

Integration of Mangunan Tourism Information Through Interactive Digital Tourist Maps

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Abstract

This study aims to integrate tourism information in the Mangunan area into an interactive digital tourist map application based on the Geographic Information System (GIS). The goal is to help tourists get tourist information in one comprehensive application. This GIS-based map also helps tourism managers promote their tour packages. In addition, the Bantul Regency Government is assisted in promoting tourism in Bantul Regency. The method used is the Waterfall application development method. The results obtained indicate that this GIS-based interactive digital map can overcome several problems of distribution of tourist information in the Mangunan area. From the results of expert reviews in application development, this map is considered user-friendly.

Keywords: *Interactive Digital Tourist Map, GIS, Tourist Information, Mangunan*



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INTRODUCTION

The digital destination program promoted by the Ministry of Tourism is also implemented in the Special Region of Yogyakarta (DIY). The DIY Tourism Office has set seven digital destinations to be developed in 2018. The Go Digital program is a policy of the Minister of Tourism (central government) to encourage tourism stakeholders to develop technology that supports the tourism sector. The government believes that the Go Digital program can be a tool to invite the international public to choose Indonesia as a tourist destination through information obtained digitally. This strategy was adopted to encourage local authorities to make strategic steps in implementing digital-based tourism management. Tsitsau and Goldsmith (2012) believe that the Go Digital program, especially in Australia, has been able to become a bridge in providing services to tourists that make it easier for tourists to travel to tourist destinations.

Digital tourism has become one of the mainstay programs of the Ministry of Tourism since 2018, with a target of 20 million foreign tourists visiting. Digital tourism is an effort by the government to adapt to changing market conditions. Currently, tourists will search for information, book airline tickets, book hotels, book tour packages of interest to make online payments. In other words, tourists are now doing searches and share using digital media. Artificial intelligence can be used to complement the system so that it is more friendly and human to specific users. This research, which was conducted through a collaboration between the disciplines of Tourism Communication and Information Technology, intends to support implementing the Digital Tourism program in Mangunan Bantul. Through geographic information system technology (GIS), information can be accessed easily because it describes the earth's surface or space and can visualize spatial data and its attributes. Geographic Information System (GIS) is a computer-based information system designed to work using data that has spatial information or is spatially referenced (Afnarius et.al, 2014: 2).

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As a new digital tourism destination, the Mangunan tourism village, located in Dlingo, Bantul Regency, requires adjustments, socialization, and consideration of whether digital-based tourism can be implemented in the region. Ideally, the Ministry of Tourism's program should be in line with real implementation in the areas, especially in Bantul Regency. The specific objectives of this research are: (1) Development of nature tourism based on digital tourism in the form of policies and implementation in the economic, social, cultural, and environmental fields; (2) Development of the Mangunan tourism village into a tourist destination that is integrated with Android technology; (3) Provide strategic direction for tourism marketing using digital tourism; (4) Designing the application of Information and Communication Technology for tourism development. Meanwhile, the urgency of the research is (1) This study provides a clearer roadmap through interactive Android-based communication for the development of sustainable digital tourism; (2) Smarter marketing using web and android applications in which there is a means to personalize visitors and provide tourist visit data automatically; (3) Well-integrated digital tourism is expected to provide sustainable community welfare.

LITERATURE REVIEW

Digital Tourism

Tourists as customers of a tourism activity, perform several stages before traveling. There are three processes carried out: before purchase, consumption, and after consumption (Engel, Blackwell and Miniard, 2012)³. In the first process, tourists will identify and evaluate a tourism product or travel package plan offered. From this process, they will look for various things related to the products and services they will get when they travel. These tourists will seek and obtain information related to meeting their needs when deciding to become tourists. In the second stage, tourists buy tour service packages based on the information that has been obtained (Kozak and Decrop, 2009)⁴. Tourists will experience or gain experience of tourism activities in a tourist destination. At this stage, tourists will attend various events that are part of fulfilling their needs as tourists. In the third stage, tourists have completed their activities as tourists by starting the process of evaluating the information obtained before buying tourism products or services. This evaluation stage is closely related to whether tourists receive services by what has been conveyed through searching for product and service information. Positive impressions and recommendations to family or colleagues will be given when tourism services match the information obtained. On the other hand, negative impressions can arise when tourists have an unpleasant experience or their needs are not met.

