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Geographic Information System Searching Locations for Hospital and Police Offices Based on Android

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ABSTRACT

Currently the technology is growing rapidly. Using geographic information systems and media services internet navigation system or GPS (global positioning system) which is present on the platform android smartphone, google maps and google services that is product of virtual map, free and online. Where the public can access the map anywhere and anytime when needed. But the google map does not show the location of police stations and hospital as a whole therefore the need for the development of graphic information system (GIS) the location of the police station and hospital in the area of sidoarjo. In this Study, researchers make automatic geographic information system for searching the location of the hospital and police stations based on android.

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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). 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 various circles of society use it. A user who every day drives on the highway, sometimes the user does not have time to memorize one by one the position 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 watching or even experiencing a situation where a crime, accident and so on occur. The rider 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. Moreover, if it turns out that the area is not very 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 in Google Map is used. 2 Based on the above case, the researcher took the initiative to create a mobile-based application for finding the location of hospitals and police stations in the Sidoarjo region. This application utilizes Google Maps as a map service and GPS embedded in smartphones to determine the location of Hospitals and Police Stations.

2. RESEARCH METHOD

2.1 Location and Time of Research

This research will be conducted in Sidoarjo Regency. The reason for conducting research in Sidoarjo Regency is with the consideration that in Sidoarjo there is no GIS regarding Searching for Police Stations and Hospitals. This research is planned to be carried out in the 2016/2017 academic year.

2.2 Research Tools and Materials

a. Tool:
   1) Lenovo Laptop with Processor Intel(R) Core(TM) i5-3230M CPU @ 2.60GHz (4 CPUs), ~2.60GHz
   2) Windows 10 Pro 64-bit Operating System 3. Android Studio 4. CorelDraw X8 5. Java b) Research Materials 1. Reference books on android programming 2. Ebooks and articles on Geographic Information System (GIS)
   3) Ebooks and articles on the Global Positioning System (GPS)
   4) Articles about applications based on Android Geographic Information System.

b. Editor

The editor used in making this hospital and police station location search application uses CorelDraw X8 which supports Windows 10 64 bit. By using CorelDraw researchers can change and be creative so that the appearance of the application can be more Smurf.

c. 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. 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.

3. RESULTS AND DISCUSSIONS

Implementation is the stage of developing the design into an application. To be able to run this application, you need a cellphone that uses the Android operating system that supports Google Maps and GPS, for that the cellphone used in testing this application is the Xiaomi Redmi 4x cellphone. The main part of the implementation is the description of the functions of each menu

3.1 Application Test 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:

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

Information:

Y = Percentage value

P = Number of respondents' answers to each statement

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%
Don't agree	2	20%
Total Respondents	**10**	**10 100%**

From the sample taken a number of 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%
Don't 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. Answers to the questionnaire for statement number 3

Answer	Respondent	Percentage (%)
Agree	9	90%
Don't 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. Questionnaire answers for statement number 4

Answer	Respondent	Percentage (%)
Agree	1	10%
Don't 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.

5. Application button buttons on each page according to size.

Table 5. Questionnaire answers for statement number 5

Answer	Respondent	Percentage (%)
Agree	2	20%
Don't agree	8	80%
Total Respondents	10	100%

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

6. The font size is neither too small nor too big for the user.

Table 6. Questionnaire answers for statement number 6

Answer	Respondent	Percentage (%)
Agree	4	40%
Don't agree	6	60%
Total Respondents	10	100%

From the sample taken by 10 respondents aged 20-45 years, it shows that in proportion 40% agree, and 60% disagree.

7. The accuracy of the location of hospitals and police stations is provided on the application.

Table 7. Questionnaire answers for statement number

Answer	Respondent	Percentage (%)
Agree	6	60%
Don't agree	4	40%
Total Respondents	10	100%

From the sample taken by 10 respondents aged 20-45 years, it shows that in proportion 60% agree, and 40% disagree.

8. Satisfaction in using this application to locate hospitals and police stations.

Table 8. Questionnaire answers for statement number 8

Answer	Respondent	Percentage (%)
Agree	9	90%
Don't 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.

9. This application deserves to be distributed.

Table 9. Questionnaire answers for statement number 9

Answer	Respondent	Percentage (%)
Agree	10	1000%
Don't agree	-	0%
Respondent	10	100%

From the sample taken a number of 10 respondents aged 20-45 years, it shows that in proportion 100% agree, and 0% disagree.

So the conclusion from the overall answers from 10 respondents with the 9 statements above, that this application for finding the location of hospitals and police stations speeds up 10 seconds from google maps and makes it easier for people to find the location of police stations and hospitals. Many respondents were satisfied with the application, in terms of appearance, accuracy, button size and text presented and the features presented were sufficiently understood so that this application deserved to be disseminated. However, some respondents had difficulty in reading the size and type of font made by the researcher. It is hoped that in the future this application can be useful for all circles of teenagers to the elderly in using these applications more efficiently and practically.

4. CONCLUSION

In accordance with the results of the discussion that has been carried out, it can be concluded that: With the application for 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 Regency. 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.

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