

# PERANCANGAN SISTEM INFORMASI LOKASI PARIWISATA KABUPATEN SERDANG BEDAGAI BERBASIS ANDROID MENGGUNAKAN METODE USER CENTERED DESIGN (UCD)

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## ABSTRACT

*The development of tourism for the regions has various positive impacts. In general, the positive impact is expanding employment opportunities, increasing business opportunities where it can provide benefits for both the region and the surrounding community, and being familiar with local culture by tourists. Most regions in Indonesia rely heavily on tourism as a source of income for the surrounding community, including in Serdang Bedagai Regency. Serdang Bedagai Regency has many tourist attractions, but because of the many tourist objects in the area, a problem arises, namely tourists often find it difficult to find out location details and do not know information about the tourist attractions they are going to, and to find out this information just by asking other people. Therefore, the author made this research, namely designing an android-based tourism location information system for Serdang Bedagai Regency using the User Centered Design (UCD) Method, which can facilitate the search for the location of a tourist attraction and can provide ticket price information and what facilities are provided. in these tourist attractions so that it also helps the Government in marketing tourism in Serdang Bedagai Regency.*

**Keywords : Information System, Tourist Attraction, UCD**

## ABSTRAK

Perkembangan pariwisata di daerah membawa berbagai dampak positif. Secara umum dampak positifnya adalah perluasan kesempatan kerja, peningkatan peluang usaha yang dapat memberikan manfaat baik bagi daerah maupun masyarakat sekitar, serta mengenal budaya lokal oleh wisatawan. Sebagian besar daerah di Indonesia sangat mengandalkan pariwisata sebagai sumber pendapatan masyarakat sekitar, termasuk di Kabupaten Serdang Bedagai. Kabupaten Serdang Bedagai memiliki banyak tempat wisata, namun karena banyaknya obyek wisata yang ada di daerah tersebut maka timbul permasalahan yaitu wisatawan sering kesulitan untuk mengetahui detail lokasi dan tidak mengetahui informasi tentang tempat wisata yang akan mereka tuju, dan untuk cari tahu informasi ini hanya dengan bertanya kepada orang lain. Oleh karena itu penulis membuat penelitian ini yaitu merancang sebuah sistem informasi lokasi wisata berbasis android untuk Kabupaten Serdang Bedagai dengan menggunakan Metode User Centered Design (UCD), yang dapat mempermudah pencarian lokasi suatu objek wisata dan dapat memberikan informasi harga tiket dan fasilitas apa saja yang disediakan. di tempat wisata tersebut sehingga juga membantu Pemerintah dalam memasarkan pariwisata di Kabupaten Serdang Bedagai.

**Kata kunci : Sistem Informasi, Objek Wisata, UCD**

## 1. INTRODUCTION

Today, the development of information technology is advancing rapidly in various fields, playing a role in the creation, storage, and transmission of information. With the use of electronic devices such as televisions, computers and smartphones, information technology is needed and tends to be highly dependent on society. From young to old, you should be familiar with how to use Android. Android is an operating system that runs every day on smartphones and tablets. The reason so many smartphones use this operating system is because it is considered very easy to use and can be customized. Before technology developed, when I was not very familiar with smartphones or wanted to go on vacation, I contacted people around me to find or ask for tourist attractions. And now this is done by searching for the location using Google Maps, but no information about the attraction is provided on Google Maps. Therefore, this study aims to build an android-based tourist site information system with a user-centric design (UCD) method that makes it easier

for people to find location information and descriptions of tourist attractions in Seldan Beda Guy Regency. This is to make it easier for people to plan and choose tourist objects to visit.

## 2. LITERATURE REVIEW

### a. *User Centered Design (UCD)*

User Centered Design (UCD) is a new paradigm in the development of a web-based system. The concept of UCD is that the user is at the center of all system development processes, and the objectives / properties, context and system environment are based on the user experience itself. (Simatupang, 2014)

According to Lightbown, UCD is an iterative process that revolves around the user. Therefore, it is not surprising that the user is at the center. This means that every process carried out will involve the views of the user. The purpose of this UCD approach is to produce a product with a high usability value. (Mulia, 2016) The following are the phases in User Centered Design which can be seen in Figure 1.

