

Application of Google Map API for Web Tourism Destination Information Service in Southeast Minahasa Regency

Olga Melo¹, Oktavianus Lintong², Anthon Kimbal¹, Harson Kapoh¹, Ivone Putong³ and Pearl Wenas⁴

¹Department of Information Technology, State Polytechnic of Manado, Buha, Manado, Indonesia

²Department of Tourism, State Polytechnic of Manado, Buha, Manado, Indonesia

³Department of Accounting, State Polytechnic of Manado, Buha, Manado, Indonesia

⁴Department of Administration Business, State Polytechnic of Manado, Buha, Manado, Indonesia

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Abstract: North Sulawesi Province, especially Southeast Minahasa Regency, has many tourist attractions that can be visited by local and foreign tourists, but not all tourist attractions are known by tourists because of the lack of information on the introduction of tourist attractions. The rapid development of information technology can make the availability of information systems better about tourist objects, therefore the provision of information service applications for tourist destinations in Southeast Minahasa Regency in the form of a Web needs to be developed. With the Web, it can improve the ease of access to information for tourists and the general public. This application is designed using a web-based programming concept. The research methodology used to build this application is the descriptive analysis method. The system development method used in this research is the waterfall paradigm process model by implementing analysis and design using use case diagrams, activity diagrams with the process of displaying maps on the web applying the Google Maps API with the support of JQuery technology to display photos and images as needed so that users can see the map distribution of existing tourist objects/tourist destinations along with information about each tourist attraction.

1 INTRODUCTION

Today, destinations and tourism industry are given mandate to develop world-class, competitive, sustainable, and able to encourage regional development. One of the goals of the 2015-2019 Tourism Industry and Destinations Development Program is to increase new tourist destinations, especially new nature, by finding pilot tourist destinations so as to increase the number of tourist destinations (Muchson, 2021).

North Sulawesi Province is one of the provinces located in the northern tip of Sulawesi Island with the capital city located in Manado City, consisting of 11 regencies and 4 cities. North Sulawesi has many tourist attractions that can be visited by local tourists as well as foreign tourists, but not all tourist attractions are known by the tourists because of the lack of an introduction information on the attraction places.

Southeast Minahasa Regency which is part of North Sulawesi province has many potential tourism objects. The use of technology, especially information technology, will greatly support the development of tourism (Kawengian et al., 2018). The increasing use of today's technology among the people can be utilized as an opportunity to improve information services about tourism in Southeast Minahasa district.

The application of tourist destination information services in Southeast Minahasa District can be used as an alternative guide to get information about the place of attraction in southeast Minahasa Regency. With this application, it can increase the ease of access to public information. This app will use Google Maps as a support facility that will display the map of the place of attraction.

Based on the background, the application of tourist destination information services in Southeast Minahasa District can contribute to the tourism sector, improve the introduction of information on the

area of southeast Minahasa Regency and can facilitate local and foreign tourists to get information about the place of attraction that will be the regency of Southeast Minahasa.

2 CONCEPTUAL FRAMEWORK

2.1 Conceptual Framework

Conceptual Framework is a form of thought framework that can be used as an approach in solving problems. Usually this research Framework uses a scientific approach and demonstrates relationships between variables in the analysis process.

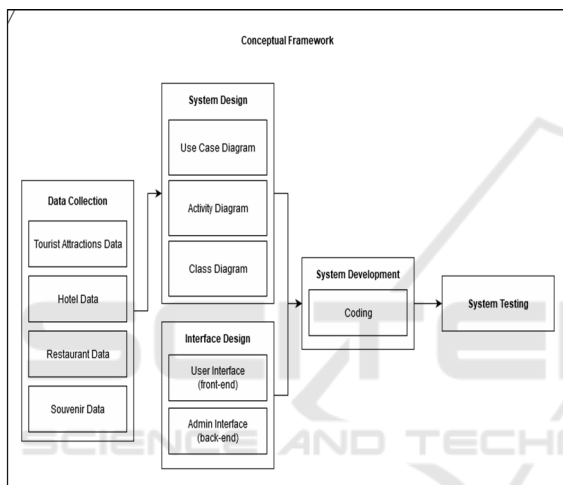


Figure 1: Conceptual Framework.

