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Design Of A Mobile-Based Geographic Information System Application For The Secretariat Of The Dprd Province Of North Sumatra

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ABSTRACT (10 PT)

The North Sumatra DPRD Secretariat already has an official website containing data and information, namely http://dprd-sumutprov.go.id. However, because this system is based on a website, and the location feature is not available, users will not get information about various DPRDs in North Sumatra and search for locations and routes to the location accurately. The mobile-based Geographic Information System (GIS) of the North Sumatra DPRD Secretariat is a mobile-based GIS application using Goggle Maps that integrates the Global Positioning System (GPS), both via Android and iOS which are directly connected to Google maps which can be accessed via the internet. Applications made can present information based on the selection of each type and provide the closest view of the user's position. This application was created to have an impact on the progress of the North Sumatra DPRD Secretariat in technology development

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1. INTRODUCTION

Devices Mobile now inseparable from humans. The growth of its own users is very fast and active. Now in the field of communication, there are many technologies available, one of which is mobile phones based on Android and iOS. The function that is applied to this cellular phone is not only useful as a communication tool but has become a lifestyle today. For the development of mobile especially Android in Indonesia itself is growing rapidly.

Practical work is a form of systematic application and synchronization between existing programs on campus and in agencies to explore the skills that exist in students in work programs directly in the world of work to achieve the student's level of expertise.[1] Every student must be able to have both skill and mental readiness before facing the real world of work. Students must also know the path they will face after graduating as a graduate. Many things are a barrier for someone who does not have work experience to go directly to the real world of work. In this practical work, students are faced with real work and in accordance with the knowledge and abilities that have been mastered, and it is hoped that students can apply creativity, discipline and honesty in these practical work activities.

The Regional People's Representative Council (abbreviated as DPRD) is a regional people's representative institution domiciled as an element of regional government administration in (province/district/city) in Indonesia. North Sumatra DPRD is one of the Provincial DPRD in North Sumatra. In connection with the author is in the field of public relations where one of his duties is to provide information. So the author makes this geographic information system which is expected to be able to provide information easily and simply.

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2. RESEARCH METHOD

2.1 Data Analysis

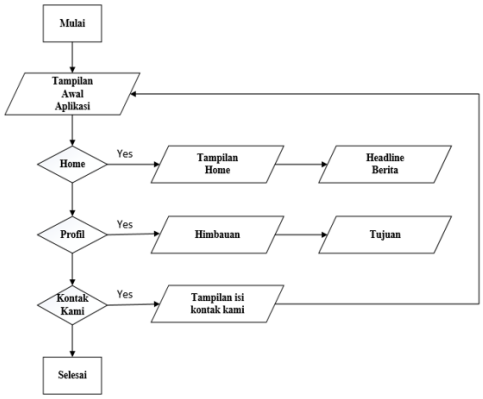
Data analysis aims to facilitate the design of information on the manufacture of the system. The data used North Sumatra SI-DPRD GIS application is as follows:

1. Nort Sumatra Provincial DPRD
   Data North Sumatra Provincial DPRD data is presented in the form of a description/description and by displaying the geographic location of the North Sumatra Provincial DPRD.
2. City DPRD
   Data City DPRD data is presented in the form of a list and description/details of the City DPRD. City DPRD data can find out the location and route of the selected culinary which is connected to *Google maps.*
3. City
   Data lodging data is presented in the form of a list and culinary information/details. City data can find out the location and route of the selected city that is connected to *google maps.*

2.2 System Analysis

After analyzing the data, the next step is system analysis. System analysis is the first step in building a system that is useful for finding the focus of the problem. After seeing several geographic information system applications that aim to display information as well as locations and routes precisely and accurately, such as the search application for health centers in Lampung Regency which makes it easier for people to obtain information on health centers in Lampung Regency.[2]

a. Running System Analysis
   System analysis is an activity to look at the system that is already running, see which parts are good and not good, and then document the requirements that will be met in the new system.[3]