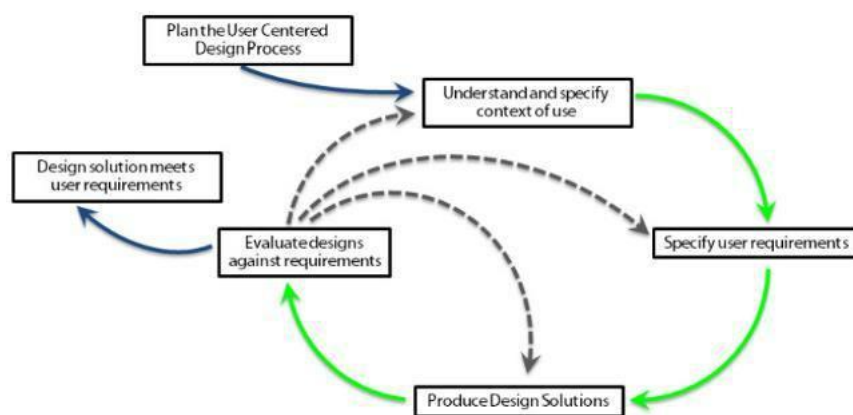


Figure 1. Fase User Centered Design

### 1. *Understand Context of Use*

System designers need to understand the context in which they use the system, its intended use, the circumstances of its use, and the users who use the application.

#### 2. *Specify User Requirements*

The next process is to determine the needs (user requirements) needed by the user. This process requires designers to be able to identify and list the needs of users in the company and the goals to be achieved.

#### 3. *Design Solutions*

Then design a solution from the list of requirements specified in the user requirements. This process goes through several stages, from initial concept to complete design.

#### 4. *Evaluation Against Requirements*

Evaluation is done by involving users who use it. Evaluation starts from the first process and continues to the next process to see if there are improvements and make corrections.

### **b. Geographic Information System (GIS)**

Geographic Information System (GIS for short) is a computerized system used to collect, store, transform, manipulate, and analyze geographic data. (Yousman, 2004:1)

Geographic data is spatial data with the following characteristics:

1. Has geometric characteristics such as coordinates and location.
2. Spatial aspects, such as cities, parcels, development areas
3. Associated with events found on Earth. For example, the symptoms of an object or the date of an event.
4. Used for certain activities such as analysis, monitoring and management.

### **c. Location Based Service (LBS)**

Location Based Service (LBS) or location-based service is an information service that can be accessed using a mobile device via a network and can display the geographical position of the mobile device's existence. (Rompas, 2013)

Two primary elements based on Location Based Service are :

1. Location Manager (API Maps) provides a tool for origin or source for LBS, Application Programming Interface (API) Maps provides facilities for displaying or manipulating maps. This package is located in "com.google.android.maps;".
2. Location Providers (API Location) provides location search technology used by a device. This Location API includes GPS (Global Positioning System) data & real-time location data. API Location is in the Android package, namely in the "android.location" package. Location, movement & proximity using exclusive locations can be affected via Location Manage. (Nazruddin, 2013)

### **d. Android**

*Android* is an operating system that is very widely used today, especially in smartphones or tablets. Android is growing very fast in updating its versions. Even Android presents a different environment for users. As a model the user has the right to delete or modify the primary application using the application offered by the third party, depending on the needs of the user of the device. (Nazruddin, 2015)

