Journal of Intelligent Decision Support System (IDSS) 4 (2) (2021) 41-46

Published by:IOCSCIENCE

Journal of Intelligent Decision Support System (IDSS)

Journal homepage:www. idss.iocspublisher.org

Geographic Information System Locating Hospitals and Police Stations Based on Android

Achmad Junafan

Jurusan Teknik Informatika Fakultas Teknik Universitas Muhammadiya Sidoarjo

Article Info

Article history:

Received: 14/04/2021
Revised: 03/05/2021
Accepted: 17/05/2021
Available online 30/06/2021

Keywords:

Learning Media
Junior High School,
Websites.

ABSTRACT

Currently technology is developing rapidly. By using a geographic information system and internet service media navigation system or GPS (Global Positioning System) found on the android smartphone platform, Google Maps and Google Services which are virtual map products, free and online. Where people can access maps anywhere and anytime when needed. However, the google map does not show the location of the police station and hospital as a whole, therefore it is necessary to develop a geographic information system (GIS) for the location of police stations and hospitals in the Sidoarjo Region. In this study, researchers created an Android-based automatic geographic information system for finding the location of hospitals and police stations.

Corresponding Author:

Achmad Junafan,
Jurusan Teknik Informatika Fakultas Teknik Universitas Muhammadiya Sidoarjo
Email: ahmadjunafan@gmail.com

1. Introduction

Information technology, which is increasingly advancing and developing all the time, has a very important role in all aspects of life. One aspect of technology that is being developed is mobile technology on smart phone devices (smartphones).(Pebriandi, nd). One of the smartphone technologies that are currently being discussed is Android. Android is an operating system for smartphone devices. This operating system is based on the Linux kernel which has been modified so that it is suitable for use on mobile phones or other handheld devices. Currently, more and more people are using the Android operating system, almost all walks of life(Warisyah, 2019).

people use it. A user who drives on the highway every day, sometimes the user does not have time to memorize one by one the positions of an important place, especially if the driver is a new resident of the area. For example, a motorcyclist or car driver who happens to be seeing or experiencing a situation where a crime, accident, etc(Astari & Khairil, 2014). The driver may have the initiative to contact the nearest Police Station, and if a victim occurs, the driver also needs to call the Hospital emergency number. If the unexpected happens, without preparation it will be difficult to make an emergency call, take the victim to the nearest hospital, or when he wants to go to the Police Station.(Epaphras, nd).

Moreover, if it turns out that the area is not so memorized, this will be very difficult. It is at times and situations like this that an Android application developer can develop applications for these cases. Where to apply the map, it can be done relatively easily, because of the support of Google services. To determine the closest path, the API on Google Map is used(Astari & Khairil, 2014).

2. Method

2.1 Process Design Stage

The design process is a description of the requirements that are represented in the software so that the quality can be estimated before starting code or coding (Nugroho, 2010) (Watrianthos, 2014). The research used is Research and Development or research and development methods, this method is used to produce certain products and test the effectiveness of these products.

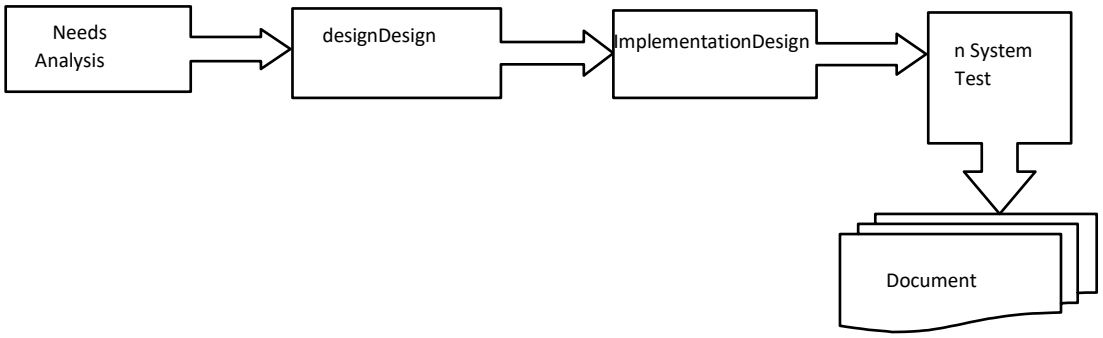

Figure 1. Stages of Research Research and Development Method

Based on the picture above, the research procedure to be carried out among others :

a. Needs Analysis
   At the analysis stage is to analyze the necessary needs, namely the collection of information about the search for locations that will be conveyed through the application. In this analysis stage used:
   1). Problem analysis
      Problem analysis is used to investigate problems that arise in site search activities in the field and identify possible solutions that can be used to overcome these problems.
   2). Media content analysis
      Media content analysis is an analysis of the search component which includes competency standards, basic competencies, search objectives and several locations to be presented so that the preparation of the media has a definite purpose and the contents of the location are in accordance with the compiled syllabus.
b. Design Design
   The design design stage is the system design stage to get an effective and interactive search media from a predetermined location. At this stage, a screen display design sketch is needed to make it easier for programmers to translate into a more tangible form. Design made in storyboard for
   make it easier to implement the design design.
c. Design Implementation
   The implementation stage is the process of translating the design design into the actual appearance. The development used is a computer-based program.
d. System Test
   This stage is the stage where the author will carry out testing (Testing) on the system that has been made, with the aim of finding errors in making the system and will then be corrected by the author until the system does not occur errors.
e. Document
   The resulting document is a media application for finding the location of hospitals and police stations that are suitable as search media.

