ANDROID BASED SEARCH APPLICATION FOR TYPICAL AREA FOOD TREND SOUVENIR AND ROUTE LOCATION

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ABSTRACT

Gift is usually a must brought to home by travelers. Moreover it can be an obligation if travelling is done in long time, far, and through many famous places especially cities have some special foods. Gifts always show an attention as a good relationship between someone and the others. Bandung is good destination place for travelers both local and international tourists. Many gifts shops in Bandung have developed strategic methods to complete to be the best choice for traveler buy gifts. One of them is doing promotion product effectively in the other hand, travelersare lack of information about gifts recommended especially in Bandung. This become common problem faced by travelers. There are two main problems need solution. First, a problem to find toute and location of gifts shops. Second, a problem to get adequate in formation of promotion products or trending products all about gifts. The final goal of this research is that using API Twitter and API Google Maps can help travelers get trending information from twitter, product promotion from seller, and route maps to search location of gifts easily. This application can run well using OS Android Lollipop (API Level 22) or more because it has enough of API to support sistematical function.

Keywords: Android, Application Programming Interface (API), Twitter, Google Maps, Souvenirs, Routes, Location, Bandung

1. PRELIMINARY

Souvenirs or can be called with the souvenirs, sometimes becoming something must to be taken by people who return from traveling is good in a long time, distance, or pass through the area which is famous for its distinctive souvenirs. Sometimes a gift can be a sign of attention to the person who receives it.

One of the city which became a tourist destination and shopping that the city of Bandung. Bandung itself is the capital of West Java province, while the Bandung area highways is the second largest city after jabodetabek in Indonesia. The duo culinary potential is very high, some typical products of the duo that is tutug oncom, pancake, spiced, and colenak which continues to grow in terms of innovation. And one of the main foods that characterizes the duo that is peyeum, peyeum is a kind of fermented made from fermented cassava. [1]

Therefore by the many visitors who stopped to Bandung area, then there are many souvenir shops, so the higher the competition that exists in terms of business souvenir shop owners each make innovation that could attract the attention of visitors. Therefore, the store also increase strategy in introducing products.

From interviews and questionnaires to 30 people a souvenir business owners in the area of Bandung, 76.7% or 23 out of 30 states have difficulty in introducing products.

While visitors stopped to Bandung, most deficient information on souvenirs in Bandung. There are two major problems, namely problems in getting recommendation and problems in getting these store locations you want to target.

From the results of a questionnaire distributed to 66 people, showed 46 people or 69.7% had difficulty in getting the location and route to where sellers of souvenirs, in addition to the 52 people or 78.8% experienced difficulty in receiving information on souvenirs.

So, we need a solution, one with the android based mobile application development in order to assist in the marketing of by-products for business owners, and can help users find products souvenirs.

1.1 Identification of problems

As noted in the previous discussion, it can be identified at issue as follows:

1. The absence of a more effective way to introduce souvenirs there.
2. Lack of ways that can provide real-time information and up to date on product recommendations to visitors who want to buy souvenirs.

3. Lack of ways you can help visitors to directly help locate and fastest route to where souvenirs.

1.2 Purpose and objectives

The purpose of the research is to build a mobile application trends by search-by along the route. With the following objectives:

1. Make android based applications that provide information on souvenirs emerging in an area.
2. Creating an application that provides the shortest route to get to the souvenir shops that want to go.
3. Creating an application that can help the store to introduce the products sold.

1.3 Scope of problem

In preparation of this thesis, created restrictions that discussion did not come out of the heart of the matter. Limitation of the problem as follows:

1. Applications are public.
2. These applications run on Android mobile devices. With the specification of a minimum version of Android version 4.1 Jelly Bean.
3. This research builds on two systems of android application used for public (frontend) and a website to be used by the admin (Backend).
4. Product information and trends souvenirs media obtained from twitter. For the data trend souvenir from twitter using twitter API. And maximum Only the top 10 products for the trend souvenirs.
5. The method used to display search results your location with Google Maps Distance Matrix API for the detection of the location service.
6. Approach to analysis and design of software development using OOAD (Object Oriented Analysis and Design) with UML (Unified Modeling Language).
7. Android application built to help visitors get information on products and trends souvenirs along the path to the location of the store in Bandung. And help the shop owner to introduce souvenirs offered in Bandung area.
8. Souvenirs restricted area in the form of snacks and heavy meals that are in the area of Bandung.
9. Admin only duty is to monitor the database system.