### **e. Pemrograman Java**

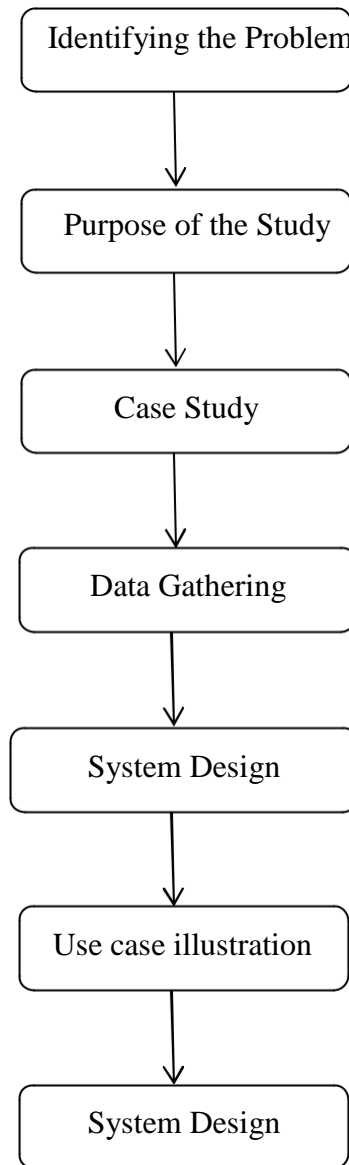
Java is a high-level programming language that can be implemented on multiple platforms. Java programming language is known as a simple

programming language, object-oriented neutral architecture, has high performance, has multithreaded,

dynamic, secure and powerful. (Mulyana, 2008)

### 3. RESEARCH METHOD

In the research using the following research method :



#### 1. Identifying the Problem

"How to create a tourist location information system in Serdang Bedagai Regency that is easy to use for visitors," is the formulation of the problem in this study.

#### 2. Purpose of the Study

Designing a user-friendly Android-based tourist location information system for Serdang Bedagai Regency is the aim of this project. This information system is anticipated to serve as a means for introducing Serdang Bedagai Regency's tourism attractions and assisting tourists in learning where they are.

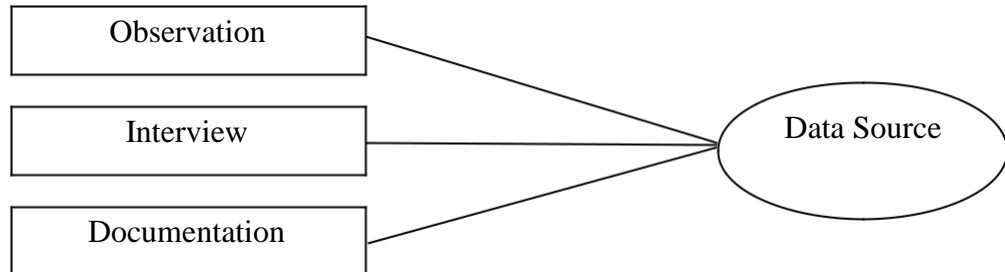
#### 3. Case Study

As a result of the abundance of tourist attractions in the Serdang Bedagai Regency, which served as the case study for this study, a problem with tourists' inability to locate specific location

information and lack of familiarity with the area has emerged.

#### 4. Data Gathering

The following is the research's approach for gathering data:



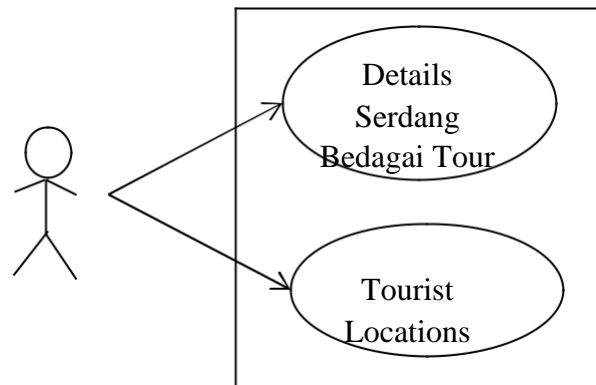
#### 5. System Design

The UML (*Unified Modeling Language*) technique is used in this study's information system design to define the activities in depth and how the system will function. The building of application programs is facilitated by UML, which is a visual modeling of a system utilizing user-friendly and expressive diagrams to determine the

design. Use case diagrams, activity diagrams, and sequence diagrams were used in this study, which defines UML (United Modeling Language) as a standard language for visualization, design, and system documentation.

