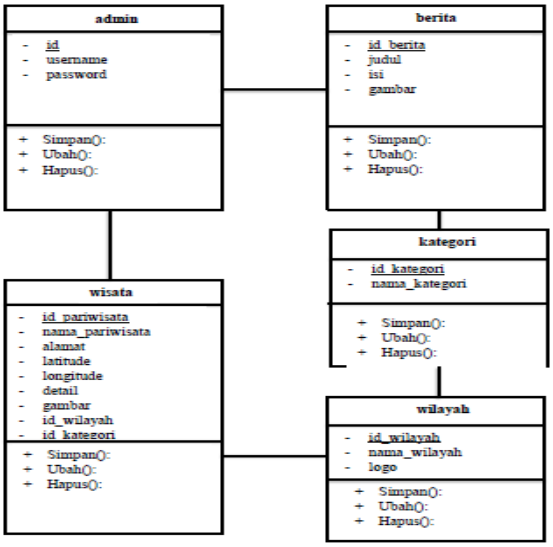

Fig. 4. Class Diagram

V. DISCUSSION

System implementation

The implementation phase is a geographic information system making the provincial tourism offerings are based on the design stage. Analisisa needs, geographic information systems are expected to display information about the provincial tourism offerings.

a. Main course

Fig. 5. Main Menu

Applications run will appear to the application's main page. Home page there are three parts, namely, the upper part contains the logo application geographic information systems (GIS) Banten provincial tourism. Right below it is the navigation menu, then in the middle there is a banner of tourism in the province of Banten. Then welcome dilanjtukan with the content, and the latter is equipped with a footer section

b. Region Display Screen

Fig. 6. Display Region

Weather region appears when the navigation menu selected region. In this menu the user can choose which region in the province of Banten, which will be the object of tourism. In the center there is a name - the name of the region in the province of Banten and the category of tourism in the region. When one accessible area then it will switch to the attractions in the area.

c. display News

Fig. 7. News

News page appears when the navigation menu selected news. In this yard unbiased news - news about tourism in the province of Banten. This page is useful to inform the news update - the latest news about tourism in the province of Banten

d. View Map

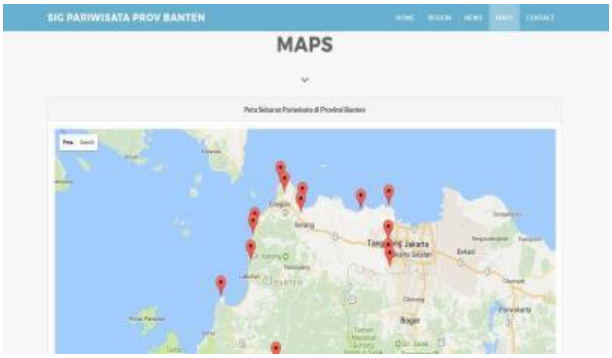

Fig. 8. View Map

This page appears when the navigation menu map is selected. On this page there are distribution maps of Banten provincial tourism. The data are presented where the attractions that have made the marker on each - each attraction right on the actual location of the position using google maps. When one marker selected will display information and also address travel names such travel. At the bottom of the description on the marker palingan we can choose to display hints road to the tourist spots.
This page appears when on a map page, the use of open information and then choose one marker signpost. On this page will be informed about the way the instructions for bias to the tourist place.

VI. CONCLUSIONS

Based on the steps being taken, it can be concluded as follows:

1. By going through the process of digitizing and mapping conducted by the google maps and data results processed using the programming language PHP, MAPS API and MySQL as the database, it is a geographic information system applications Banten province tourism can be built.
2. Application of Geographic Information Systems Tourism Banten Province, is expected to assist the user in providing information on tourist attractions in the province of Banten so that users do not have difficulties to find the location of the intended travel, and can find more detailed information about tourist sites that are geared.

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