2. RESEARCH CONTENTS

2.1. Problem analysis

Usually people who travel out of town or in the city, they usually want to bring a gift that will be taken home to be given to someone. But in searching for or get souvenirs to be purchased is often difficult, because sometimes there are some obstacles. These constraints are usually:

1. Difficulty in getting recommendations for souvenirs to be purchased, due to the limited knowledge of the souvenirs available.
2. Difficult to obtain and location service shops selling souvenirs. Most would get lost while searching for a store location, so time and distance seemed very long and far.

2.1.1. Analysis Finding Shortest Distance These and Using Google Maps

Google Maps is included in the service provided by Google, to help the user in performing the mapping. Service can be a 360o panorama, satellite images, traffic conditions, street maps, and route planning to travel either on foot, private vehicle or public transport.

Google Maps API is a few fungsu programming provided by Google Maps that can be linked into the application or web to be developed. [2]

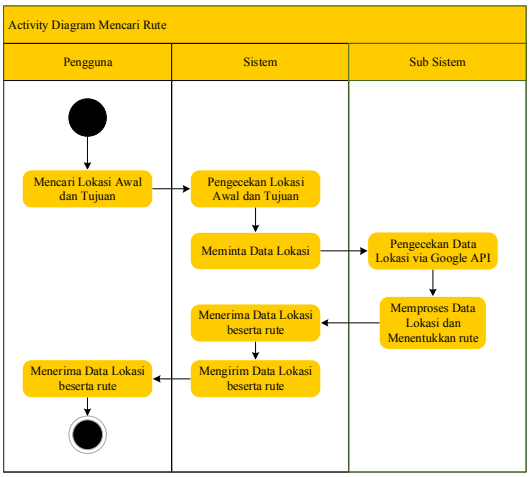


Figure 1 Process for These

Information :

1. Determine starting location and destination.
2. The system will check the location requested.
3. System asks the location data to the sub-system.
4. Sub-system checks the location data through Google APIs.
5. Sub-system processes data menentukkan location and route.
6. The system receives location data along the route of the sub-system.
7. The system sends location data along the route requested by the user
8. Users receive location data along with the results of the requested service.

In short the process to get the shortest route distance is as follows:

1. By accessing Google Maps Distance Matrix API through an HTTP interface, the request was made as a URL string, use the origins and destinations, along with an API key. For example, ask for a data matrix distance between Cihampelas and Dago, Bandung, in JSON format:

```
https://maps.googleapis.com/maps/api/distancematrix/json?units=imperial&origins=Cihampelas,Bandung,Indonesia&destinations=Dago,Bandung,Indonesia
```

2. Furthermore, can be tested by entering a URL into the browser. The response contains distance and duration between an origin and a destination that has been set, below is an example of a response in the form of JSON:

```
{
   "Destination_addresses":
[  "Dago,  Coblong,  Bandung,
West Java, Indonesia"],
   "Origin_addresses":      [
"Jl.   Cihampelas,   Bandung,
West Java, Indonesia"],
   "Rows": [
      {
         "Elements": [
            {
               "Distance": {
                  "Text":
"2.6 mi",
                  "Value":
4110
               },
               "Duration": {
                  "Text":
"13 minutes",
                  "Value":
768
               },
               "Status":
"OK"
            }
         ]
      }
   ],
   "Status": "OK"
}
```

2.1.2. **Analysis of Data Collection Data Become So Tweet Twitter Trend**

Twitter is a social network that is currently growing rapidly, because the user can interact indirectly with other users of the devices connected to the internet such as computers or mobile devices.

Twitter API is a service provided twitter so that it can provide convenience to the developer to manage information from the site twitter with the applicable terms and conditions. [3]