##### a. Use Case Diagram

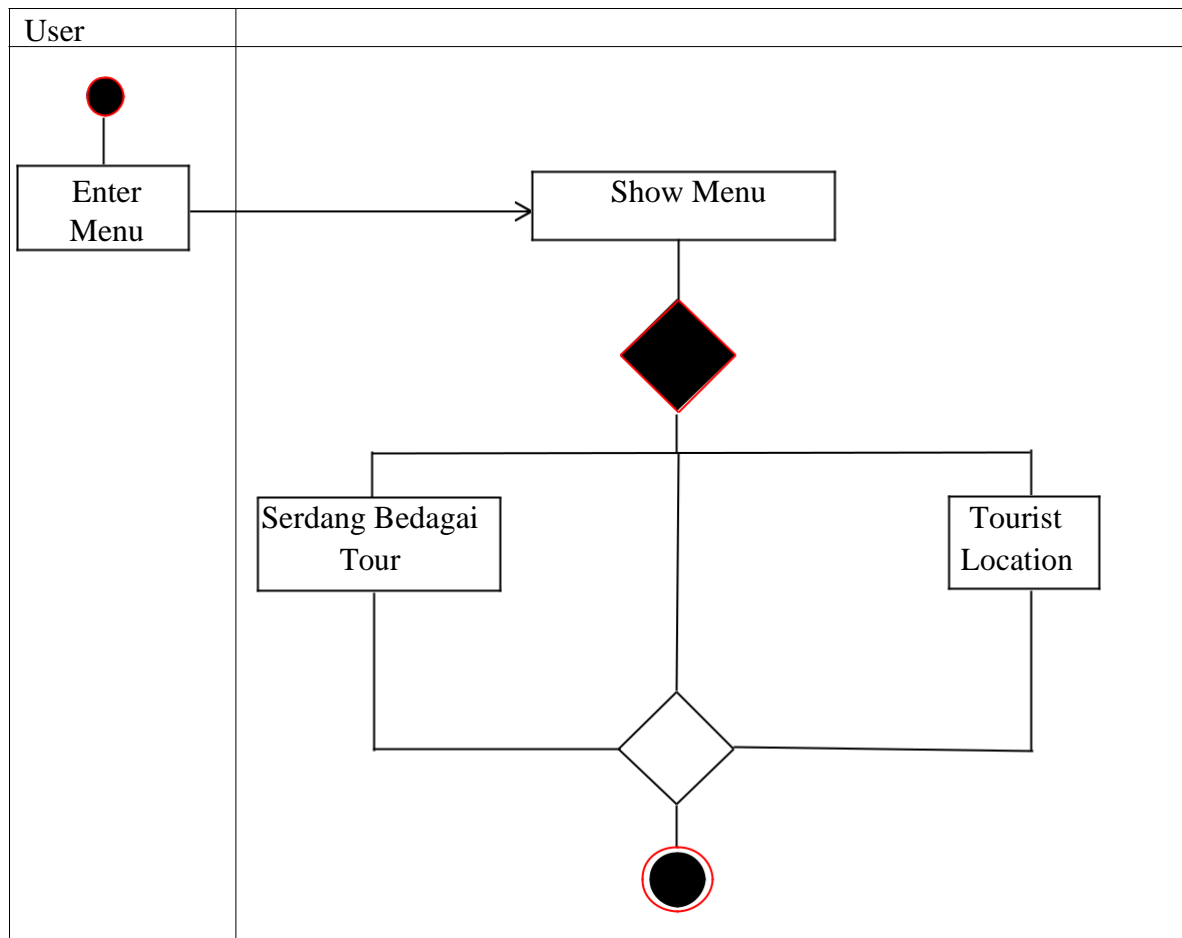
The use case diagram that follows shows how this information system only has 1 user level:



Use Case Diagrams describe the relationship of interactions or interrelated activities between the system and actors. In the Use Case diagram above, there is 1 actor, the actor is the user (the person who accesses it) and 2 objects, namely the Details of the Serdang Bedagai Tourism Object and the Tourist Location.

