

## Geographic Information Systems of Android-Based Residential Locations in Palembang

Lia Novita, Leon Andretti Abdillah, Ari Muzakir

Universitas Bina Darma

e-mail:lia.novita65@yahoo.com, leon.abdillah@yahoo.com, ariemuzakir@gmail.com

### **Abstract**

*Today many housing were built in Palembang, but yet there is a technology or application that tells about the locations and the specifications of the housing. Technology will continue to evolve, one of the development of technology based mobile phone is android. Android is an operating system based on Linux for mobile devices that includes an operating system, middleware and applications. The features in Android-based mobile phone is the Google Maps API. Google Maps API itself has the objective to find out the location and information about a place that is sought. One software on a computer that can determine the location as the Google Maps API is a Geographic Information System (GIS). Authors plan to facilitate the public in finding out the location of the residential housing via android device (android 2.3, Gingerbread). The authors will make the application of geographic information systems in residential location based android. The method of system development used in this study is mobile-D method. This mobile GIS application able in providing the information of residential locations in Palembang.*

**Keywords :** *Android application, GIS, Mobile-D, Residential locataions*

### **1 INTRODUCTION**

Information technology (IT) is the most flexible technology, because it can collaborate with many other disciplines (Abdillah, Syafei, & Hardiyansyah, 2007). Mobile technology as a part of information technology (IT) has been used for many aspects. The one that is used in various devices is Android. Android is a comprehensive open source platform designed for mobile devices. It is championed by Google and owned by Open Handset Alliance (Gargenta, 2011). Android mobile technology has some features that support the application to access internet services. One of the services available on mobile phone internet service can use the Google Maps API. Google Maps API functions to find locations and information. On the other hand, geographic information systems (GIS) become used widely to access the location information. A GIS is a collection of software, normally manipulated by its user through a single interface, and designed to perform a wide range of operations on geographic data (Goodchild, 2009).

In line with the population growing rapidly, the demand for the availability of various facilities that support the livelihood of communities also increase. One is housing facilities. Housing is a collection of homes as part of the settlement, both urban and rural areas, which is equipped with infrastructure, facilities, and public facilities as a result of efforts to comply with decent housing (Undang-Undang Republik Indonesia Nomor 1 Tahun 2011, 2011).

The Development of housing growth in Palembang and its surroundings grow more rapidly lately. Hundred of new housing located in many districts over the city. Demand of new house make authors interested to facilitate the searching of house locations in Palembang and surroundings.

The collaboration of mobile android technology, global positioning systems (GPS), and the concepts of geographic information systems (GIS) trigger authors to develop an application to search the location of housing in Palembang that displays the specification of the new residential housing.

There some previous research related to GIS: 1) The design of Geographic Information System selection for alternative way in Jakarta based Android (Fajarsari, Halief, Nuryanto, & Haryanto, 2013), 2) Application of GIS-based map of the city property that is integrated on the Google Map on android smartphones (Pertwi & Suprayogi, 2013), and 3) The development of web-based and Android-based for property information application (Oeinata, Andjarwirawan, & Handojo, 2014).

The scope of this research are: 1) Android-based GIS application determines the housing 40 in Palembang (7 sub-districts), and 2) This application can be adjusted for android starting from version 2.3 (Gingerbread).

The purpose of this study was to determine the locations of housing in Palembang based on Android, which can be used by the institution and the community to support housing development in Palembang.

The benefit of this research are : 1) Facilitate the public aware of the location of housing in Palembang, and 2) Helps the user to go to the location of housing through the map and the shortest route.

## 2 RESEARCH METHODOLOGY

This study began in October 2014 to January 2015. Meanwhile, place this study in 40 residential sales offices in the city of Palembang. Authors use some methods to get primary data, such as: 1) Observation to 40 sales offices in Palembang, 2) Interview to the employees in the sales office to obtain the required data. For secondary data, authors looking for brochures on the existing housing in Palembang, reference books, and the result of browsing on the internet related to this research.

Mobile application development methods used in this study is Mobile-D (Abrahamsson et al., 2004) which consists of five stages as follow: 1) Explore (researching). In this step examines the needs of the system, data collection in this stage can do a study like, interview or literature study. This stage produces a document user requirements or can be regarded as data associated with a user desires in the manufacturing system, 2) Initialize (initialize). In this stage of getting the documents obtained from the previous stage. This document will use the programmer to perform system-making activity, 3) Productionize. In this stage the programmer will find and make coding-coding to make this application, 4) Stabilize (Strengthening). After searching and create new coding-coding the coding was written in

eclipse, and 5) The system test and fix (system testing and repair). Before applications are actually used by the public system should be tested. If there are any coding or programmer can fix the errors.

### 3 RESULT AND DISCUSSION

The end result of all the activities and stages of development of a system that has been done is the implementation of designs that have been described in the previous chapter, which consists of the design process, the scheme would databases, and design of the menu structure. After applying the analysis and design into an application, then obtained a GIS application in Palembang residential location based android. As a result of the manufacture of residential applications based on Android are : 1) Web-based server application. And 2) The client application based on Android.

Web-based server application. On the application server, there are several menu pages include : a) Admin login page on the application server is used to enter the main menu on the application server, b) Housing menu page is a page that is used to increase housing obtained, and c) Page navigation map editor is a page that is used to provide the coordinates of the housing. The client application based on Android : a) The login page on a client application that is used for menu pages into the android based applications, b) Page menu there are 40 residential housing that has been entered by the previous admin, and c) Page navigation map used if the user wants to know where the nearest residential users.

