Analysis Of Application *Geographic Information System Mobile* Search High School In Bandar Lampung Equals

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1. Introduction

1.1 Background

In the current era of modernization is very rapid development of technology that makes all the current facilities have a lot of *mobile* and *web-based.* One of the advances in technology today is the presence of *Geographic Information System* (GIS). *Geographic Information System* (GIS) is a computer system that has the ability to build, store, manage, and display geographic information references. School is an institution designed for the teaching of students / pupils under the supervision of teachers. Public schools, the school organized by the government, ranging from elementary schools, middle schools, high schools, and colleges. Private schools, the school organized by non-government / private, in the form of weight organizers in the form of educational foundations that until now legal entities education providers is still a draft government regulation.

Table 1. Number of Schools, Pupils and Teachers School in Lampung Province Year, 2013/2014

SEKOLAH	Status	Banyaknya Kelas	Banyaknya Guru	Banyaknya Murid
(1)	(2)	(3)	(4)	(5)
SEKOLAH DASAR	Negeri /*State*	4 365	805 730	49 599
	Swasta/*Private*	246	50 332	2 706
	Jumlah/*Total*	4 611	856 062	52 305
SLTP	Negeri /*State*	675	219 691	16 171
	Swasta/*Private*	606	86 858	8 002
	Jumlah/*Total*	1 281	306 549	24 173
SMU	Negeri /*State*	191	51 257	-
	Swasta/*Private*	241	12 968	-
	Jumlah/*Total*	432	132 225	11 143
SMK	Negeri /*State*	110	9 418	-
	Swasta/*Private*	242	45 504	-
	Jumlah/*Total*	352	54 922	10 723

Sumber : Dinas Pendidikan Provinsi Lampung

From the picture number in the table above shows that a lot of school students in the province of Lampung, this proves that Lampung has many students who are still sitting on the bench school. Therefore necessary to facilitate the application of the prospective students to look for high school or vocational high schools to be desired. In the present study the authors wanted to learn about how to build geographic information system applications which aims to find a clear design of geographic information systems and can implement further into the study authors. On the basis of this thinking behind this paper entitled **APPLICATION ANALYSIS OF *"MOBILE GEOGRAPHIC INFORMATION SYSTEM* EQUALS SCHOOL SEARCH IN BANDAR LAMPUNG".**

2. Theoretical

2.1 Review of Literature

2.1.1 According to Research Fajri Reskanida, Kelly Muludi, Irwan Adi Personal Entitled "MAPPING THE ACHIEVEMENT HIGH SCHOOL / VOCATIONAL CITY OF BANDAR LAMPUNG ANDROID BASED".

In the current era, the development of internet and technology *mobile phone* very fast, according to the human needs of the information increases. The development technology *of mobile phone* is also in tune with the needs of contemporary man. In the early 90s, *the mobile phone* is used only for a messages or make calls, but today can do much more than that. *Mobile phone* type is called *a* smart phone, while the OS is extremely popular today is Android. Android is very popular because it features a very attractive and affordable price. Features such as the Internet and GPS *(Global Positioning* System) is offered can be used as a medium to build applications that can allow users to view or define the position of High School / Vocational (SMA / SMK) is desired.

2.1.2 According to The Study, and Dr. Hendi Ravasia Aviarini Indrati, Kom., MMSi Entitled "HIGH SCHOOL APPLICATION INFORMATION SYSTEM FOR ANDROID BASED IN JAKARTA".

A large number of high school provided of course provide many options offered to students. The students who wish to continue education to high school, will normally be selective in deciding where they will continue their education, especially parents of learners who want their children in high school right. Lack of information regarding high school location, proximity to a high school, the facilities available and other things into one barrier to determine high school that is right for them. Therefore, it needs an information system capable of providing information on the whereabouts of high school along with other supporting information. The information system is used to display data and provide ease of presentation and information retrieval. Based on the description above, this study aims to establish an Information System Application SMA in North Jakarta.

2.1.3 According To Research Nurmala Dewi And Muhammad Rachmadi Entitled "GEOGRAPHIC INFORMATION SYSTEM BASED SCHOOLS ANDROID".

Mobile or *smart phones* now become a medium of information and communication for the community and also as a medium for guidance in finding the geographical location of the school. One of them is someone who is looking for the location of a school that was in Palembang, this system will provide the information sought is the geographical location and navigation to the school. *Mobile* or *smart phones* now become a medium of information and communication for the community and also as a medium for guidance in finding the geographical location of the school. One of them is someone who is looking for the location of a school that was in Palembang, this system will provide the information sought is the geographical location and navigation to the school.