2.2 System Architecture

The planning of Information services and Monitoring tourism destinations in Southeast Minahasa District was built to facilitate the users in this case tourists, in search of tourist information, especially the stub objects in southeast Minahasa Regency.

Figure 2. Is architecture system consisting of three main parts, namely client, application server and database server.

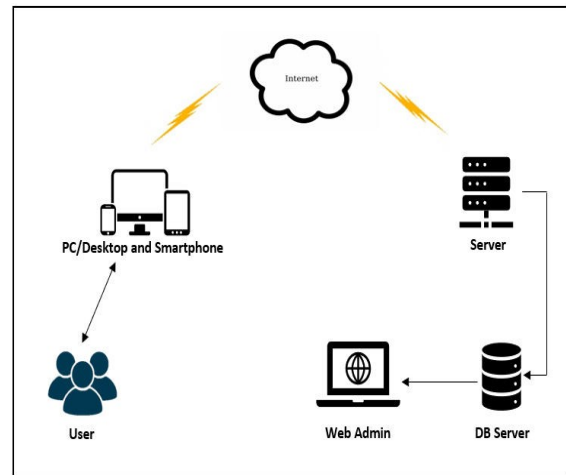


Figure 2: Architectural Information Services tourism destination.

3 ANALYSIS AND DESIGN

3.1 Use Case Diagram

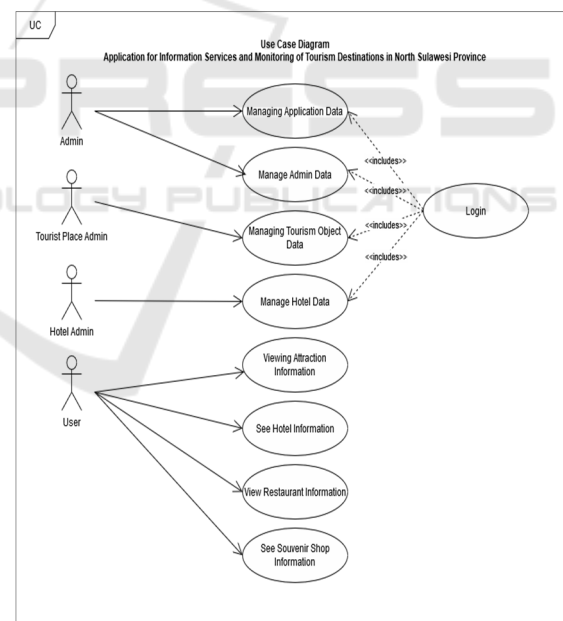


Figure 3: Use Case Diagram.

Here is the *use case diagram* of the Information Service application and Monitoring tourism destination in Southeast Minahasa district.

3.2 Activity Diagram

Fig. 4 is a design of the web that is divided into two parts, namely admin activity and system activity. Admin activities do create, update and delete data. System activity will process create, update and delete and display on the Web.

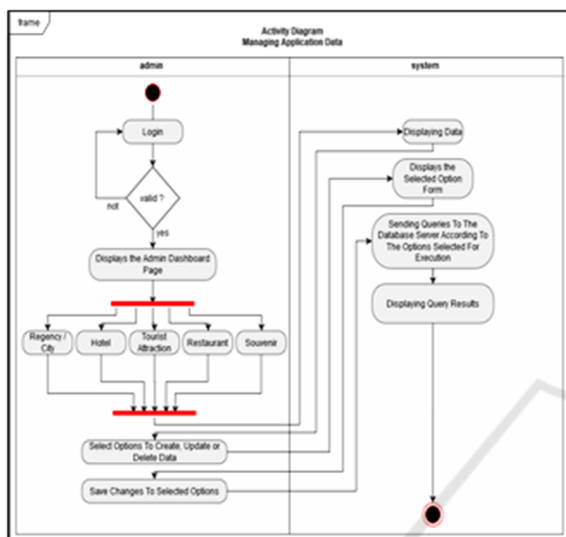


Figure 4: Activity Diagram.