##### b. Activity Diagram

According to Sukamto and Salahuddin (2013:161) Activity Diagram is a diagram that describes a workflow (workflow) or activity from a business process, or the menu contained in the software (software). Serdang Bedagai Location Tourism Information System



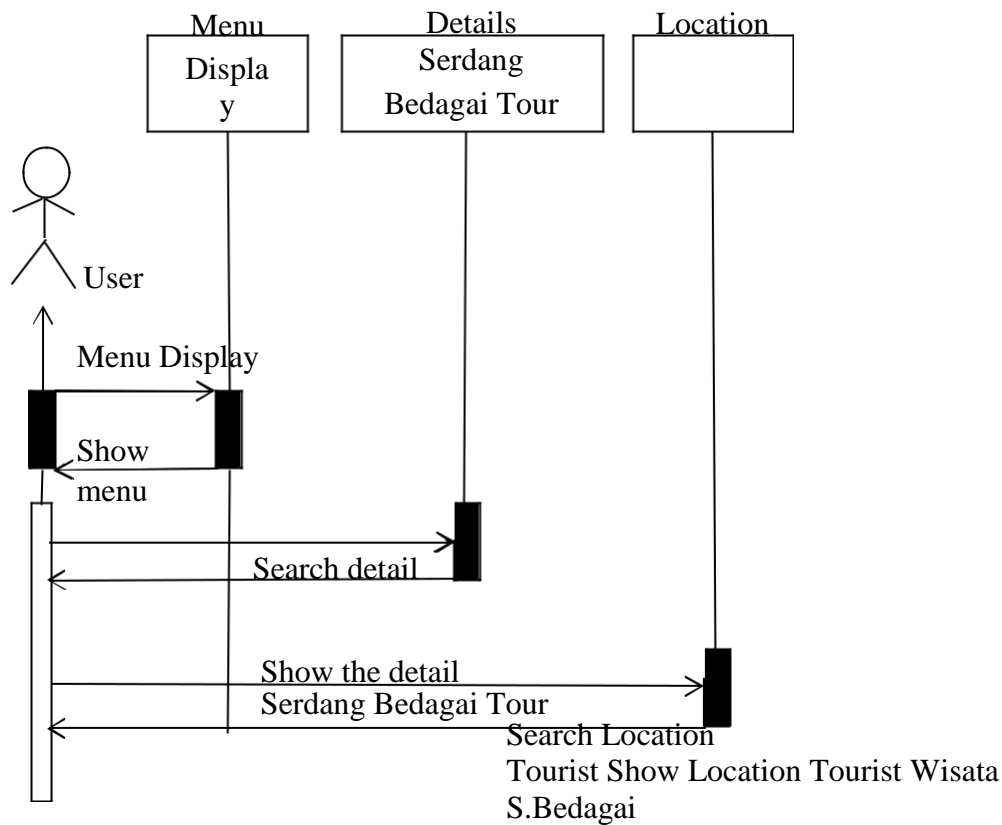
**Explanation :**

The user enters the menu, after which the information system will display a menu consisting of the following information :

1. Tourism of Serdang Bedagai Regency  
Provide tourist attraction information such as ticket prices and what facilities are in Serdang Bedagai Regency.
2. Tourist Locations  
Provide information on tourist locations in Serdang Bedagai Regency.

*c. Sequence Diagram*

Sequence diagrams describe the behavior of objects in use cases to explain and display interactions or commands sent between objects in detail and sequentially so as to produce the desired output. Sequence diagrams are also often called the workflow of an activity.



There is one actor, user, and two objects, the details and location of the attraction. When the user clicks on details, details of the attraction such as opening hours, entrance fees, and available facilities will be displayed. Then click search location to see the location of the tourist attraction.

