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Research Article

Location-based Service (LBS) Application Design as Jeneponto District Tourist Information Media

Eva Fachria*, Junaedi, Suardi

Politeknik Negeri Media Kreatif PSDKU Makassar, Indonesia

ORCID
Eva Fachria: https://orcid.org/0009-0007-8416-4174

Abstract.
Location-based service (LBS) is an application that can be used to show the location of a place so that it is easier for users to find their destination. The existence of the Android operating system, which is known as an open operating system, helps developers in creating applications that can be implemented on the Android operating system. The implementation of LBS at tourist locations in Jeneponto Regency is to make it easier for people to find tourist locations. Based on this, research was carried out on the design of the LBS application as a promotional media for the Jeneponto district. This research is a type of applied research, where researchers use the GRAPPLE (Gudline for Rapid Application Engineering) method, where in this method each research step is carried out sequentially, starting from the stages of data collection, planning, design, writing program code, and testing. Features used on Android devices include the Global Positioning System (GPS), which are supported by the Google Maps API. The test results in this research show that LBS can be used to search for tourist locations in Jeneponto Regency, so that it can become a medium for information on tourist locations.

Keywords: information media, LBS, tourism

Corresponding Author: Eva Fachria; email: evafachria@polimedia.ac.id

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1. INTRODUCTION

Jeneponto is one of the districts in South Sulawesi and one of the regions that has complete and interesting tourist destinations. The tourism potential of Jeneponto Regency is very diverse, including natural tourism, cultural tourism, culinary tourism and artificial tourism (Junaedi, 2022). Tourism is a vital sector for a region and is a means of promoting the uniqueness of local culture and is expected to improve the regional economy. According to statistical data from the Jeneponto Tourism Office, the number of tourist visitors from 2021 to 2022 has relatively decreased, wherein 2021 the number of domestic tourist visits was 63,203 visitors and in 2022 the number of domestic tourist visits was only 50,649 visitors.

Lack of information regarding tourist attractions, access to tourist locations, estimated costs, and facilities provided in tourist areas is one of the factors causing the lack of tourist interest in visiting Jeneponto district. The sources of tourism information currently used are social media (Facebook and Instagram), websites and several other tourism information facilities. The information media currently used is not capable of providing maximum tourism information, so researchers feel the need to design a tourism information media application in Jeneponto Regency which includes information about tourist locations and access to the locations. LBS (Location Based Service) is a geographic information service application that can be accessed via cellular telephone with a cellular network connection to map locations precisely (Edi Budiman, 20016).

The advantages of the LBS (Location Based Service) application include the location information provided in real time and as good directions for the destination location (Nuraeni Widya Astuti, 2020). Location Based Service works based on geographic information. In previous research, LBS (Location Based Service) was used for culinary information in Yogyakarta (Erviana Devie and Edy Winarno, 2018), LBS (Location Based Service) was also used for Web3 Mobile- Based Tourist Directions for Semarang City (Aryo Windu and Edi Winarno 2018), and Android- Based Information on Searching for Halal Restaurant Locations in Kupang City. (N Aulia, 2020). In 2022 Sopiah Nyimas will also produce research entitled “Mosque Location Search Application Using Android Based Location Based Service”.

Based on the description above, the researcher feels it is necessary to carry out research entitled ’Location Based Service (LBS) Application Design as a Tourism Information Media for Jeneponto Regency.”

2. METHODOLOGY/ MATERIALS

This research is a type of applied research, where researchers use the GRAPPLE (Gudline for Rapid Application Engineering) method which includes the following stages:

1. Requirement Gathering is the process of collecting data to identify the constraints of the system to be created
2. Analysis includes analysis of tool and material needs, in this research tools are needed in the form of hardware and software, data needs analysis and system needs analysis.
3. Design is designing solutions to proposed problems from the initial stages until the right results are obtained. Development, this stage is handled by the programmer

to build programming coding and user interface. In making this application, Android Studio and Kotlin 1.3.30 were used for the programming language, Fire Base for the database, Android SDK Build Tools 28 as a complication tool from the program code to the Android application.

4. Deployment, the stage where the resulting product is distributed to users and tests the product's effectiveness.

3. RESULTS AND DISCUSSIONS

3.1. General description

The first step in creating this LBS application is to collect and map tourist locations in Jeneponto district, this mapping can be seen in Figure 1.

Figure 1: Map of tourist locations in Jeneponto district.

