

INTERACTIVE MEDIA APPLICATION FOR TOURIST ATTRACTIONS IN THE CITY OF BANDUNG

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Abstract

Bandung is a city located in the West Java Province of Indonesia, which is famous for its natural beauty and has many entertainments, culinary and other shopping places. At the weekend many tourists come to Bandung, This is because in Bandung there are many tourist places which very interesting, but tourists do not know more about its location well. Tourists who come to the city of Bandung cannot enjoy all the tourist attractions because they lack information about the existence of tourist attractions. That's why they need a media which can help tourists who visited Bandung to easily find location information and provide a map media so tourists can find the way to place that they want to visit.

The purpose of this study is to help tourists who come to visit the city of Bandung in finding information on roads and tourist destinations so that it is expected to increase foreign exchange for the local government of Bandung.

The result of the research is To develop this application using Macromedia Flash with Action Script. This application has been successfully implemented to PDAs. With the implementation of this application into PDA so the tourist has an information resource that is practical and easy to bring it anywhere. With building an interactive media application that has facilities to browse the map, select place, view info, and view photo. Hope this can reduce the problems above. This application is interactive media based on Macromedia Flash which was implemented to PDA.

Keywords: Application, Attraction, Bandung, Interactive, Tourist.

1. Introduction

The level of public information needs are getting higher, so we need a working system that is fast, effective and efficient (Giusti, Giovanni & Raya, Josep, 2019). The need for information retrieval began to develop towards the virtual. The development of information search that was previously manual can now be done easily via the internet. All the information we need can be found in an easy and fast way (Page, Stephen J. , 2019).

Indonesia is famous for its natural wealth and beauty, therefore foreign tourists are interested in coming to visit to enjoy its natural beauty. Tourists who come are very interested in Indonesian culture, which has various tribes and cultures. One of the tourist cities visited by tourists, especially domestic tourists, is the city of Bandung. The city of Bandung is a paradise for domestic tourists who like a variety of culinary and fashion. The city of Bandung is used as a place to vacation on weekends because of the cool atmosphere and there are lots of shopping places such as factory outlets, distributions and malls. Bandung is also very famous for its various specialities, and there are many cafes that not only sell food but also sell a beautiful atmosphere, which cannot be found in big cities.

Although the city of Bandung is not too big, there are also many obstacles for tourists, such as tourists who do not know the location of tourist attractions, entertainment venues, and shopping places in the city of Bandung. There is also a lack of information for tourists about the city of Bandung, such as information on sightseeing in the city of Bandung, complete addresses of tourist attractions, entertainment and shopping. Even though they know the tourist location, tourists need an overview of the place so they can find out whether the destination is following their wishes.

Therefore, interactive media is needed, which is useful to help tourists visiting the city of Bandung to get information on tourist attractions, entertainment places and places to shop easily and quickly.

2. Literature Review

Making multimedia-based interactive media is one way of presenting good information. Interactive media is one of the non-linear uses of multimedia where interaction with users is needed for multimedia navigation purposes (Albright, Carol Rausch, 2017). To assist the presentation of information on tourism locations in the city of Bandung, the author will develop interactive media, namely the tourism map of the city of Bandung. Users will be presented with interactive information which is navigation. Users can choose the information they want and the media will provide information according to the user's choice.

The development of interactive media with controlled image sharpness requires the right development strategy so that it can run well, on time, and follow the targeted goals. A good interactive media is interactive media with many functions that are accessed by many people (Garrand, Timoty, 2020).

Multimedia is the use of computers to present and combine text, sound, images, animation and video with tools and link connections so that users can navigate, interact, create and communicate (Al Turjman, et al, 2017). Multimedia is often used in the world of entertainment. Multimedia is also used in the world of education and business. In the world of education, multimedia is used as a medium of teaching, both in class and individually. In the business world, multimedia is used as a medium for company profiles, product profiles, and even as a training medium in e-learning systems.

Macromedia Flash is an animation program that has been widely used by designers to produce professional designs (Blokdyk, Gerardus, 2018). Among animation programs, the Macromedia Flash program is the most flexible program for creating animation, so many people use the program.