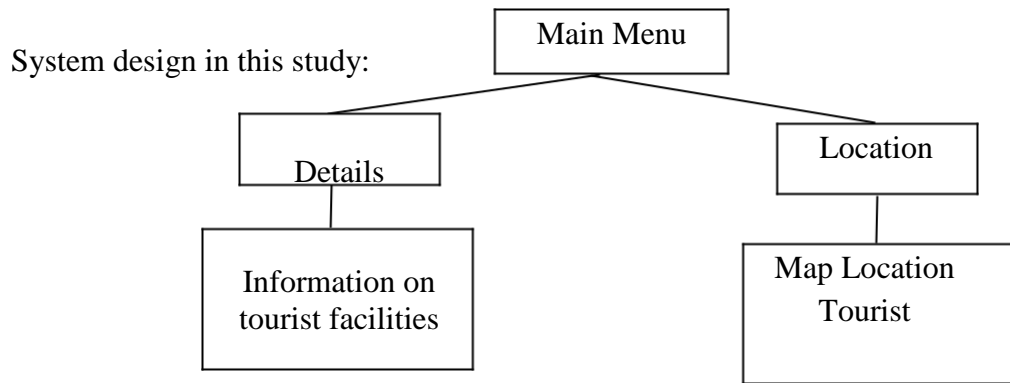
### 6. System analysis

Problems are identified from the results of the investigation. This means that tourists have difficulty finding location details and often do not know information about the tourist objects they visit. This is due to the lack of a tourism information system in Seldan Bedagai Regency. Taking into account these conditions, the data collection for this study was by observing tourist attractions in Seldan Bedagai Regency, interviewing local workers and

documenting the locations and facilities provided there. The Seldan Bedagai Regency Tourist Location Information System is designed to understand the needs of tourists and is very user-friendly, so it is built on Android.

### 7. System design

To facilitate the development of information systems in this research, it is necessary to develop a system design that accelerates the application process according to conditions and needs. System design can also impose constraints in determining the appearance of this information system.



#### 4. RESEARCH RESULT

This information system presents information in the form of location data and details of tourist objects in Serdang Bedagai Regency. This system is expected as a medium to introduce tourist attractions in Serdang Bedagai Regency and help visitors to find the **Interface Display**

location of these places. The tourism location information system of Serdang Bedagai Regency is designed based on Android with the User Centered Design (UCD) method, it can be seen as follows:

##### 1. Main Menu Display



Figure 1. Main Menu Display

The main page displays the menu:

1. Serdang Bedagai Tour
2. Tourist Locations



If the Serdang Bedagai Tourism menu is clicked, it will display tourist objects in Serdang Bedagai Regency.

### 3. Display Button Details



Figure 3. Display Button Details

The detail button when clicked will display information about the selected tourist attraction, such as information on operating hours and ticket prices for the attraction.

### 4. Location Button Display

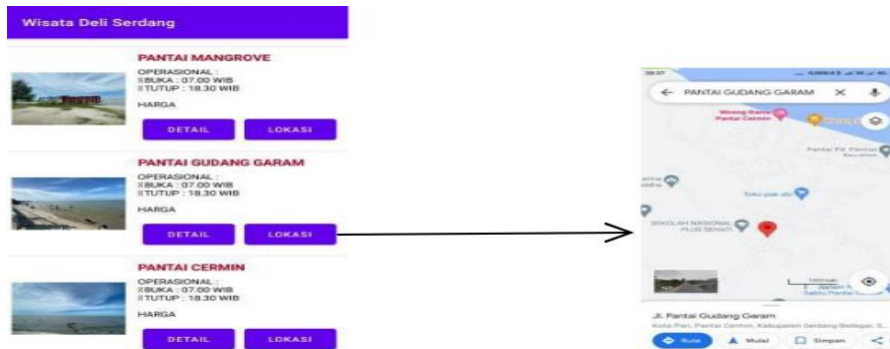


Figure 4. Location Button Display

The location button when clicked will display information on the location of the tourist attraction, making it easier for visitors to find its location.

## 5. CONCLUSION

The tourist location information system in Serdang Bedagai Regency is created through using User Centered Design technique and is built on Android with a Java software so that visitors can easily discover tourism spots in Serdang Bedagai Regency. The system is created highly user pleasant since it employs the UML (Unified Modeling Language) technique of design to determine the analysis of requirements specification,

particularly Use Case Diagrams, Activity Diagrams, and Sequence Diagrams. This information system makes it easy for such public to access location information and descriptions of tourist sites in Serdang Bedagai Regency, allowing people to plan and pick which tourist destinations to visit thus assisting the government in marketing tourist in Serdang Bedagai Regency.

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