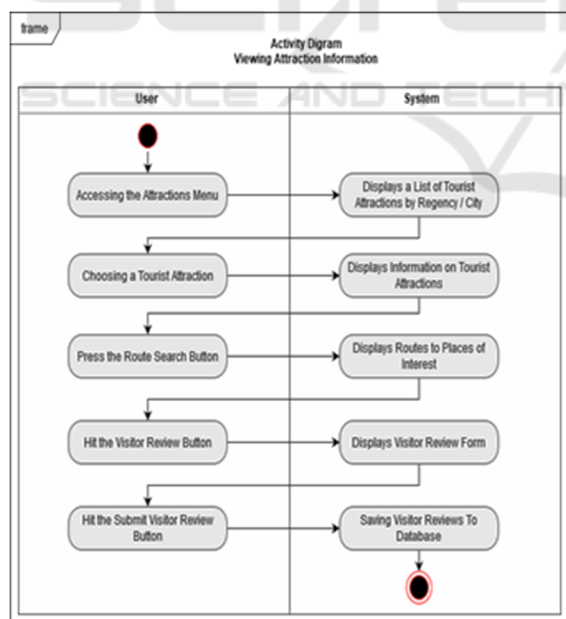


Figure 5: Activity Diagram of the attraction.

Fig 5. Is a design activity of the attraction consisting of user activity and system activity. User can see and choose the attraction place. The system can display the attraction data and its information.

4 IMPLEMENTATION TECHNOLOGIES

This system of tourism Information is designed, implementing several technologies that combine to get maximum results. This designed tourism information system implements several combined technologies to get maximum results.

4.1 Google Map API

Google's company provides Google MAPS APIs as a programming Interface . Using the Google Maps APIs facility can make it easy for developers to realize The program it wants (Zhi-xue, 2013). This is because the APIs are provided in the JavaScript language so that the developer of the program can easily integrate the Map service with the project being developed (Soelistijadi, 2016). Google Map provides a library of APIs, so developers can easily create a specific location point. Reference (Pradipta and Ayu, 2016) Google with the Google Maps APIs provides 4 types of map model options, namely,

1. *ROADMAP*, to display the usual 2- dimensional map
2. *Satellite*, to display the satellites photo
3. *TERRAIN*, to show the physical reliefs of the Earth's surface and show how high a location is, for example will show mountains and rivers
4. *HYBRID*, will show the photo of the satellite that is pictured also what appears on THE ROADMAP (Street and city name).

The implementation of Google MAP APIs on this tourism Web is

1. **Creating Maps:**
This tourism Web needs a map for the need to display location so as to facilitate the user to find, see the desired tourist location. The required JavaScript code is as follows:

```
Map creation
var peta = new
google.maps.Map (document .getElem
entById ('googleMap' ) ,
mapOptions) ;
```

2. **Initialization:**
Variables for storing location information
var infoWindow = new
google.maps .InfoWindow ;

Variables contain map type properties
var mapOptions = {mapTypeId :
google.maps .MapTypeId .ROADMAP

3. Storing coordinate borders:

```
Var bounds = new
google.maps.LatLngBounds ();
```
4. Retrieving data from a MySQL database:

```
<?php
include "config/conn.php";
?>
<?php
$query = mysqli_query($conn,"SELECT
* FROM objek_wisata ORDER BY nama
ASC");
while ($row =
mysqli_fetch_array($query)) {
$nama = $row ["name"];
$lat = $row["latitude"]; $long =
$row["longititude"];
echo "addMarker('$lat', '$long',
'$nama');\n";
```

Making marker:

Marker making process

```
function addMarker(lat, lng, info){
var lokasi = new
google.maps.LatLng(lat, lng);
bounds.extend(lokasi);var marker = new
google.maps.Marker({
map: peta,
Position: Location
});
peta.fitBounds(bounds);
bindInfoWindow(marker, peta,
infoWindow, info);
```