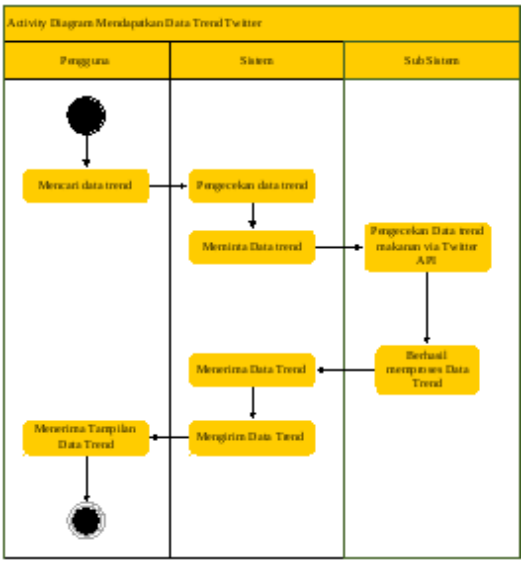


Figure 2 Trend Data Collection

2.2. System Overview

A general description of the system to be built, can be seen in figure 3 below:

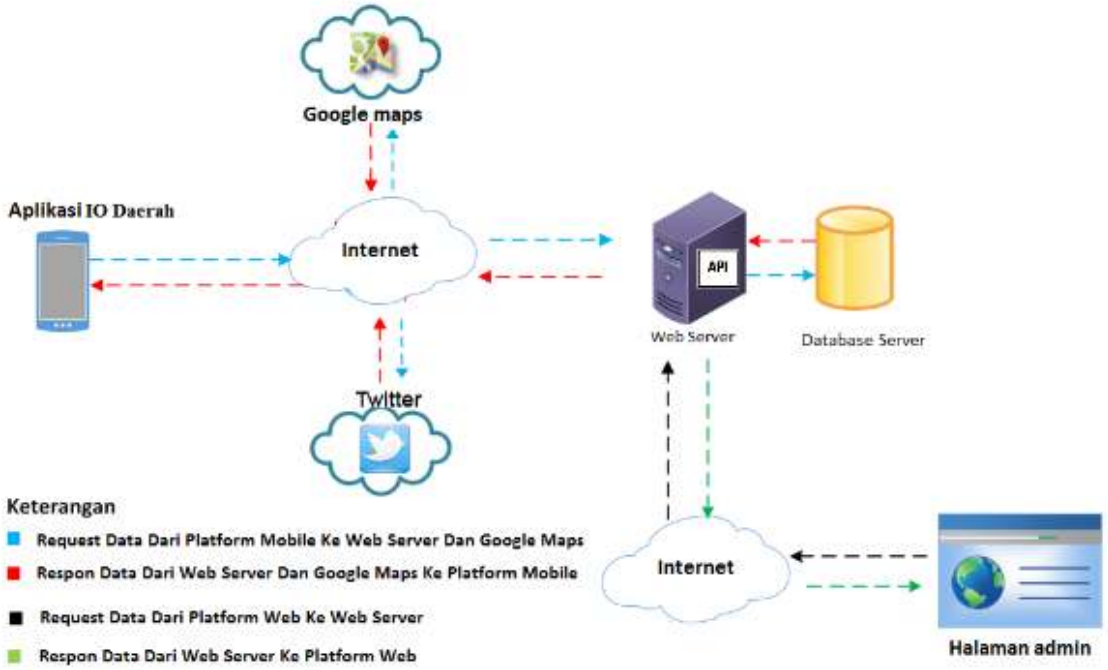


Figure 3 System Overview

- Public mobile devices via the Internet request data to the database server through the web server.
- Web server receives the request data and determines the type of requested change to the database server.
- Public mobile devices perform a data request to the server google maps.
- Google maps server receives a request data and determines the type of request that is requested.
- Public mobile devices perform a data request to the server twitter.
- Twitter server receives a request data and determines the type of request that is requested.
- After the server receives the requested data, the data is returned in the form of JSON via a web server for processing mobile devices.
- After google maps to get the requested data, then google maps send the requested data to the mobile device.
- After getting the data requested twitter and twitter send the requested data to the mobile device.
- Admin page data request to a web server through the Internet
- Web server receives data query and retrieve the data in accordance with requests from the database server.
- Database server responds to the data requested by the web server.
- Web server sends the requested data to the internet network admin page.

2.3. Software Requirements Specification

Software requirements specification is divided into two needs yakitu functional requirements and non-functional requirements.