Extensible Markup Language (XML), describes a class of data objects called XML documents and describes some of the actions that computer programs perform to process them (Baker, Richard, 2020). XML is an application profile or a limited form of SGML, Standard Generalized Markup Language (SGML). When viewed from the structure, XML documents follow the rules of SGML documents.

Unified Modeling Language (UML), is one of the most powerful tools in the world of object-oriented system development (Nyisztor, Karolyn, 2018). This is because UML provides a visual modelling language that allows system developers to create a blueprint for their vision in a standardized, easy-to-understand form and is equipped with an effective mechanism for sharing and communicating their designs with others.

The Rational Unified Process (RUP) is a software development framework process that provides a disciplined approach to assigning tasks and responsibilities within a development organization (Blokdyk, Gerardus, 2020)

3. Materials and Methods

Based on the problem, several approaches can be found to solve the above problems. Currently, technology has developed very rapidly and technological devices are also increasingly affordable such as computers, laptops, cellphones, and PDAs. Based on these technological developments, the solution to the problem is to create interactive media that can help Bandung city tourists to find tourist sites and be able to provide information about tourist sites they want to visit, provide media that can be carried, used and distributed practically.

Personal Digital Assistant (PDA) is used as an implementation tool for this media. The use of PDAs is due to widespread technological developments and PDAs are practical, powerful, and easy to use compared to other technological devices such as laptops or cellphones (Mynhier, Jaime, 2021).

The media will be made in the form of interactive maps that can provide complete information about tourist locations in the city of Bandung. Maps can show the location of a place and make it easier to reach that place. To make it easier to find the location and information of the desired tourist attractions, the map will add interactive facilities in the form of location searches and complete information about tourist attractions in the city of Bandung. This map media will be made static. This is because static media has the advantage of distribution that does not require maintenance. However, to ensure the accuracy of the data, the media can be issued perversion where the version is higher to update the data. Some of the needs that must be met by the system are that software is needed that provides interactive information about tourist locations in the city of Bandung so that tourists can find out the tourist locations they want and the map media created will provide information on sightseeing in the city of Bandung so that tourists can reach tourist sites easily.

Following existing needs, it can be determined what functions or features will be made. The function of the media created will be modelled with a use case diagram, then the use case will be connected to the actor. Based on the existing needs, the actor needed is only the user. Users are users of this interactive media.

The system will be designed with Flash-based multimedia where the program will be stored and run on the Flash player. While Map Flash displays a map view. All data will be saved in XML files and picture files.

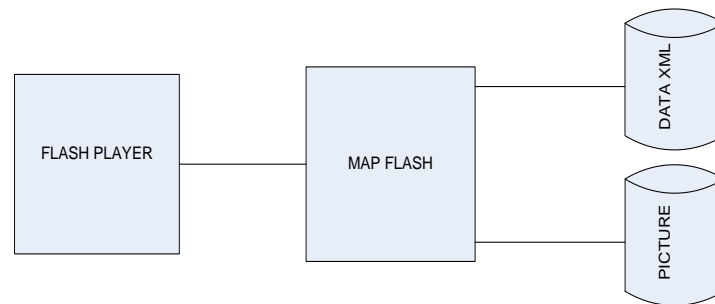


Figure 1:
System Architecture

The system to be built is interactive media in the form of a map based on Multimedia Flash. This interactive media will be used by tourists who come to visit the city of Bandung. This system will provide the main function of displaying a tourist map of the city of Bandung. Users can browse the tourist attractions that will be visited according to their wishes.

In addition to the main functions above, to complete the system, several additional functions will be added such as searching the place, view info, view photos and zooming. The place data is stored in an XML file. In the XML file is stored info about the location and a list of photos.

To describe the activities that occur in the use case diagram, we need a diagram called an activity diagram. Activity diagrams will model the activities that occur in each use case diagram in Figure 2 that has been created.