Marker Displays information:

```
function bindInfoWindow(marker, peta,
infoWindow, html){
google.maps.event.addListener(marker,
'click', function() {
infoWindow.setContent(html);
infoWindow.open(peta, marker);
```

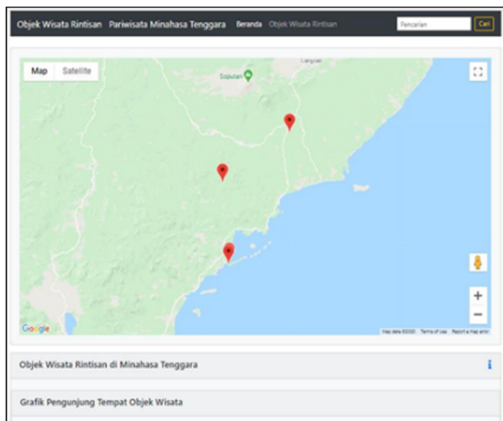


Figure 6: Screenshot of map mark.

Fig. 6 is a frontend display which is part of this website which aims to provide information to the user about pilot tourism locations in the form of a sign on the map so that the user can ensure that the tourist spot is located. Hopefully this will later help find the pilot tourism locations.

Fig. 7 is a display of the web frontend which later can be used by users to find out more detailed information or explanation of pilot tourism locations in Southeast Minahasa district, namely in the form of place names and other information from pilot tourism objects.

Information on fig. 6 and fig. 7 can be displayed on the frontend due to input activity through the backend by the admin which is read by the program, processed and displayed.

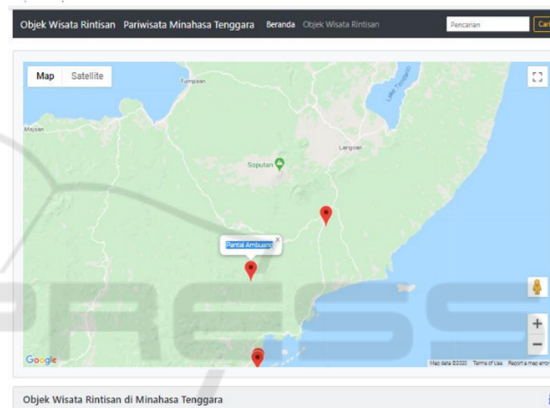


Figure 7: Screenshot of detailed mark information.

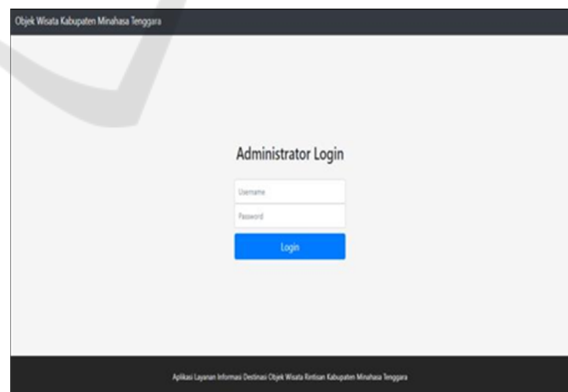


Figure 8: Screenshot of administrator login.

Fig 8. is the login page which is part of the web on the backend which can be used by the admin to manage the web so that the information needs on the homepage are realized.

4.2 Technology of JQuery

JQuery is including the Framework JavaScript which can be used Cross browser which has multiple components of pages and a lightweight javascript library. Using JQuery helps users to freely handle HTML documents with the application of animation effects. Additionally, this framework provides an AJAX function That can interact directly for the operation of webpages. Using the JQuery Framework technology, page logic is separated from page content, making it easier to work with HTML code (Wu et al., 2013). JQuery technology is very suitable to be applied to this tourism Web. Because many display photos or images that need to be sized to the right scale automatically.

5 CONCLUSION

Based on the need for tourist destination information that is easily accessible to the public, a Web service that is integrated with a map is required that references the points of location of tourist attractions along with the explanations needed by users. The application of the Google Maps API on the Tourism Web is very helpful in developing a Web that displays maps and the features needed.

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