Conference Program
October 2014
OSAKA JAPAN

ACEAT
Annual Conference on
ngineering and Technology

IACSS
International Academic Conference on
Social Sciences

ICESAS
International Conference on
Earth Science and Applied Sciences

AISEIT
Annual International Symposium on
Educational and Information Technology

ICBITM
International Conference on
Business Innovation and Technology Management

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Computer Engineering and Technology

Room C

2014/10/16 Thursday 08:45-10:15

Session Chair: ***Prof. Suyoto***

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The Ontology of Research

Transmissia Semiawan | *Bandung State Polytechnic*
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Suprihanto | *Bandung State Polytechnic*

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Tzu-Chiang Chiang | *Tunghai University*
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Kendari Gold Ring Design Using 3D Fractal

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Analysis of Tourism Directory Using Google Maps API and Multimedia (Case Study: Yogyakarta, Indonesia)

Thomas Suselo | *Atma Jaya Yogyakarta University*
Patricia Ardanari | *Atma Jaya Yogyakarta University*
Yudi Dwiandiyanta | *Atma Jaya Yogyakarta University*

Analysis of Tourism Directory Using Google Maps API and Multimedia (Case Study : Yogyakarta, Indonesia)

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ABSTRACT

Indonesian citizens, especially the youth has a very strategic role in any case, including the development of tourism. Their involvement is essential to achieve sustainable tourism development. This becomes more relevant when it is associated with a variety of efforts to accelerate tourism activities in order to support the development process in various regions in Indonesia.

Targets to be achieved is to help the tourism sector to attract more travelers to the use of one technology, which is a potential tourism business directory. Tourism directory if implemented would simplify and optimize the tourism destinations by providing information that is more complete and richer as well as relevant to potential tourists. Tourism directory will be equipped with the power of geocoding, so every tourist destination location can be easily reviewed on the map. The map will be constructed by using the function of the web-based Google Maps API.

The method used to achieve the purpose of the first phase are: observation; interviews; modeling and classifying tourism directory. The second stage is the design specifications, descriptions, and some prototype tourism directory. The third stage is the installation and testing of a prototype directory of tourism; socialization; and application of tourism directory on the web server.

Keyword: tourism, directory, web-based, Google Maps API, multimedia.

1. Introduction

In the Special Region of Yogyakarta, Indonesia, there are many places / locations of potential tourism scattered in all directions, but felt that not all corners become tourist destinations. Information that is uneven, and not undescribed clearly to prospective tourists can be one of the factors delaying a tourist to get to the venue. In terms of tourist spots in Yogyakarta actually has a huge potential to become a tourist magnet both from domestic and from abroad. Interactions that appear in the tourist arrivals to the surrounding may be driving the economy and the progress of Yogyakarta, especially related to the increase of Micro, Small and Medium Enterprises (SMEs).

Review of aspects of people's income and employment, the SMEs sector is an

excellent economic sectors. In addition, the SMEs sector is a catalyst for local economic growth and community participation to micro or family level, so that the SME sector has a strategic role [10].

This research will adopt a business directory that will be mapped and used in the potential of tourism directory, that will be able to support the government's efforts in promoting tourism and encourage economic growth and increased growing well so as to create social welfare and cultural progress.

1.1 Research Purpose

This research aims to build a design and an web-based application prototype of tourism directory using the Google Maps API and multimedia. The development potential of tourism directory is done in two stages:

1. The design of a prototype application potential of web-based tourism directory using the Google Maps API and multimedia.
   Include creating specifications, descriptions, and prototype software and / or hardware. The resulting software form on-line (web based) multimedia-based.
2. Implementation.
   From the resulting prototype, performed the installation and testing of a prototype process to accommodate the data in the form of a directory and map of tourism in the province; socialization (through forums workshops, seminars and counseling); as well as the application of a potential tourism directory in Yogyakarta.

1.2 Research Urgency

In order to improve and grow the economy of tourism SMEs in the province needed a comprehensive strategy and serious attention from various parties, particularly universities and government.

The tourism sector acts as a support for the development of other sectors and tourism is a phenomenon that will always affect the livelihood of the people living in the vicinity of tourism. By utilizing information technology targeted tourism information becomes more complete, clear and can reach more travelers and tourist spots exposing other potential, so that the whole tourist destinations can be explored with more leverage.