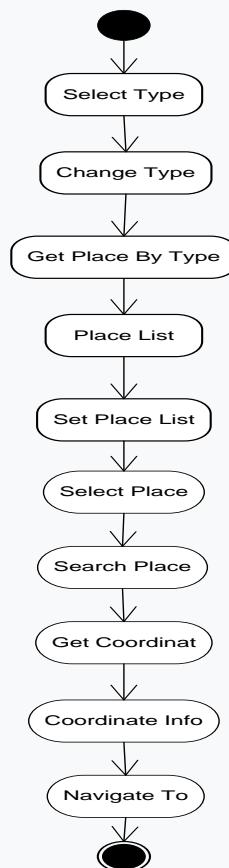


Figure 2 :
Activity Diagram for Application Tourist

To explain figure 2 the following is a description for each activity:

- Select Type: user activity to select the right type.
- Change Type: application activity to change the type of place selected by the user.
- Get Place By Type: application activity to retrieve place data according to the selected type.
- Place List: application activity to provide place data taken from XML.
- Set Place List: application activity changes the list of places in the combo box.

- f. Select Place: the user's activity selects the place he is looking for.
- g. Search Place: application activity searches for places in XML.
- h. Get Coordinates: application activities take the coordinates of the searched place.
- i. Coordinate Info: application activity provides coordinates on the map.
- j. Navigate: the application activity directs the map to the coordinates of the place you are looking for

To see the interaction between the objects needed to run a use case, interaction modelling is needed. Modelling the interaction between objects is done by using interaction diagrams in Figure 3.

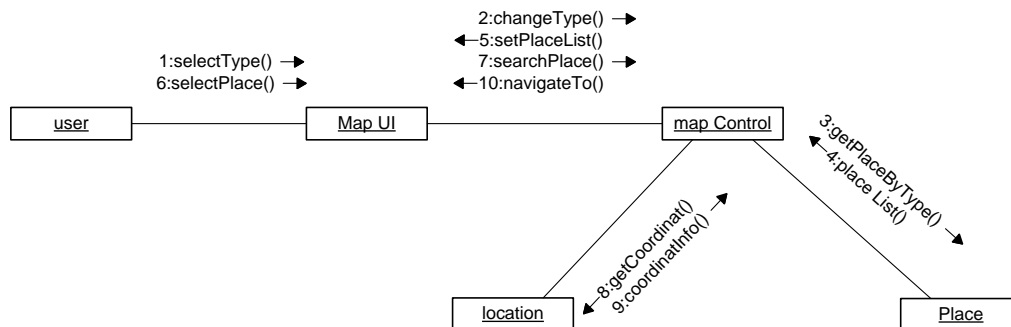


Figure 3 :
Collaboration Diagram for Application Tourist

After analyzing the system, the required entity class has been determined with a class diagram. However, to find out the behaviour of each object in the system, a statechart diagram is needed that will model the behaviour of each object according to the event it receives.

It is necessary to know what controls or events can be received by each object so that it can be determined what behaviour or function is owned by a class or object. Here is a state chart diagram in Figure 4.

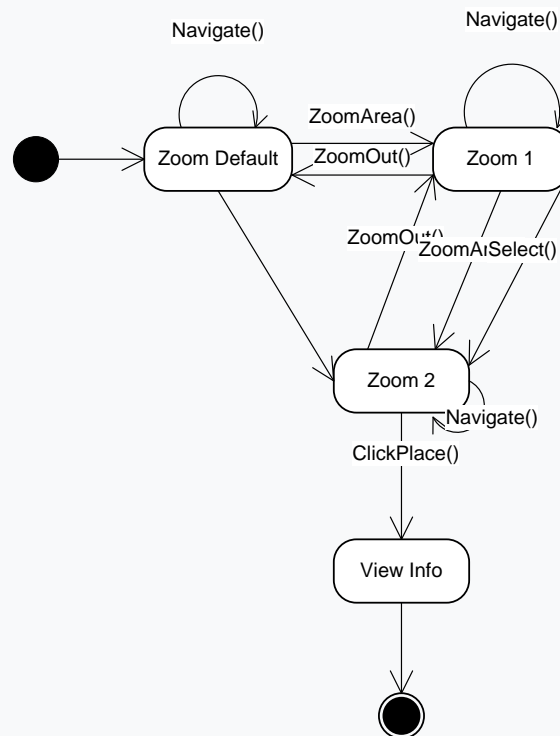


Figure 4 :
State Diagram for Application Tourist

To get an overview of the applications that have been developed, the application needs to be modeled in a component diagram, which is useful for making it easier to understand the dependencies between interactive media components in Figure 5.

