



## Implementation of Google Maps Geo Location Algorithm at Sate Padang Ajo Ramon Restaurant based on Android

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### ARTICLE INFO

### ABSTRACT

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Android-based food ordering application is an application that can be used by people to order food online. Where customers can order food only by using a smartphone without visiting the restaurant in person. In general, when customers want to order food, they must visit a restaurant in person, choose a food menu and place an order. This is less efficient and effective because it requires costs and a long time, including waiting in line, being blocked by the weather on the way and stuck in traffic. Based on these problems, an android-based food ordering application is needed that can help customers order food quickly, view restaurant lists and food menus. Through this application, it can also help the seller or owner of each restaurant to simplify the management of food sales from the restaurant.

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## 1. Introduction

The development of technology today has had a huge influence on the world of information technology and telecommunications. The emergence of various applications provides options in improving the performance of a job, whether it is desktop applications, web applications and mobile applications. Indonesia is one of the countries with a fairly high number of internet access via smartphones, namely 48% of Internet users in Indonesia accessing the Internet via smartphones. This online food ordering application is an application that provides food and beverages and provides services for making purchases, so that consumers do not need to come to the point of sale to get a food, only through the online food application, consumers can get a food they order.

In the results of the system that the author will build, the author will apply the Geo Location algorithm to the Padang Ajo Ramon satay restaurant so that customers do not have to come on the spot because the customer simply clicks on the application, the courier will immediately come to the user's house who ordered. The application of Geo Location is supported by the Google Maps API, which is an API service provider platform that integrates maps, locations and routes.

The author also refers to previous research that has implemented the Geo Location algorithm as the author used as a reference in previous research with the title "Mobile Application Development for Geo Location Tagging-based Posyandu administration services"[1] In this study, produced a mobile-based application using geo location as a mapping tool.

Therefore, based on the above background, the author will create a system by utilizing the geo location API provided by Google with the research title "Implementation of the Google Maps Geo Location Algorithm at the Sate Padang Ajo Ramon Restaurant based on Android"

## 2. Research methods

### 2.1 Mobile Device

A mobile device or commonly called a mobile device is one of the mobile phone devices whose use is minimalist, practical and can be carried everywhere. On mobile devices, there are various services such as SMS sender, MMS sender, email facilities, internet access, maps, and others. Mobile devices offer a variety of these services as well as computing, which is more commonly known as smartphones[2]. In this research, the author uses a mobile device with the Android operating system because Android is a device that is widely applied to smart phones, where the market for Android smartphones in Indonesia reaches 55.72%. [3]



## 2.2 Android

Android is an application platform with an open source license where android is designed to run on all forms of mobile devices. The essence of designing the Android operating system is that it is easy to carry everywhere and does not make assumptions regarding screen size, resolution used or chipset used[2].

## 2.3 Geo Location

Mapping or what is commonly referred to as geo location is a process in which geo-spatial information on various photo and video media is in the form of metadata. In media that has carried out the geo location process, it will have information in the form of longitude coordinates and latitude coordinates, this can allow the media to be measured precisely on a map[3].

*Geo location* very useful in searching for or finding a variety of detailed and specific information on the location of the device, the reason is that if someone finds a Fig where the Fig is taken near the latitude and longitude location it will match the appearance on search engines such as google or bing.

## 2.4 Research Flow

In the method that the author will apply to this author's research, the difficulty that the author will encounter is when the author tests the accuracy of the geo location between the user's cellphone and the driver's cellphone later

Therefore, the authors minimize it by using the latest API sources owned by the Google Maps API, thereby minimizing the accuracy of the implementation of google maps geo locations.

In the research that the author is doing, in the end, software testing will be carried out using blackbox testing where in blackbox testing is only done to test the results of the input and output of the running system.

## 3. Results and Discussion

In this sub-chapter, we will discuss how the results of implementing geo Location Maps on. In the author's research, there are several user rules, namely users as application users, users as admin, and users as drivers. As an admin user, the admin can monitor anything related to the running of the system, such as adding products, viewing transaction data, adding user drivers. The design will be described in the following sub-chapters:

### 3.1 Software Development

In the research that the author has done, the writer uses the waterfall development method which can be seen in Figure 3.1 below:



Fig 1. Waterfall Method

Based on the waterfall diagram flow figure following the explanation that the author will describe the research that the author has done [5].