One such way is done with the use of technology to map inside a web-based directory of tourism. Given the complexity of the problem and the diversity of tourism in the province, the research was conducted in two phases, namely: the design of a prototype web-based applications, and implementations.

Phase analysis of the first year of research has been carried out modeling of tourism, it

is done for photographing tourism profile. From the tourism profile, researchers have mapped the conditions, environment and reality (actual content) to reach the tourist attractions in travelers. So in the end will come some tourism directory corresponding models.

From the resulting tourism directory model, researchers will conduct prototype design stage of tourism directory web-based applications. The process of designing is done in a way to make specifications, descriptions, and prototype software and / or hardware. This stage will produce a prototype directory of tourism potential in the province.

With the realization of a prototype web-based applications, researchers need to perform the installation and testing process, which is part of the implementation phase. From this process, the researcher can see the advantages and disadvantages of tourism directory generated in the first stage. Prototype of a model tourism directory can be a supporter of the tourism potential of information dissemination in Yogyakarta.

2. Literature Study

2.1 Google Maps API

Google release Google Maps Application Programming Interface (API) to facilitate the development of google maps[7]. API is a set of libraries that allow users to access the services provided on the application[3]. Google provides APIs in two different programming languages, the JavaScript and ActionScript. Kite mapping applications developed are: MapQuest, Microsoft Bing Maps (Microsoft Visual Earth), OpenLayers / OpenScales, OpenStreetMap, and Yahoo! Maps.

Information system which utilizes the Google Maps API has been widely applied in various fields. Zhang[11] conducted a development system for mapping geographic information. Gibin[6] make the city of London cartographic applications using the Google Maps API. Google Maps API also been developed for information systems for tourists[8].Google Maps API can be used to perform mapping of sugarcane land[1] with the help of a GPS device. In addition, this application can be used to perform storage, processing and delivery of digital spatial data precisely and accurately. Applications developed using the Google Maps API requires a GPS (Global Positioning System).

2.2 Geocoding

One of the fundamental things related to the geocoding process is the standard used for descriptive mendeksripsikan a location, eg in the form of address. Currently, the scheme is use by several different countries, there are even countries that do not have a mechanism to organize addressing infrastructure. This uncertainty led to a concept and the basic parameters for the geocoding process with flexible addressing scheme

(Davis, 2003).

Geocoding involves a clear descriptive locations to be mapped to the x and y coordinates (longitude and latitude). Geocoding method consists of three methods, ie based on a street address geocoding, geocoding based on zip code, and geocoding based on a boundary (boundary). Of the three methods, the method based on the street address geocoding is the most accurate[5]

2.3 Tourism

Tourism sector that can not stand alone or are part of the various elements. Tourism is a concept, not a sector-specific activities such as the transport sector with the obvious elements such as vehicles, roads, and so on[9]Thus, the tourism sector should not be forced to be a key development sectors, but better act as advocates for the construction sector, the other sectors.

It should be understood that tourism is a phenomenon that will always affect the livelihood of the people living in the vicinity of tourism. This is because they have a cultural background (probably) very different, and the use of natural and artificial resources are also used by the locals. Local residents also have interests that must be respected in relation to sustainable tourism development[2] :

1. Do not become victims of exploitation;
2. Guarantee the stability of the structure of social life;
3. Warranty does not negatively impact the use of the elements of commercial culture;
4. Guarantee of non-occurrence of excessive materialism and individualism;
5. The guarantee is loss of access to natural resources;
6. Security and comfort

3. Analysis

3.1 Problem

This study was conducted to establish a web-based tourism directory to Location Tourism Potential in Special Region of Yogyakarta. The Tourism chosen because there are many classical problems, such as lack of information broadcasted with the use of technology, thus reducing the potential location of tourism and its impact on the surrounding empowerment.

To achieve the objectives of this study the research problem formulated as follows:

a. How to design Web-based application?
b. How to integrate tourism directory using the Google Maps API and multimedia?
c. How to implement the tourism directory?

3.2 Stage of Research

This study covers three main aspects: (i) preparation of tourism directory model, (ii) the design and development of tourism potential application directory using the Google Maps API and multimedia, and (iii) implementation of tourism directory using the Google Maps API and multimedia. Thus, this study includes three major stages for the three main aspects.

3.2.1 Analysis modeling potential tourism directory

The first stage of the modeling has been done for photographing tourism directory profiles and classification of tourism directory. From these profiles, researchers can map the desire and reality (actual content) in interaction with tourists. In the end will come some potential tourism directory model that fits the characteristics of the local area and travelers needs.