The software built is a client server based mobile application. The software used in the information application and route search for tourism locations in Jeneponto Regency based on Loction Based Service is focused on retrieving coordinates, the software uses GPS. Then to get maps and routes the system uses GoogleMap APIs by providing earth coordinate parameters. After sending these parameters to GoogleMap, GoogelMap will reply in the form of a statistical map. In route search, the software sends two earth coordinates as the starting address and destination address, then the GoogleMap Direction server will reply in the form of data and a route that will be displayed to the user.

In searching for tourist locations in Jeneponto district, the software connects to Google maps by sending the coordinate parameters of the mobile device. After sending these parameters, the server will reply in the form of tourism location data which will then be parsed by the system anddisplayed to the user. In general, the software to be built is directed to fulfill the functionality, as in the table 1:

No	Code Requirements	Name of Requirements	Information
1.	ReqLBS_1	search for tourist locations	This application must be able to search for tourist locations
2.	ReqLBS_2	Displays tourism applications	This application must be able to display tourism information
3.	ReqLBS_3	displays tourist locations	This application is used to display tourism locations

Figure 2: Functional Requirements Table.

As for the implementation of LBS in the Jeneponto Regency tourist location search application, first the user will provide a request for a tourist location route. The request is then processed by a communications network connected to the internet to show the requested tourist location, then according to the location position service from Google Maps API, information on the user's location and the destination tourist location will be sent. Apart from that, the user will also be equipped with coordinate content, location name, address and graphic description of the route to be taken. The LBS implementation diagram can be seen in Figure 2.

Based on the identification of functionality requirements, the main features of the application can be described through a use case diagram as in Figure 3.

3.2. System Design

Based on use case diagrams and identificationdata and information that must be displayed, thendefined class diagrams and relationships between classes,as seen in Figure 4.

Table 2 displays a description of the classes that will be implemented in the application

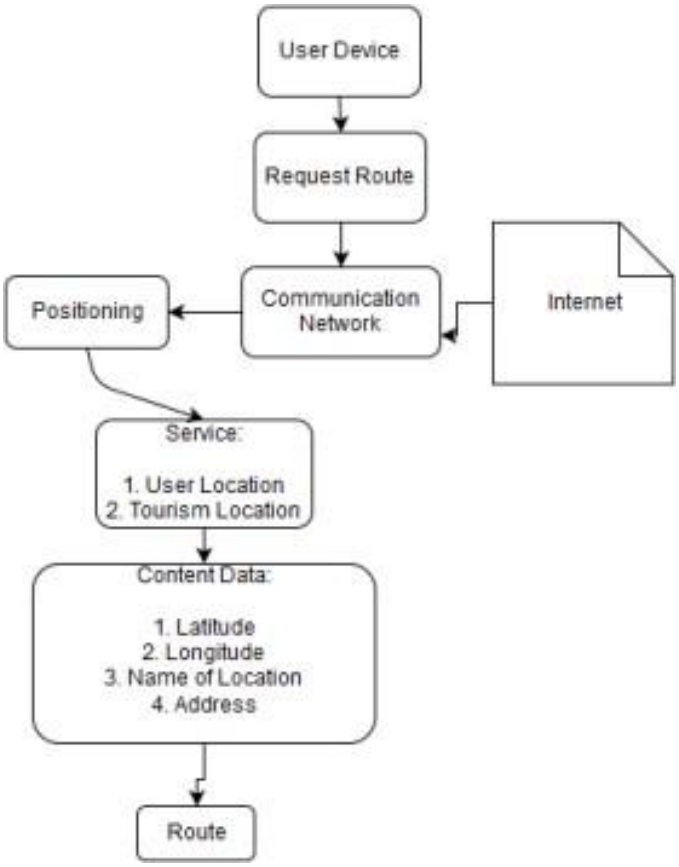

Figure 3: LBS Implementation Diagram in Applications.

Figure 4: Use Case Diagram.