Spesifikasi non-functional software requirements include:

Table 1 Software Requirements Specification Non-Functional

Code SKPL	Non-Functional Requirements Specifications
SKPL-NF-001	The system will be built is mobile
SKPL-NF-002	Mobile systems to be built minimal use Android OS version 4.1 Jelly Bean
SKPL-NF-003	The system is made using the hardware specifications and software that meets minimum standards needs
SKPL-NF-004	User interface design in software will be made based on the design of the menu
SKPL-NF-005	System wearing Indonesian

SKPL-NF-006	The system uses a web server to store data
SKPL-NF-007	*smartphone* not in airplane mode on or off
SKPL-NF-008	Smartphone GPS is not turned off

2.4. Use Case Diagram

Use case diagrams used to explain the relations between actors with the system activity. Use case diagrams describe any process that occurs in the system and how the relationship with the actor. [4]

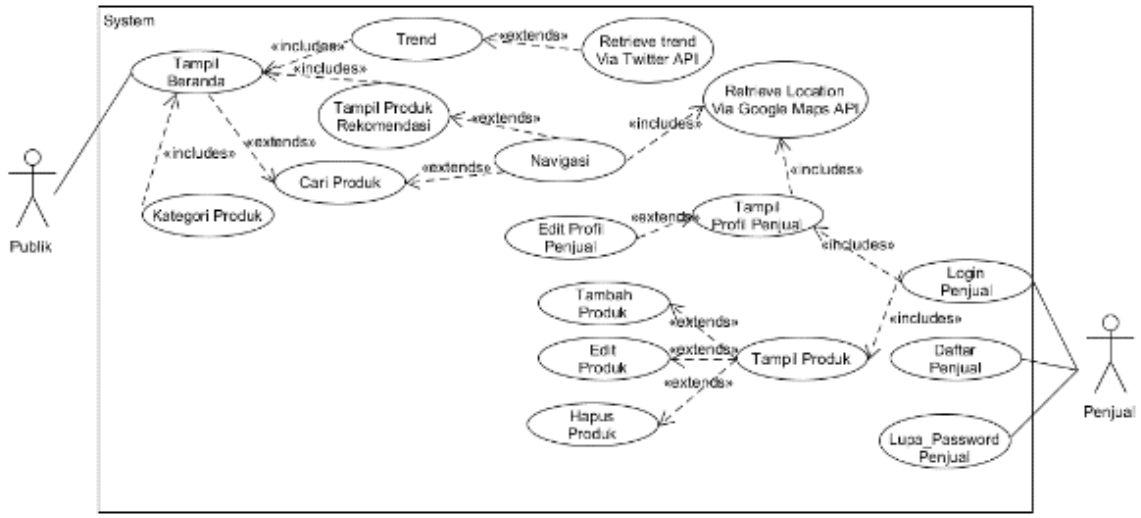


Figure 4 Use Case Diagram

2.5. Hardware Implementation

Related explains the computer hardware used to build applications on Android smart devices. The hardware is used as follows:

Table 2 Hardware Implementation

No.	Name Hardware	Specification
1	processor	Intel® Core ™ i3-3217U CPU @ 1.80GHz (4 CPUs)
2	RAM	10 GB
3	Hard Drive	500 GB
4	monitor	14 inch LCD
5	Keyboad	Standard
6	Mouse	Standard

2.6. Software Implementation

Explaining the application used to build the application. The software used in the development of applications is as follows:

Table 3 Software Implementation

No.	Software Name	Specification
1	Operating system	Windows 7 Ultimate 64Bit
2	Builder Tool	Android Studio version 3.0
	Software (Android)	
3	Builder Tool Software (Web Service)	Sublime Text 3

2.7. implementation interface

Interface is a means to relate to a system user. Implementation of the interface in applications built include:

- display Home
  Used to view the product recommendation and category souvenirs there.

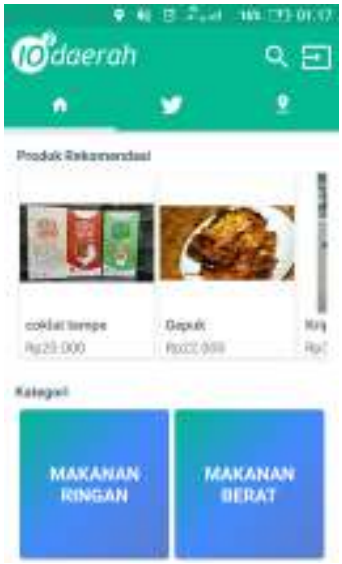


Figure 5 Display Home

- Trend Display Products
  Display to explain any trends emerging in twitter, taking into account several aspects that exist.