Table 1. Research Activity

Year	*Activity*
1	**Analysis and Modeling** ✓ Identification of tourism profile ✓ Mapping desire and reality (actual content) ✓ The development of some models as a basis for designing potential tourism directory
	The design of *the prototype* potential tourism directory ✓ creating software specification and / or hardware ✓ descripting software and / or hardware ✓ prototyping software and / or hardware ✓ testing and evaluation of software and / or hardware
2	**Implementation** ✓ installation and testing of prototype software and / or hardware in some samples of tourism ✓ socialization (through forums workshop); ✓ tourism directory application independently or together

3.2.2 Prototype design

The prototyping includes five phases: analysis, design, development, implementation, and testing. In these phases were considered aspects of travelers, tourist environment, and the use and improvement of the system. Details of the three activities of this research are presented in Table 1.

3.2.3 Implementation of the web-based application

From the resulting application, installation and testing process is carried out a few sample applications to tourism; socialization (through forums workshop).

3.3. Fishbone Diagram

From the research that has been done and that will be done will be accumulated in the form of e-directory Indonesia which consists of several themes directory, so it can synergize all potential resources in Indonesia. The picture visible on *Fishbone Diagram* (Figure 1).

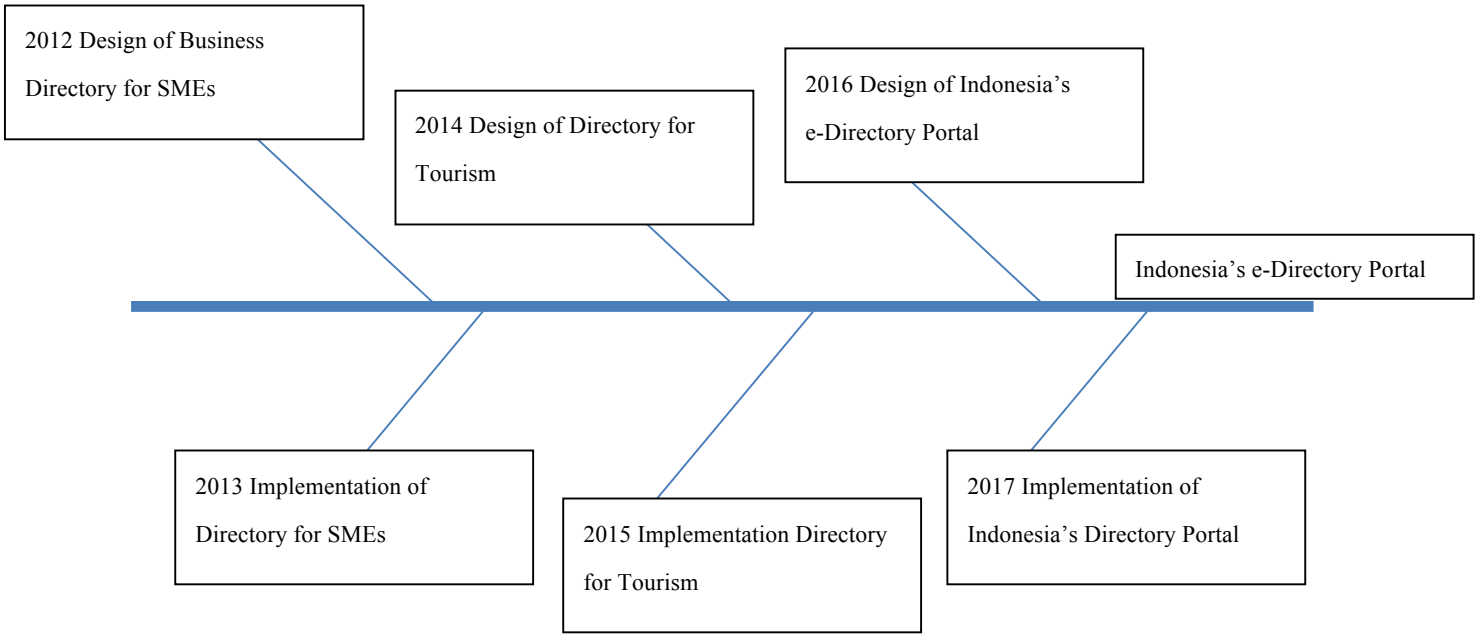


Figure 1. Fishbone Diagram

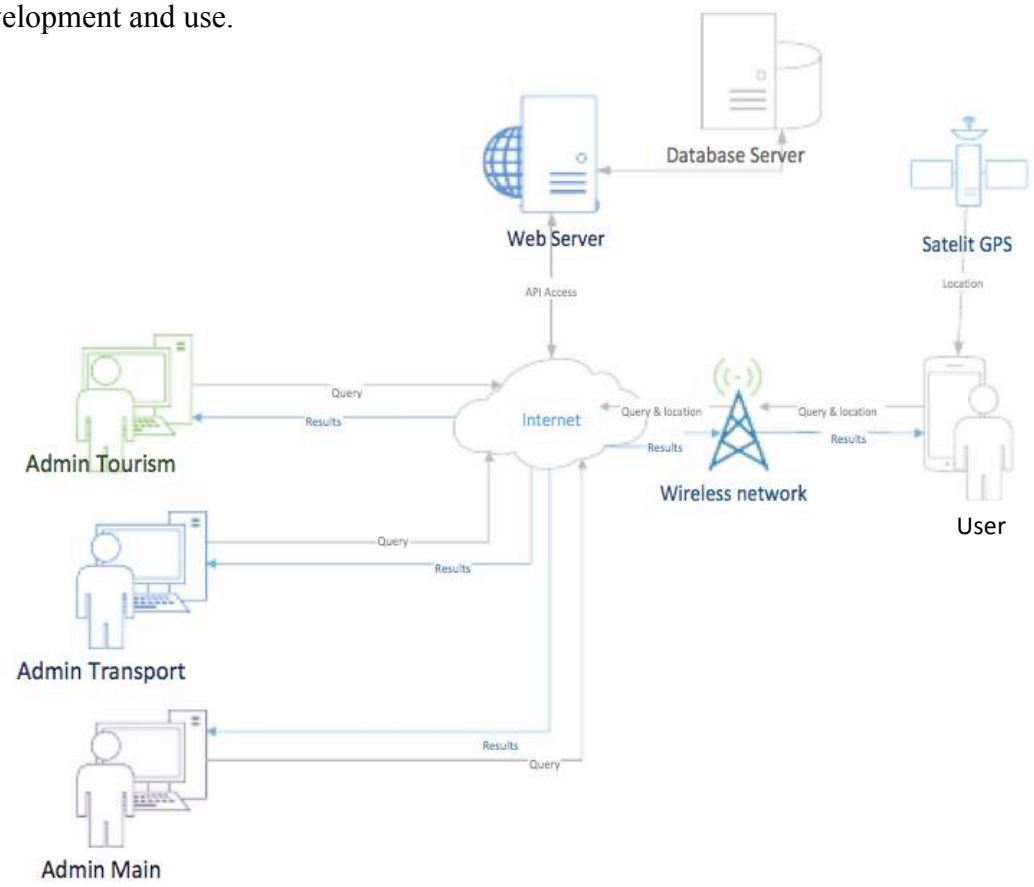
3.4 Architecture Design

Users will interact with the application through the interface GUI (Graphical User Interface) on mobile devices. This application design (Figure 2) manifold using a client server, where all data is stored on the server and the user application can access data on the server through the application (client side).