3. Results and Discussion

3.1 Research result

This android-based geographic information system for finding the location of hospitals and police stations is a location search application that is suitable for all ages, both teenagers, adults and the elderly. The display of each menu is as follows:

a. System Implementation

The system implementation stage is the continuation stage of system design activities. The result of this implementation will be a system that is ready to be tested and used. The display of each menu is as follows:

1). Main Page View

Figure 2. Application Main Page

2). Police Station Location Page View

Figure 3. Location Display

On button A, the button to determine the cardinal direction according to the user's position. On the C button, the button to determine the direction from the user's position to the selected location that is connected to google maps. On the D button, the button to zoom in and out on the map.

3). Help menu

Figure 4. Help Menu Display

The A button is used to exit the help menu. The help menu contains procedures for using the application.

4). Announcement Menu

Figure 5. Announcement Menu Display

The A button functions to exit the about menu. The about menu contains the application version and the application maker's personal data.

3.2 Application Trial Results

Testing is carried out in a user environment without the presence of the application builder. This test is hands-on in an actual environment. Users evaluate the application by using a media questionnaire. From the results of the questionnaire, it can be concluded whether the application that was built was in accordance with the purpose or not. Tests were carried out on several application users using a questionnaire. To find out the responses and ratings from users of this application, questionnaires have been distributed to 15 respondents. This questionnaire was distributed using a sampling technique, namely Simple Random Sampling which was distributed to several users. From the results of the questionnaire, calculations will be carried out so that conclusions can be drawn on the assessment of the application that is built. Here are the questions and the results of the questionnaire that have been distributed using the formula:

$$Y = \frac{P}{Q} \times 100\ \%$$

Description:

Y = Percentage value
P = Number of answers
Q = Number of respondents
The following is the result of the percentage of each value of the answers to the questionnaire that was tested on 15 respondents and has been calculated by the formula.

1). The information provided by this application is easy to understand.

Table 1. Questionnaire answers for statement number 1

Answer	Respondent	Percentage (%)
Agree	8	80%
Do not agree	2	20%
Total Respondents	10	100%

From the sample taken by 10 respondents aged 20-45 years, it shows that in proportion 80% agree, and 20% disagree.

2). The use of menus or application features is easy to use.

Table 2. Questionnaire answers for statement number 2

Answer	Respondent	Percentage (%)
Agree	7	70%
Do not agree	3	30%
Total Respondents	10	100%

From the sample taken a number of 10 respondents aged 20-45 years, it shows that in proportion 70% agree, and 30% disagree.

3). This application helps users to speed up the search for the location of hospitals and police stations.

Table 3. Questionnaire answers for statement number 2

Answer	Respondent	Percentage (%)
Agree	9	90%
Do not agree	1	10%
Total Respondents	10	100%

From the sample taken a number of 10 respondents aged 20-45 years, it shows that in proportion 90% agree, and 10% disagree.

4). The suitability of the background and color of the application is attractive.

Table 4. Answers to the questionnaire for statement number 4

Answer	Respondent	Percentage (%)
Agree	1	10%
Do not agree	9	90%
Total Respondents	10	100%

From the sample taken a number of 10 respondents aged 20-45 years, showed that in proportion 10% said they were attractive, and 90% said they were not.

4. Conclusion

In accordance with the results of the discussions that have been carried out, it can be concluded that with the application of finding the location of hospitals and police stations, it is hoped that it can help the community find the location of hospitals and police stations in Sidoarjo district. With input in the form of geographic system information, it is easier for the community to find the location of hospitals and police stations. This application speeds up the search for the location of hospitals and police stations with a difference of 10 seconds from the application provided by google maps.

Reference

Astari, L., & Khairil, K. (2014). Pemetaan location based service (lbs) wisata bengkulu berbasis android. *JURNAL MEDIA INFOTAMA*, *10*(2).

Epafras, L. C. (n.d.). *Refleksi Teologi Keramahan dalam Konteks Pandemi*.

Nugroho, B. K. (2010). *Aplikasi Enkripsi SMS pada Telepon Selular berbasis J2ME dengan Metode Vigenere Chiper*. FACULTY OF MATHEMATICS AND NATURAL SCIENCES.

Pebriandi, S. (n.d.). *PENGGUNAAN AL-QUR'AN BRAILLE DIGITAL OLEH JAMAAH TUNANETRA DI YAYASAN RAUDLATUL MAKFUFIN SERPONG*.

Warisyah, Y. (2019). Pentingnya "pendampingan dialogis" orang tua dalam penggunaan gadget pada anak usia dini. *Seminar Nasional Pendidikan 2015*, 130–138.

Watrianthos, R. (2014). PERANCANGAN PERANGKAT LUNAK SEBAGAI PEMBELAJARAN STATISTIK DASAR. *INFORMATIKA*, *2*(2).