#### 3.1 Home Users and User

The initial view displays multiple images residential users, this display that will take the user to access the menu page for residential applications (figure 1). In this view there are two menus to the user that the housing menus and menu map. Menu featuring 40 residential housing in Palembang, and a menu map showing the housing 40 is closest to the user (figure 2).



Figure 1: Figure 1. Users views, Figure 2. Display menu

### 3.2 Page Housing

The user can choose the housing that will be known information by pressing one of the housing above, then will appear the information of the selected housing, such as address information, grade, specification and layout of the housing.



Figure 2: Figure 3. Menu display housing, Figure 4. Display house details

### 3.3 Housing Plan Page

Figure 5-6 showing the floor plan of the housing previously selected, if the plan is small and it is not clear that the plan users can download and save it to the gallery smartphone users.

### 3.4 Page Menu Map

Page menu map in figure 7, users can also search for housing know which one is closest to the user. When the user selects a menu position nearest housing and turn the GPS, the GPS will direct users to the nearest housing from the user's position.

## 4 CONCLUSION

Based on the results of the reserach and some information above, Authors have some conclusions as follows:

1. This android-based GIS for residential locations able to help people to search the information about residential and its locations in Palembang.
2. This mobile application was developed by Mobile-D which is very useful for sort term mobile application development.
3. This mobile application uses geospatial from Google in real time.

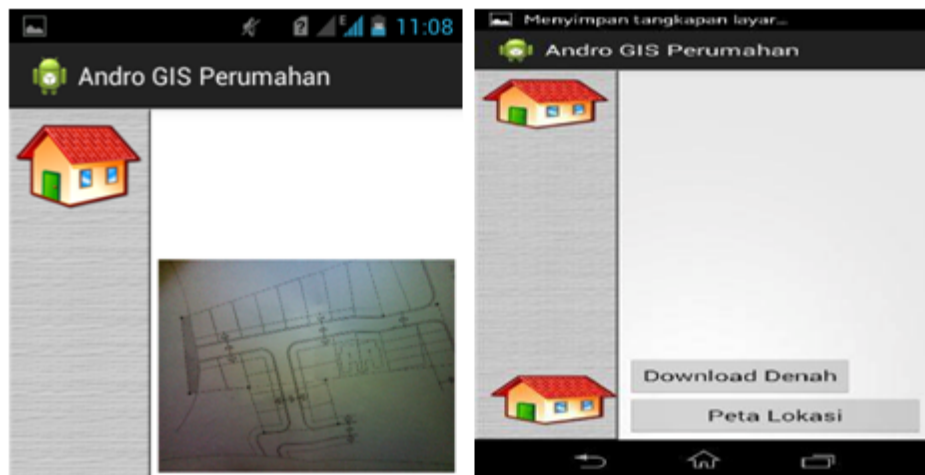


Figure 3: Display housing plan, Figure 6. Display layout download

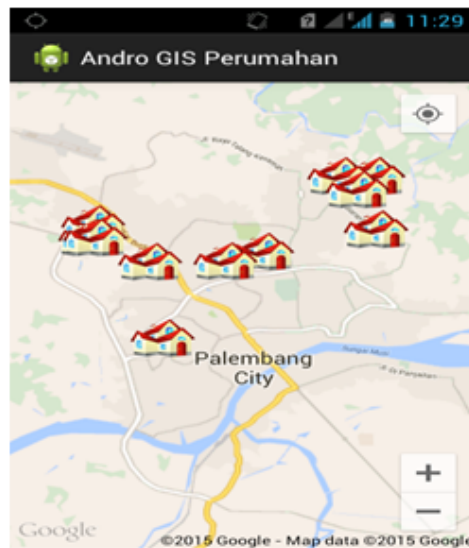


Figure 4: Map display housing

## References

- Abdillah, L. A., Syafei, B. A., & Hardiyansyah. (2007). Pengaruh kompensasi dan teknologi informasi terhadap kinerja dosen (KIDO) tetap pada Universitas Bina Darma. *Jurnal Ilmiah MATRIK*, 9(1), 1-20.
- Abrahamsson, P., Hanhineva, A., Hulkko, H., Ihme, T., Jlinoja, J., Korkala, M., . . . Salo, O. (2004). Mobile-D: an agile approach for mobile application development. *Paper presented at the Companion to the 19th annual ACM SIGPLAN conference on Object-oriented programming systems, languages, and applications*.

- Fajarsari, E. J., Halief, K., Nuryanto, N., & Haryanto, H. (2013). Rancangan Sistem Informasi Geografis Pemilihan Jalan Alternatif di Jakarta Berbasis Android. *Paper presented at the Konferensi Nasional Sistem Informasi 2013 (KNSI2013)*, STMIK Bumigora, Mataram.
- Gargenta, M. (2011). *Learning android*. Sebastopol, CA, USA: O'Reilly Media, Inc.
- Goodchild, M. F. (2009). *Geographic information system*. In B. Gomez & J. P. J. III (Eds.), *Research Methods in Geography: A Critical Introduction* (pp. 1231-1236). Chichester: Blackwell Publishing Ltd.
- Oeinata, R. D., Andjarwirawan, J., Handojo, A. (2014). Pembuatan Aplikasi Informasi Properti Berbasis Web dan Android. *Jurnal Infra*, 2(2), pp. 165-pp. 169.
- Pertiwi, M., & Suprayogi, A. (2013). Aplikasi Peta Properti Kota Berbasis Mobile GIS yang Terintegrasi Pada Google Map Pada Smartphone Android. *Jurnal Geodesi Undip*, 2(1).
- Undang-Undang Republik Indonesia Nomor 1 Tahun 2011. (2011). *Perumahan dan kawasan permukiman*. Jakarta.