All data transportation and tours are stored in a database. To access the data, use an API (Application Programming Interface) that can easily be accessed either on the application or on accessibility of the management of data in applications by users, and

of course with certain authentication.

development and use.



This application uses one of the types of web services, the REST (Representational State Transfer) on the API. The reason is because different types of REST web services with SOAP webservices type or other types of web ervices in terms of

Figure 2. Architecture Design

3.5 Use Case Diagram

In the first use case diagram (Figure 3) there are three main actors, namely Admin Transport which manages the data transport, Admin Tourism tourist who manage the data, and the Main Admin web application to manage user data.

Admin Transport has a duty to do manage the transport route, manage range transport, manage outside transport, manage track, manage transport stops, manage transport schedule, and show transport map, as well as of course do the login function to get into the system and change the password. Because the transport of data with different types of data have some similarities, there is inheritance of managing transport functions to manage the transport inside and outside the transport, while managing transport inside another inherited functions to manage the transport route and manage range transport.

Admin Tourism has a duty to do manage tourism spot, manage daily attraction, manage big attraction, manage tourism category, manage ticket, and show tourism map, as well as of course do the login function to get into the system and change the password. Because the attraction of data with a different type of attraction has some similarities to the data then there is the inheritance of the function of managing daily attraction to manage the attraction and manage big attraction.