- In the first stage of the development of this system, the authors carry out a basic analysis of the research that the author has designed and the needs required
- Modeling using UML diagrams where in this modeling diagram the author can find out what are the entities from each input or output of the system to be built.
- The next stage is that the author will design the system that the author will build
- In this fourth step, the authors develop the implementation of the UML that has been made
- The author will do a system test where the system testing will be done by testing the results of the input and output on the system that the author has built whether it is in accordance with the plan or not
- The sixth stage is the system development stage and system maintenance is carried out, this stage is carried out when the system has gone through the testing stage
- The last stage is the stage where the system that the author has built can know the final conclusion

### 3.2 Identify the problem

The growth in the culinary world has mushroomed from year to year, the implementation of new strategies in the process of ordering a food can increase the number of existing visitors, the ordering application that the author will build will be divided into 3 applications, namely admin, user and driver where the three users are will be centralized in the DBMS system so that it will run in real time and be integrated directly [6].

### 3.3 Use Case Diagram

The following is a use case diagram for the design of geo location maps at the Padang Ajo Ramon Sate Restaurant as a medium for ordering food online: below:

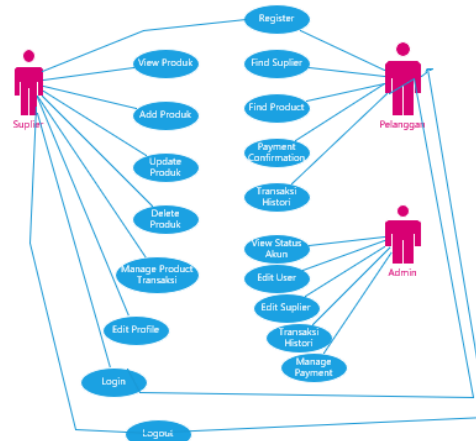


Fig 2 Usecase Diagram

### 3.4 Sequence Diagram

#### a. Sequent Diagram Login and Register

In the sequence diagram, the login register is a system workflow from when the user logs in and registers, the user will be asked to log in when the user already has an account, but when the user does not have an account, the user is required to register.

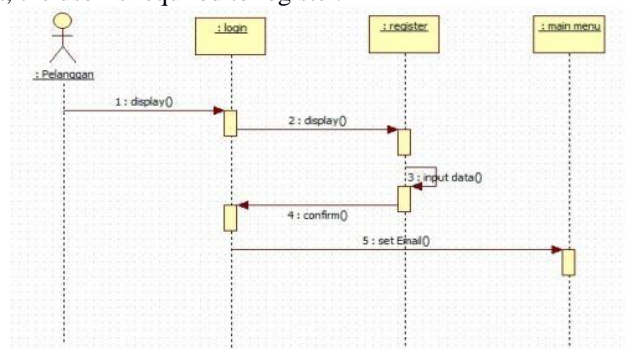


Fig 3 Usecase Login & Register Diagram

#### b. Usecase Product Search Diagram

The figure below describes the process of visitors looking for items they want to buy, visitors open the application then open the menu, fill in the item search form, if the item is not in the database, it will display a notification that the item is not

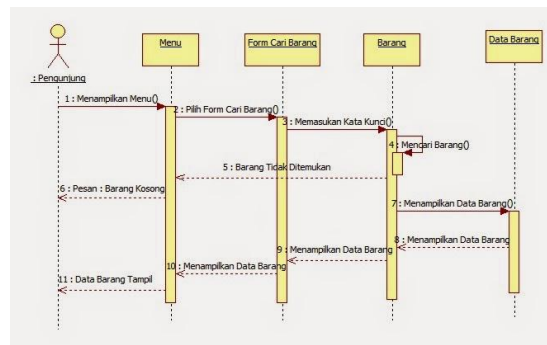


Fig 4 Usecase Diagram Search Products

**c. Sequent Diagram Order List**

In the Figure below the author will show the process of the flow when a user orders, that is, the user is asked to click on the order of the item he wants to buy then the data for the item will be entered into the database when the order order is successful, it can be seen at The following fig:

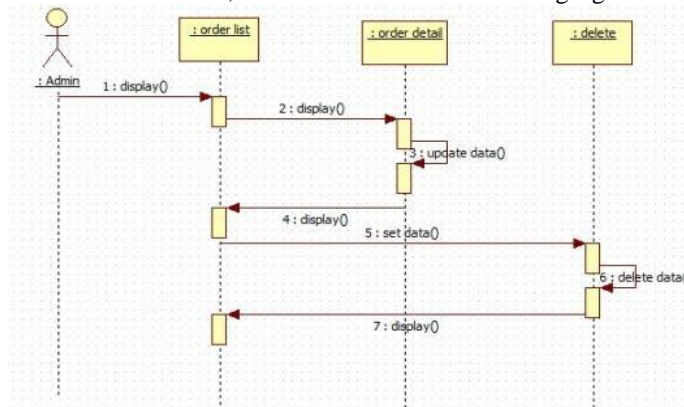


Fig 5 Usecase OrderList Diagram

**d. Sequent Diagram Add to cart**

In the Figure below is an explanation of the flow process when a user adds food to the basket, when the user clicks on add to cart, the product will automatically be temporarily stored in the basket.

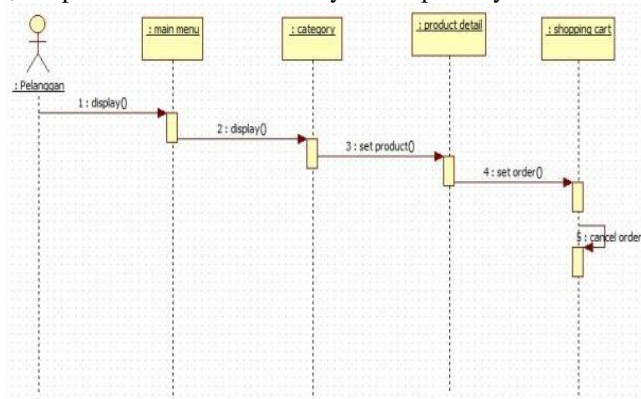


Fig 6 Usecase diagram add to cart

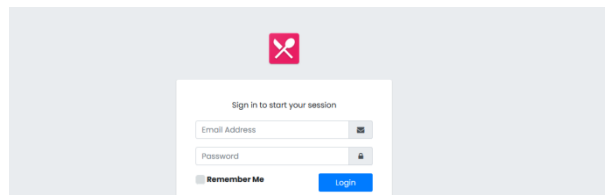
**3.5 Result**

In the sub-chapter the results of this system interface is a system view that the author created, here is a system view that the author has created

**a. Admin Login Page Display**

The main admin login view is a display where an admin who wants to use the existing system facilities is required to log in first by entering a username and password

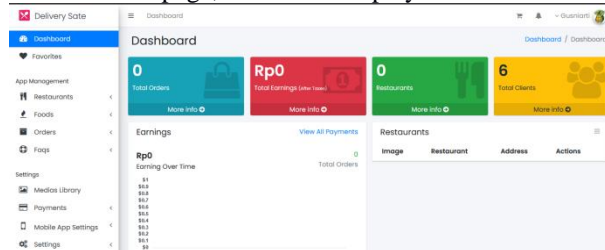
The following is a display of the admin login



**Fig 7 Admin Login**

**b. Admin Dashboard Display**

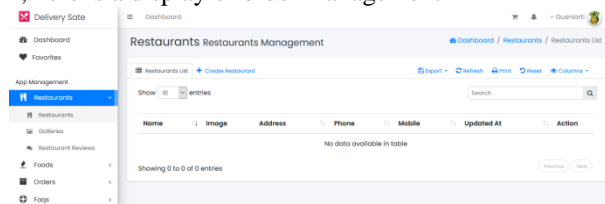
In this view is a display when the admin successfully enters the username and password, the admin will be referred to the admin dashboard page, here is the display of the admin dashboard