*F*igure 1. Analysis of a Running System

In Figure 1. The ongoing system analysis discusses the ongoing Information System analysis at the DPRD Secretariat of North Sumatra Province. The North Sumatra Provincial DPRD Secretariat already has an *website* containing data and information, namely http://dprd-sumutprov.go.id. However, because this system is based *website*, and the location feature is not available, users will not get information about the location of the DPRD in North Sumatra.

b. Proposed System Analysis
   The proposed procedure design aims to improve and provide alternatives in providing information as well as making it easier.[4]

2.3 System Process Plan

Every program or application design requires several important supporting components so that the application program operates effectively and efficiently.[5]

The design process for the system that will be carried out in the making of the North Sumatra SI-DPRD Geographic Information System application for the North Sumatra Provincial DPRD Secretariat is as follows:

A. Flowchart Chart
   A flow chart is a chart that shows the flow in a program or system procedure logically. Flowcharts are used primarily for communication aids.[6]
   Flowchart is a method to describe the stages of problem solving by presenting certain symbols that are easy to understand, easy to use and standard.[7]

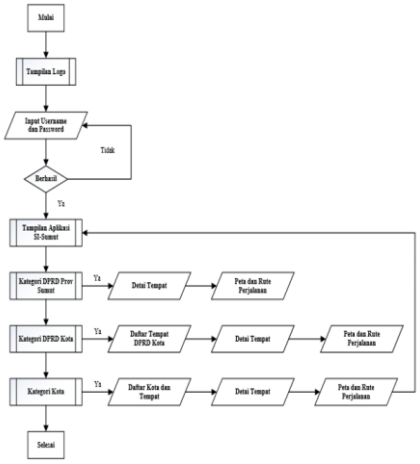


Figure 2. North Sumatra SI-DPRD Application Flowchart

In Figure 2. Based Geographic Information System (GIS) *mobile* using *Goggle Maps Api* which integrates the *Global Positioning System* (GPS), either through *Android* or *iOS* which is directly connected to *Google maps* which can be accessed by the internet.

B. Process Model Design

Process design is a description of the workflow sequence from the process starting until the process stops.[8] Unified Modeling Language (UML) is a language based on graphics or images for visualizing, specifying, building, and documenting an OO (Object-Oriented) based software development system.[9]

1. Usecase Diagram

Use case is a visualization that describes several actors in the system[10]. Use Case Diagrams explain what the system will do and who will interact with the system.[11]

The use case system diagram of the study can be seen in figure 3.

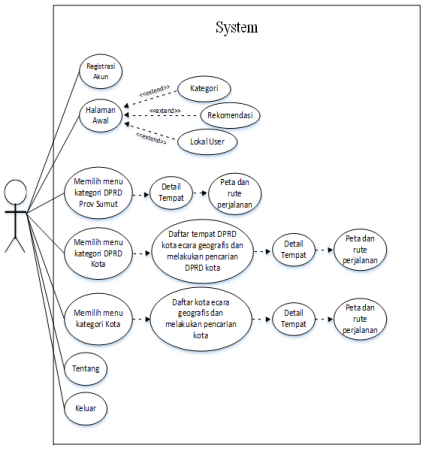


Figure 3. Usecase Diagram of the North Sumatra SI-DPRD Application

2. Activity Diagram

Activity Diagram describe the various flows of activity in the system being designed, how each flow begins, the decisions that may occur, and how they end.[12]

Activity diagram is a technique to describe the procedural logic and workflow of the application to be designed.[13]

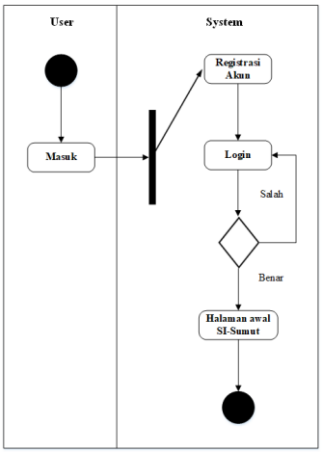


Figure 4. North Sumatra SI-DPRD Application Activity Diagram

In the explanation of the *activity diagram* that the *user* opens the application, he will find the *sign*/*login* page after swiping the application introduction page. When *logging* into the application, the *user* enters *username* and *password*, if correct, it will go to the start page of the North Sumatra SI-DPRD application, if wrong, it will remain on the home page.