The three processes above suggest that the right, fast and accurate tourism information system can determine whether tourists buy a tourism product or not. Hyde (2012)⁵. means that tourists will seek various information related to their trips, especially those related to transportation, accommodation, and activities while at the destination. In fact, in the era of information technology, as it is today, tourists will use various media, including to obtain information according to their needs. Therefore, a digital-based information system will be a bridge in accessing the required information. Suppose a potential tourist destination can provide accurate information with the convenience of tourism services through a digital system. In that case, potential tourists can decide to buy products and determine the choice of their travel destination. This means that potential tourists currently use digital-based information more to buy tourism products through websites and influence their decisions to determine their travel plans (Chiang and Jang, 2006; Law and Cheung, 2006; Law and Hsu, 2006)⁶. So, tourists' perception will be able to change when obtaining digital-based information and the ease of the system in the Geographic Information System (GIS).

GIS is a system that takes advantage of the advantages of spatial data and defines its relationship to information. This information can be in the form of the location of an area, office address, and other information, which is stored in a database. An important part of GIS is data retrieval and storage. Spatial data from the data taken must be provided validly. Spatial data storage is usually in vector form, where the data stored is in the form of points, lines, and certain areas. Map display or presentation includes various forms from printed maps to maps on mobile devices (Irwansyah, 2013:1)7.

The reason for developing a Geographic Information System navigation application for tourist destinations in Mangunan is based on Android using the Waterfall method, apart from being easy to apply, this method has advantages when all system requirements can be defined completely and correctly at the beginning of the project, so application design or development can be done. running well and without problems. However, the disadvantage of using this method is that the next stage cannot be carried out properly when one stage is blocked.

The GIS system is very much needed in the context of tourism development in DIY, considering that this province is trying to increase the acceleration of tourism development in DIY so that it can become a leading and competitive DTW on a national and international scale, especially as a leading tourist destination in Southeast Asia (Sugandini, Efendi, Utami & Sasmita, 2018; Khanif, Utami & Tripambudi, 2018) analyzed the perception of foreign tourists on the promotion of cultural and historical tourism in Yogyakarta, as well as to improve the quality of objects related to the factors that influence foreign tourists to visit Yogyakarta including events, attractions, facilities, infrastructure, and services. . The results show that the perception of tourists is very good and assessing Yogyakarta tourism services as satisfactory. Meanwhile, Sari, Utami, Ayu (2018) have applied the android feature to promote tourism in the Semi Kakilangit Market as a Digital Destination. This kind of information system has been developed in several tourist destinations. The systems are still separate from each other, so users experience discomfort in exploring the information of these tourist destinations. This digital map will make it easier for users to surf to find information on tourist attractions because everything is integrated with one application. The development of mobile GIS applications on tourism has also been developed in Gunungkidul Regency. The application features include directions to the intended location, distance to the location, and general information such as public transport routes and hotel lists (Agrarian, Suprayogi & Yuwono, 2015).

The development of an integrated android application will automatically recognize famous and nearby places and send notifications to the android phone. The app also provides a weather recommendation feature that notifies tourists about the destination's weather conditions before visiting it. All places are categorized and ranked. This application also provides a vehicle sign facility to reach your vehicle after a field visit. The method used is Triangulation with LBS and GPS to track the user's location. And according to the location, a list of relevant tourist attractions will be sent in the form of a pop-up. (Walunj et al., 2016).

The development of an Android-based historical tour guide application built using Location-Based Service technology with geofencing features helps tourists plan their tourist trips. This application will trigger a notification when the user enters the geofence area, this notification is audio that explains the history that is relevant to each historical tourist attraction in Malang. Based on the experimental results, the application's level of accuracy is 100% successful in triggering the right information according to each historical tourist attraction area. The estimated distance that will trigger the application of information (+/-) is 5 to 15 meters automatically (Priandani et al., 2017).