**Fig 8 Admin Dashboard**

**c. Display Management Order**

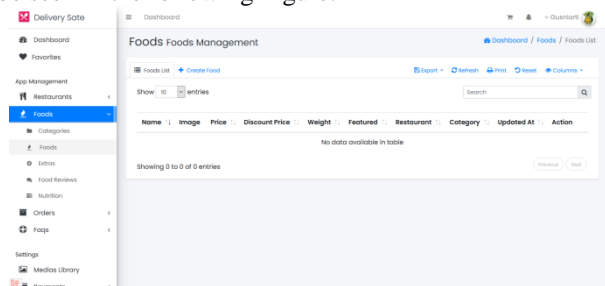
On the order management page display, an admin who owns a satay shop can manage orders that enter the application system, here is a display of order management



**Fig 9 Order management**

**d. Food Menu Management Display**

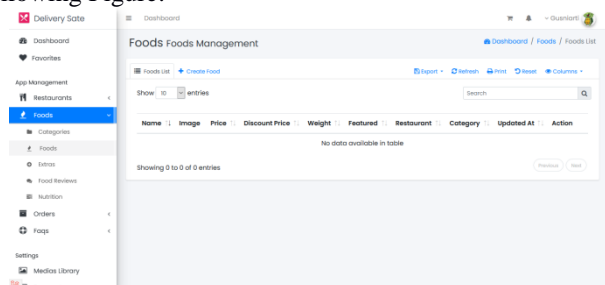
In the food menu management display there are several submenus, namely the central admin can add some of the latest food menus to each of its branches so that the central admin can control what menus will be updated can be seen in the following Figure:



**Fig 10 Food Menu Management**

**e. Branch Store Management Display**

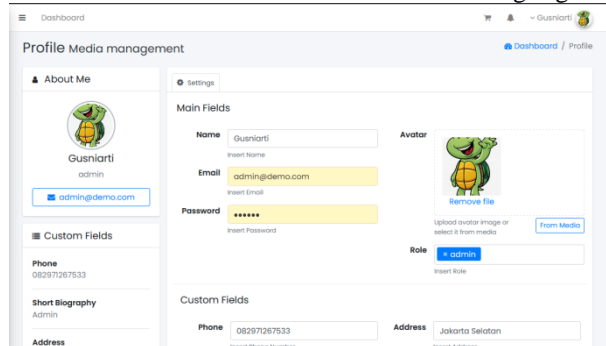
In the branch menu view is a display where an admin can add existing branches according to the location in the branch so that buyers can choose which branch is closest to where the user is located, it can be seen in the following Figure:



**Fig 11 Restaurant Management**

**f. Admin Profile Management**

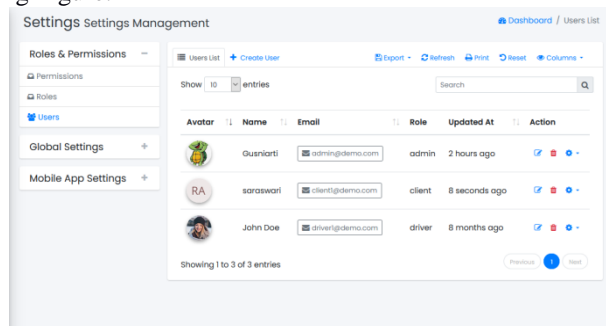
In this view the admin can make changes to his personal data, including the name, telephone number, email, description and role of the admin. Can be seen in the following Fig:



**Fig 12 Profile management**

**g. User management view**

In the user management view, a central admin can make changes, additions or delete data from existing users on the system, including admins can add new drivers, add managers from each existing branch, can be seen in the following Figure:



**Fig 13 User Management**

**4. Conclusion**

Based on the research that the authors have done, the writer has successfully implemented the location of the Padang Ajo Ramon Sate Restaurant. However, in this study, the author experienced a few problems, namely the caching of the admin website, because the version I was using was less stable.

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