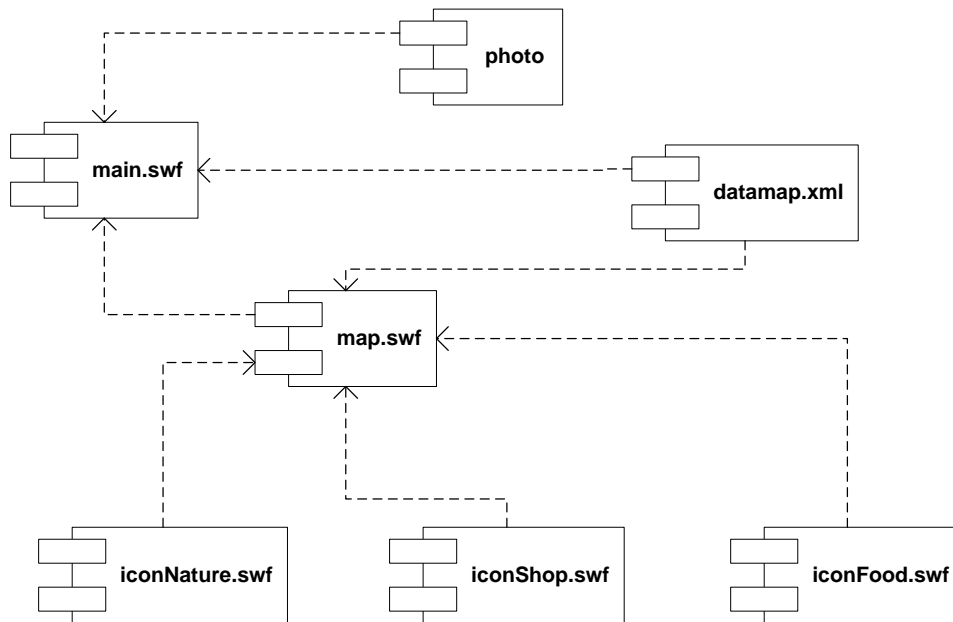


Figure 5 :
Component Diagrams for Application Tourist

Component Name	Description
<i>Main.swf</i>	Is the main flash file that will be run the first time
<i>Map.swf</i>	Is a flash file that contains maps that are loaded by main.swf
<i>iconNature.swf</i>	An icon with a flash format that indicates the location of natural attractions on the map
<i>iconFood.swf</i>	An icon with a flash format that indicates the location of culinary tourism on the map
<i>iconShop.swf</i>	An icon with a flash format that indicates the location of shopping tours on the map
<i>Photo</i>	Is a collection of photos that will be loaded by main.swf based on the place.
<i>Datamap.xml</i>	It is an XML file that is used to store data where information is loaded by main.swf.

Table 1 :
Component Diagram Explanation

4. Results and Discussions

In the main window, the user can browse the map where the user can view and shift the map view. Users can zoom the map where when the map is clicked the map view will be enlarged. Users can choose a menu icon for selecting what type of tour to look for, when one of the menu buttons is clicked, the combo box will display a list of data according to the clicked menu. When one of the lists is clicked, the map view will move according to the place you are looking for, and an icon that has been marked as a feature on the map will display the place you are looking for. The star icon serves to display the other menu in which there are tourist accommodations such as airports, stations, terminals and hotels. The glass icon serves to display the food menu in which there is a culinary tour. The bag icon serves to display the shop menu in which there are shopping tours and the mountain icon serves to display the nature menu in which there are natural attractions.