RESEARCH METHOD

This research is a collaboration between the disciplines of Communication and Informatics, Waterfall application development method. The models used are four Unified Modeling Language (UML) diagrams, namely: (1) use case diagrams; (2) Activity Diagrams; (3) Sequence Diagrams; and (4) Class Diagrams. The resulting application is expected to be used as a promotional media and a tourist guide that can make it easier for tourists to plan tourist trips in the Mangunan Imogiri Tourism Village, Bantul. The resulting application is innovative because it uses data science techniques for user personalization. Because this research is a multi-year study, everything must be arranged based on mutually sustainable stages. There are three stages carried out, namely (1) needs analysis, (2) Designing, and (3) Implementation. The needs analysis stage is carried out by surveying users to determine what information is needed. This information is then used to build features within the application. After the information needs are known, the metadata needs are identified, in the form of the type of object such as the name of the tourist location, the facilities owned, the surrounding culinary, souvenir shopping places, hotels, and so on. After that, data collection in the field (location survey). The second stage is making the design. At this stage, the interface design and layout based on GIS are built. Next, the process design is built, including the search feature and the operation of each menu, and the database design. Then the last stage is carried out, namely the implementation stage (trial). At this stage, it is tested how the quality of users feels their experience using this application (User Experience). From the test results, improvements will be made to improve the application.

FINDINGS AND DISCUSSION

A map represents a geographic area or a portion of the earth's surface that can be displayed in a variety of ways, ranging from traditional printed maps to digital maps displayed on a computer screen. To visualize the world in an easy, instructive, and functional way, maps can be made in various styles, each exhibiting a distinct surface for the same subject.

Because they may display multiple perspectives on the same subject, computer-based (digital) maps are more adaptable and dynamic. This map also supports size adjustments, combined animations, photos, and sounds, and it may be linked to additional information sources over the internet. Digital maps can be updated to create new thematic maps and can include additional specific geographic information.

Beginning with an ambition to create an integrated digital map to establish tourism for Mangunan, the Mangunan Tourism was born. A digital map contains a database that must be displayed, such as information on natural attractions, cultural tourism, recreational tourism, historical tourism, special interest tourism, culinary tourism, art tourism attractions, hotel locations, and lodging places related to tourism at Mangunan. The information is displayed as a map or an interactive map, with specific locations including information, images, videos, annual travel calendars, and other valuable media.

This Digital Map of Mangunan Tourism combines geographic data with data from the Bantul Regency Tourism Office, specifically the "Explore Bantul" application (see Figure 1) and data from other connected agencies. The Digital Map of Mangunan Tourist is a website-based mapping application that is combined with numerous GIS features (tools) that show mapping data and layers of tourism objects/activities/facilities in support of tourism in Yogyakarta Special Province.

In terms of transparent data presentation as a kind of community service, the public can, of course, seek information relating to the location of tourism objects featured on digital maps. With this media, the government and the general public will obtain information, analyze it, and make decisions about regional tourism more easily.

User Experience of Virtual Maps

This application is built on a user needs analysis. This is evident from the presented menus. Typically, a survey is administered to the user or client for the mapping application. The application content indicates that this map is based on GIS data (spatial data). A survey is required to determine the objective of this application and the features that are needed. Meanwhile, the metadata requirements of tourist sites, which are typically connected to culinary, retail, tourist services, hotels, and so on, are adequately served. Coordinates have been designed as needed in mapping the categories of tourism objects, such as object names and positions.

Another critical aspect is application design. The first interface features are included in the design. If one program is linked to another, it must be assured that the connected application has the necessary information load. This electronic map is linked to Google Maps. Google Maps is the major menu in terms of necessity. This map's information on tourist spots is quite complete, however, it might be improved in terms of routes and road classes that lead to tourist attractions. Meanwhile, the process design is quite outstanding, including the search feature. This has something to do with data collection and database design. The database has all of the necessary information. According to the incomplete information content, this signifies that the information held in the database still needs to be added.