3. Sequence Diagram

Sequence Diagram is a diagram created to determine the interaction between objects. The content of the Sequence Diagram must be the same as the use *case* and class diagrams. One *single use case* diagram *sequence*a.[14]

Sequence diagrams are used to describe the interactions between objects in succession. But basically sequence diagrams are used in the abstraction layer of the object model. Its purpose is to show the sequence of messages sent between objects, as well as interactions between objects, and to show something that happened at a certain point in the execution of the system.[15]

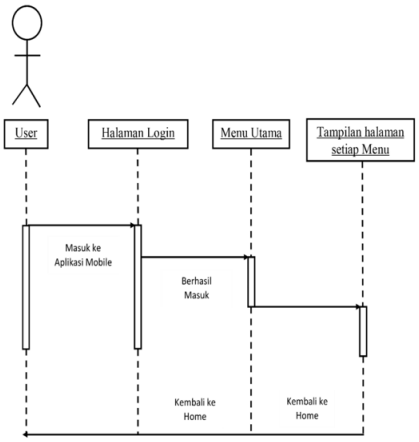


Figure 5. Sequence Diagram of the North Sumatra SI-DPRD Application

In the explanation of the picture above, that the *user* enters the *mobile* will find a *login* that will forward the *user* to the application's start page which acts as the main menu for *user*. If *user* wants to interact with the category menu, it will display the page for each menu selected by the *user*. If *user* wants to return then the *user* just presses *button home*.

3. RESULTS AND DISCUSSION

3.1 Implentation

Implentation is a data processing system that can be run properly. Thus it can be seen whether this software can produce information system applications that are in accordance with the expected goals.[16] The following is the implementation of the North Sumatra SI-DPRD application.

1. The initial Display

Following is the initial display of the *mobile* when it is first clicked.

Figure 6. Application Initial Screen

2. Application Introduction
   Display The next display after the initial display is the application introduction display which explains the facilities obtained in the application. This view will appear when *user* swipes*initial* screen of the application.

Figure 7. Application Introduction Display

3. Form Login
   The next display after the application introduction display is the *login*. This form is obtained when *user* to *swipes* the end. In *form* this *user* can enter the North Sumatra SI-DPRD application by entering *username* and *password* if they already have an account and can immediately *sign-in*.

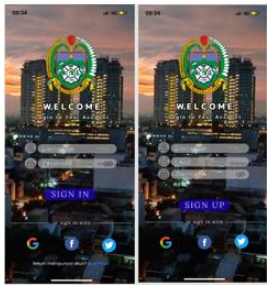


Figure 8. Form Login/sign in dan Form Login/sign up

4. App Home/Main Page
   Next display after *user login* is the display of the start page or main page of the application. On this page the *user* will see the DPRD category menu, DPRD recommendations, and the point where the *user* is located when clicking on *user* will find the location by connecting to *Google maps*.

Figure 9. Home/Main page of application

5. Geographical view of the North Sumatra DPRD map
   This view will be obtained *user* when he clicks on the North Sumatra DPRD category menu on the start/main page of the application.

Figure 10. Geographical map of North Sumatra DPRD

6. Display Description of the North Sumatra DPRD
   The next view is the description view. This view will appear when *user* clicks on an image that appears at a point location on the geographic page of the North Sumatra DPRD map. On this page the *user* will get information about the selected North Sumatra DPRD.