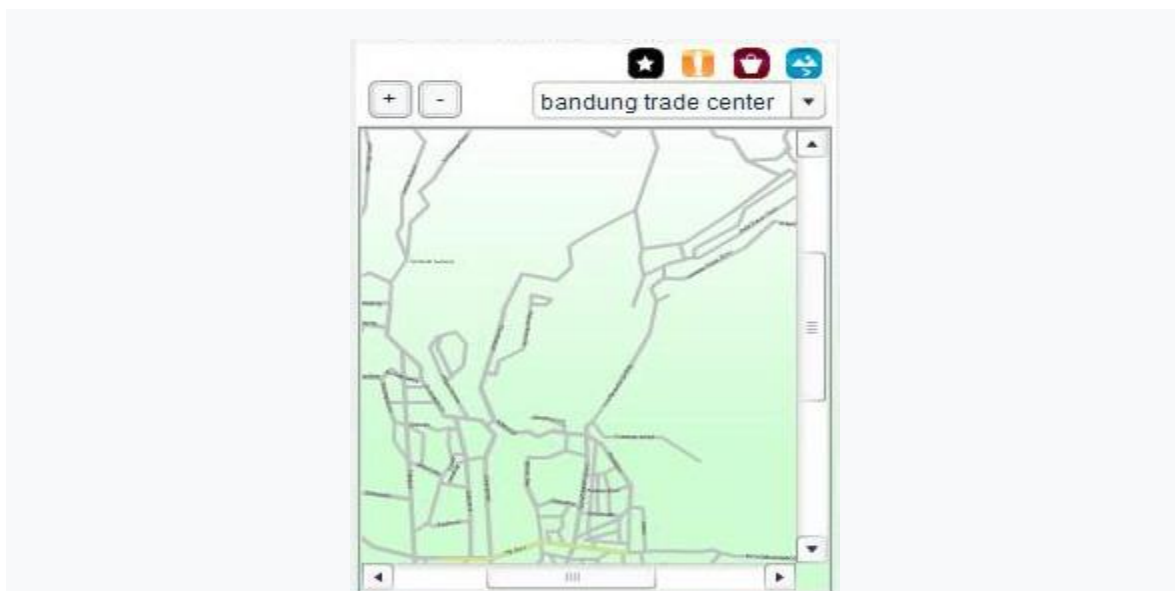


Figure 6:
Main Window Display

The implementation of the PDA is carried out in several stages. These stages are:

- a. Create an HTML file with the Dreamweaver application and insert the previously developed Flash application into the HTML file.
- b. Installing Adobe Flash Player 7 on the PDA.
- c. Move application and HTML files to PDA memory using a data cable, Bluetooth, or a card reader.

Implementation on PDAs is not enough just to use Adobe Flash Player 7 only. This is because the Adobe Flash Player 7 application is only a plugin for Internet Explorer. Until now there is no available Adobe Flash Player Standalone that can directly run Flash applications without using auxiliary applications such as Internet Explorer. Implementation of the application on a PDA is different from the implementation on a regular computer. PDAs have limited resources to run applications compared to PCs.

PDA is a mini-computer that has only about 25% of the current computer resources so that in the implementation it is necessary to optimize the program code so as not to consume the available resources. In addition, the PDA screen is small, where the average resolution of 360 X 240 pixels requires a good display design. The design must consider how to take advantage of a small screen but can display information as effectively as possible, for example, the use of a scroll pane, which is a frame in a window capable of displaying a large map with smaller display size.

5. Conclusion and Recommendation

5.1. Conclusion

- a. An interactive media has been built that can provide easy and fast information and descriptions of information electronically to tourists.
- b. The implementation of the PDA is different from the implementation on the PC. In PDAs, we have to pay more attention to the resource limitations of PDAs, which are much smaller than PCs. For example, on the display screen, PDAs only have the highest resolution of 640 X 480 pixels. As well as processors and memory whose capabilities are much smaller than PCs.

5.2. Recommendation

- a. This media should be added with an automatic pathfinding facility from the place of origin to the destination.
- b. This interactive media does not yet have a full-screen display, because until now the standalone Adobe Flash Player which can directly run Flash applications in full screen without auxiliary applications is still under development, so this application should be updated in the next version after Adobe released Adobe Flash Player.

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