Figure 6 Trend Display Products

- Tracking display
  Views to describe any kind of products to be purchased and the selected route determination.

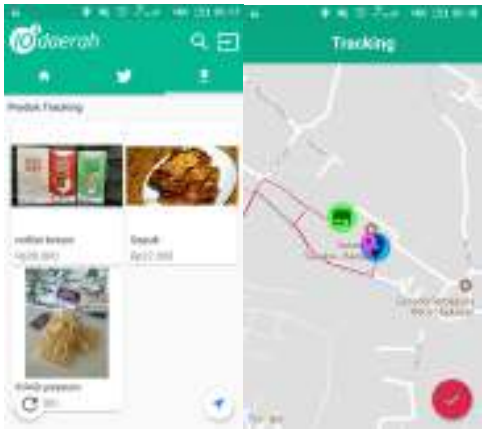


Figure 7 Tracking display

- display Log



Figure 8 Display Log

2.8. Testing Systems

Testing of the system has a goal to find flaws or mistakes that exist in the software that is built, if it meets all aspects of your design objectives such software. By testing it will be known whether the application is appropriate or not appropriate. Testing is done in black box testing technique that is more focused on finding a functional application error.

The test is performed on the functional components of the home page, login, register, product sellers, the seller's profile, trends, tracking. In this test carried out using three different Android smart devices to check the success of the application. Based on the test results of some of the existing devices, it can be concluded that the application is running properly. [5]

In January 2018, the testing is done by distributing questionnaires to 30 respondents. Many of respondents' answers varied, but on

average results obtained can be concluded that the respondents agree with the application that made it easier to search for souvenirs.

Table 4 Respondents Testing Results

The first question: Is this application allows you to search the trend of snack food products and food by weight of twitter?				
SS	S	CS	TS	STS
7	22	1	0	0
Average = (126/150) x 100% = 84%				
The second question: Does this application allows you to search the store locations you want to target?				
SS	S	CS	TS	STS
10	20	0	0	0
Average = (130/150) x 100% = 86.7%				
The third question: Is mammpu app provides product information for souvenirs food in an area, especially the area of Bandung?				
SS	S	CS	TS	STS
7	21	2	0	0
Average = (125/150) x 100% = 83.3%				
Fourth Question: Do you can easily follow the instructions given by this application?				
SS	S	CS	TS	STS
7	23	0	0	0
Average = (127/150) x 100% = 84.6%				
The fifth question: Are you able to understand the information provided by this application?				
SS	S	CS	TS	STS
5	24	1	0	0
Average = (124/150) x 100% = 82.6%				

From the calculation results of tests performed to 30 correspondents, it can be concluded that:

a. Users find it helpful to search on souvenirs at the Bandung area.
b. Users find it daam perform route search by store location-by who want to go.
c. Users get the product information for souvenirs food in the area of Bandung.
d. Users find it quite easy to understand instructions.
e. Users fairly easily understand the information provided by the application.

In January also, do interviews and testing the application of the 10 respondents sellers of souvenirs in Bandung. Answers varied from respondents, but from the results obtained can be concluded that the respondents agree with the applications that help introduce products souvenirs.

3. CLOSING

3.1. Conclusion

Based on the results obtained from the research, analysis, system design, implementation and testing of the system, it could be concluded among other things:

a. IO2Daerah software on android platform is able to provide assistance to users in obtaining information on souvenirs, and these store locations you want to target. So users browsing dibandung get advice on choosing a gift of food to be purchased. Similarly, people who are visiting Bandung area and did not know the location of the store, can easily see the route in question.
b. From interviews and experimental use of the application to the seller, the results obtained are software IO2Daerah able to assist the seller in introducing products sold. And sellers are also easily obtain information on products that are emerging.

3.2. Suggestion

IO2Daerah built software focused on the search process and the trend of these search locations. Therefore, there are some suggestions to be conveyed, which is expected to help to guide the development of this software into a better direction again. As for some advice the development of this application include:

1. Developing software that features the transfer, so that the booking can be done right, and the buyer only stayed receive orders already booked.
2. Developing applications that support decision-trend souvenirs apart from twitter, like instagram, facebook, and youtube.
3. Developing software that can support on a platform other than Android, such as iOS and Windows platforms.
4. Necessary adjustments in the future in software development regarding permissions and privacy, due to increase in the future android versions.

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