Figure 11. Description of North Sumatra DPRD

7. Location Map Display of Destination DPRD Places Destination
   The next display is a map display of the selected North Sumatra DPRD location. This page will appear when the *user* clicks a *button* "Show Route" on the description page. This page is linked to *google maps* so that *user* will be directly redirected to the *google maps*.

Figure 12. Location Map of North Sumatra DPRD

8. Display of the North Sumatra DPRD Route Destination
   The next display is the North Sumatra DPRD route display. This view is obtained if *user* wants to know the distance of the trip to the destination DPRD. This route view is connected with *google maps* route menu *google maps* on the DPRD location map page.

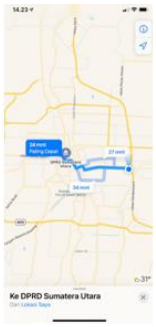


Figure 13. North Sumatra DPRD Route Destination

9. Display of City DPRD Listings Display of City
   This view will be obtained *user* when clicking on the City DPRD list menu in the City DPRD category on the start/main page of the application. On this page the *user* will see a list of the DPRD for the City of North Sumatra.

Figure 14. List of City DPRD

10. DPRD Description
    The next view is the description view. This view will appear when tourists click an image or culinary name on the culinary list page.

Figure 15. Description of City DPRD

11. Display Map Locations of the City DPRD Places Destination
    The next display is a map display of the location of the selected City DPRD. This page will appear when the *user* clicks a *button* "Show Route" on the description page. This page is connected to *Google Maps* so *user* will be directly redirected to the *Google Maps*.

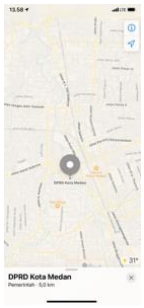


Figure 16. Location Map of City DPRD Location

12. Route Display of
    The next display is the route display for the intended City DPRD. This view is obtained if *user* wants to know the distance of the trip to the destination City DPRD. This route display is connected to *Google Maps* and is found on the *Google Maps* on the City DPRD location map page. With the route obtained, it will make it easier *users* to get to the location of the City DPRD.

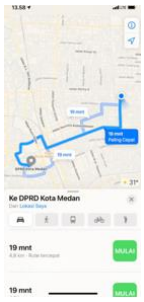


Figure 17. Route of Destination City DPRD Location

13. View City List Displays City
    The view will be obtained *user* when he clicks on the City list menu in the City category on the application's start/main page. On this page the *user* will see a list of Cities in North Sumatra.

Figure 18. List of Cities

14. Description
    The next view is the City description view. This view will appear when *user* clicks on an image or city name on the City list page. On this page the *user* will get information about the selected city.

Figure 19. City Description

15. Display Location Map Displays Destination City
    The next view is a map view of the location of the selected City. This page will appear when the *user* clicks a *button* "Show Route" on the description page. This page is connected to *Google Maps* so *user* will be directly redirected to the *Google Maps*. If you want to go back, the *user* can press the *back* on *mobile*. If you want to continue the next activation, you can press the route menu to display the next page.

Figure 20. Map Location of Destination City

16. Route Display Destination City
    The next display is the view of the destination City route. This view is obtained if *user* wants to know the distance of the trip to the destination city. This route display is connected to *google maps* and is found in the *google maps* on the City location map page. With the route obtained, it will be easier *user* to get to the City location.

Figure 21. Route Location of Destination City

17. Info Display Application

This display can be seen by *user* on every page that has the *button* "i" *button* is application information that contains something related to the application.

Figure 22. Application Info

4. CONCLUSION

The author knows that the weakness of the Information System in the DPRD of North Sumatra Province is the unavailability of a system that moves to introduce various DPRDs in North Sumatra along with finding locations and routes to locations in detail, accurately, and updates that can be accessed anytime and anywhere. For the people of North Sumatra to obtain information about the DPRD of North Sumatra Province.

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