Admin Main has managed to perform admin tasks, as well as of course do the login function to get into the system and change the password. Of several key functions in web applications, manage functions divided into several functions such as insert, update, delete, show, and search, except the function of tourism manage category that does not have the search function.

In the second use case diagram (Figure 3) are the main actors, namely the User. Users have the right to show the transport route, show the range of transport, transport show out, show tourism spot, show nearby transport and tourism, tourism transport search, show route to stops, show route to tourism spots and show the transport route.

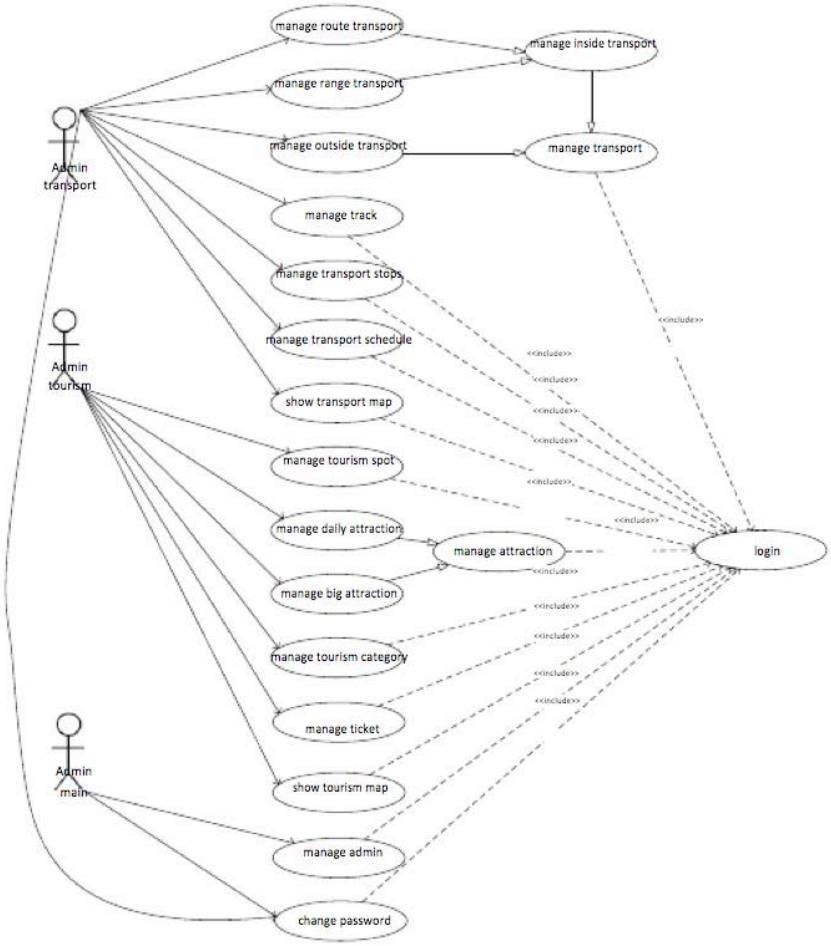


Figure 3. Use Case Diagram

The difference in terms of development, REST does not require a specific development tools. To use, REST has a feedback type format JSON (JavaScript Object Notation), so that the data can be easily accessed and used on almost all platforms, especially on the web and android.

The business process started when the user wants to find information about public transportation that can be used to achieve an appropriate choice of the user sights.

When the user specifies tourist destination and the type of public transport vehicles to be searched, then the application will look for a transport stops. Search for transportation such as bus route comparisons made twice the distance because not all of the stops are near a tourist spot, the first distance comparison is done between all the stops with the transportation and tourist locations.

When the comparison conditions are met, then continued on to compare the ratio of the distance between the two stops of transport and the location of the user. Once completed, the data stops of eligible comparison distance is displayed. As with the transportation without route, the comparison is only done one time between the dismissal / office operations with the user's location, because this type of transport can take direction and distance can not be determined.

4. Conclusion

In the first phase of this study, it could be concluded that it has successfully designed an architecture and design of tourism directory.

This design meets the needs of the tourism and mapping business opportunities around, so expect the results of this design can be implemented in application development.

Entity-relationship diagrams can easily connect the necessary data in the tourism entities and other attributes.

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