Comfort criteria when using this application are Useful (functional), Usable (used), Desirable (desirable), Findable (can be discovered), Accessible (accessible), Credible (reasonable), and Valuable are these criteria (valuable).

1. Useful: I believe that the Digital Map of Mangunan Tourism Site has served as an effective tourist information medium in the form of a digital map. The data acquired from the digital map assisted me in deciding which tourist places to visit. As a result, I believe this Digital Map is valuable for obtaining tourist information.

The Mangunan Digital Map is distinct from the material on the website. I believe that by using this digital map, I can gain detailed knowledge in the form of trip affordability from a specific location.

2. Usable: The digital map of Mangunan Tourism is simple to use. The characteristics of the Mangunan Digital Map, which include gastronomic spots, retail areas, tourist service enterprises, tour guides, tourist destinations, hotels (lodging), arts and culture, crafts, and public facilities, are quite comprehensive and straightforward to grasp.

3. Coveted

Based on user feedback, the Digital Map of Mangunan Tourism is exceptionally user-friendly. Based on the option selected, I obtained the content of Mangunan Tourism Digital Map. By pressing the public facilities button, I can easily identify the location of public facilities in tourist sites, which will subsequently be presented in the form of a map.

4. Locatable

Finding the information or features contained in the Digital Map of Mangunan Tourism is pretty simple based on the use outcomes. The search box on the Digital Map of Mangunan Tourism is used to locate the selected tourist destination.

5. Easily accessible

An internet connection is necessary to view the Digital Map of Mangunan Tourism. It becomes a problem when using digital maps in areas where the internet is not available. Digital Map of Mangunan Tourism Sites does not require high internet speed; when used with poor internet rates, digital maps can still give the information you seek but may take longer to load.

6. Reliable

I do not need to log in to utilize the Mangunan Tourist Digital Map. The security level of the Digital Map of Ancient Mangunan is regarded as poor due to the lack of a security mechanism at login.

7. A handy digital map of Mangunan Tourism. The menu on the digital map makes it easier for travelers to find tourism objects based on their preferences (the one they like, the closest one, or the most complete one).

Discussion

The Mangunan tourist area has various and scattered tourist attractions. Each tourist attraction has a different character and is supported by its respective supporting facilities. The supporting facilities include homestays, worship facilities, souvenir markets, and so on. Not all tourist sites are easily accessible. Some of them are in remote locations. If the route is not studied, tourists can find it challenging to find it. Natural tourism objects are often located in places that are difficult to reach. Likewise, the condition of tourism objects in the Mangunan area. Almost all of them offer natural attractions.

At this time, each of the tourism managers has its information media. It is not easy to unite tourism managers into one information container. This problem was compounded by the arrival of several stakeholders who brought their respective interests. Usually, this kind of stakeholder comes from academics who have research programs or community service. These academics often carry programs according to the proposals submitted. The result is the development of discrete information systems. Often the existence of the application is not taken care of after the initiator left.

The biggest challenge in managing tourism in the Mangunan area is to unite the interests of stakeholders. Stakeholder participation is all positive, but their contributions do not function optimally because it is carried out separately.

CONCLUSION

So far, the tourism information system in the Mangunan area has not been integrated. This condition results in tourists not having a thorough knowledge of the existence of all tourism objects. This knowledge is essential for tourists to plan their tourist trips.

Through this GIS data-based digital tourist map application, tourists can get tourist information in only one application. The experience of surfing to various locations can be directly done just by opening this one application. In addition to making it easier for tourists, this digital map is also a promotion place for tourism stakeholders. Only by posting information on this map, the location and information of the promoter can be accessed by its users.

In general, this GIS-based digital map application can also be developed for a wider area along with tourist sites in Bantul Regency. If it is designed with a larger capacity, as well as the availability of sufficient information, all tourism objects in Bantul Regency will be integrated into one GIS-based interactive digital tourism map application. For this initial stage, the results of the developer expert review show a positive assessment in terms of User Experience.

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