3.3. system implementation

In system implementation, the next process is to find a route from the user's location to the tourism destination, which will be displayed on the user interface. As for the

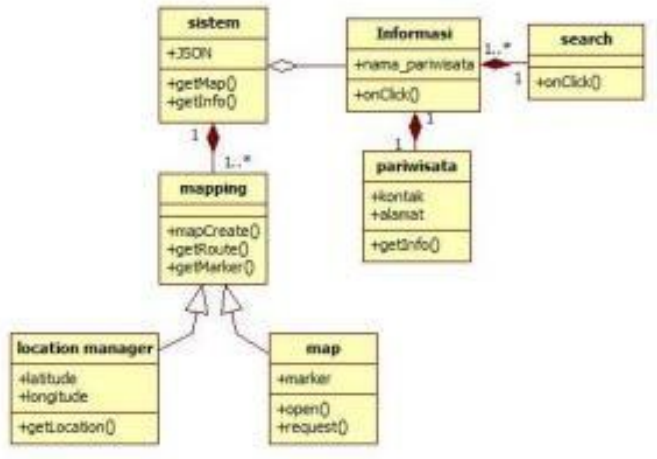

Figure 5: Class Diagram

No	Class Name	Information
1.	Information	is first class
2.	System	is a class that handles tourism information
3.	tourist	is a class that contains tourism information
4.	search	is a class that handles mapping
5.	map	is a class that handles the map interface
6.	mapping	is a special class that handles user location map interfaces, tourist and travel route information to tourist locations
7.	Location manajer	is a class that determines location

Figure 6: Class Diagram Description.

application display, it is divided into two columns, namely, a column that displays a map equipped with travel routes to tourist locations. The second column displays other route options along with distance and travel time. As shown in Figure 5.

Based on the previous description, it can be concluded regarding the results of implementing the Location Based Service application as an information medium and searching for tourism locations in Jeneponto Regency as a solution that is able to solve existing problems because :

1. The application created is able to help people find tourist locations in Jeneponto district via an Android mobile application.
2. The application created is able to help people find the closest route to the selected tourist location and display it on an Android mobile device with a route marker that can be taken.

Figure 7: Route interface to the location tourist.

3. Application test results show that there are shortcomings, namely in searching for locations and routes to locations, users need a data connection. If the data connection is not good, determining the user's location or tourism location takes a long time and sometimes you can't even read the user's location or tourism location. Apart from that, directions to tourist locations only consist of a list of text that must be read by the user, this is less effective for users who are driving.

To overcome the shortcomings of the application created, researchers provide several suggestions for application development and further research, namely:

1. (a) To reduce deficiencies in this application, this application can be developed further by adding a SQLite database to this application so that the application can be used offline.

   (b) To improve the functional performance of this application, voice navigation features and public transportation route navigation features can be added for users

   (c) Further development can be carried out by adding functions to use the application in various languages so that foreign tourists who are in the Jeneponto Regency area and need this application can use it more easily.

(d) Further development of the LBS application for information and searching for tourism locations not only in Jeneponto Regency, but more widely for all cities in Indonesia.

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References

[1] Abiyasa AM. Redesign of the sign system as an information medium for Bhakti Alam agrotourism visitors. thesis, State University of Malang.2018.

[2] Widarjono A. Econometrics: Theory and Applications for Economics and. Business. 2nd ed. Ekonisia FE Indonesian Islamic University; 2016.

[3] Aulia N. Location Based Service (LBS) application for information and searching for halal restaurant locations in Kupang City based on Android. Thesis, Widya Mandira Catholic University. 2019.

[4] Budiman, Edy. Utilization of Location Based Service Technology in Mobile-Based Mulawarman University Campus Profile Application Development. ILKOM Scientific Journal, Mulawarman University vol.8 no.5.2016.

[5] Devie, Erviana and Winarno, Edy.. Location Based Service Application for Culinary Information in Yogyakarta. Stikuban University.Vol 23 No 12018

[6] unaedi. Development of tourist areas through mapping the tourism potential of Jeneponto Regency. Polimedia. 2022.

[7] Ketut, I Suwena dan Gusti, I Ngurah Widayatama.Pengetahuan Dasar Ilmu Pariwisata.Pustaka Lasaran. Bali.2017

[8] Nyimas, Sopiah. Website-based Goods Sales Information System Using the Rapid Application Development Method (Case study of the Rindi Sewindu Collection). 2022.

[9] Octaviani V. Effectiveness of Using Advertising Media at Dehasen University Bengkulu ((Comparative Study of Top Line Media Advertising and Bottom Line Media Advertising). FIS UNIVED Professional Journal Vol. 2 No.2. 2012.

[10] Winarmo, Edy and Sulaksono. Web-Mobile Based Tourist Directions for Semarang City Using the Location Based Service Method. Informatics Engineering Study Program, Faculty of Information Technology, Stikubank University. 2018.