2.1.4 According to Maulana Inta study entitled "GEOGRAPHIC INFORMATION SYSTEM (GIS) LOCATION SMA SMK PUBLIC AND STATE IN THE CITY PANGKALPINANG ANDROID BASED".

Lack of information is certainly a barrier, especially for prospective students, parents and the general public who live outside the city Pangkal Pinang in search of information, such as addresses and school location, access to transportation to school and so on, make the most prospective students and people who want to continue their education to higher levels of schooling rather looking for information about schools that are outside the island of Bangka.

2.1.5 According to Research Juwairiah, Ial Irwan Arahman and Budi Santosa, Entitled APPLICATION MOBILE "GISIMPORTANT INFORMATION SERVICE LOCATION-BASED ANDROID CITY Surakarta".

Utilizing technology *mobile* that uses the android operating system as one of the operating system *open source* that enables applications *mobile* GIS can be built with reliability higher than applications *mobile* GIS that are *closed* source, so in this study will be constructed a Application *Mobile* of GIS services location information important Surakarta based on Android.

3. Analysis Of Results And Discussion

3.1 How to Work a Geographic Information System

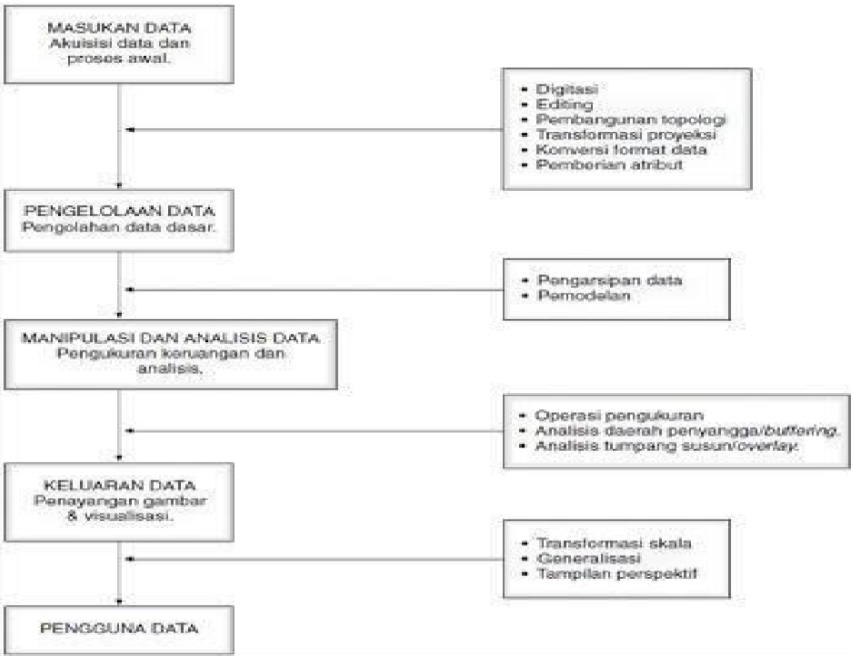

Figure 1. Chart sub-functions in GIS Components

Based on chart image above, the stages of work in the decay SIG is as follows:

a. Process Data Input

initial process of working stages SIG is input data consists of the data acquisition and the initial process.

b. Data Management

Subsystem next is data management. In this subsystem do basic data management. The processes are carried out in this subsystem is the archiving of data and modeling.

c. Manipulation and Data Analysis

Through the process of data entry, pete-base map are converted into digital data. After *editing,* the map is ready for analysis.

d. Data Output

A map scale is often determined based on user needs map and print media map. The process of determining this scale can be done using software Arc View and Arc GIS Info. But experts prefer to use the Software Art View on the map layout.

3.2 Developer Studio As A Tool Android

Android studio is the official app for the google android development, but this application does require a spec that is slightly larger than the eclipse, knowing very complete features in this case *are relevant* to ease in the editing or creation of android applications. The advantages of Android Studio is as follows:

a. Intel idea from a community studio

b. Special Editor for Android applications and officially supported by Google

c. Still relatively new as an editor android

d. More cool interface and very easy to use for developers

e. User interface

f. Display when editing *the xml* will be immediately apparent changes in the layout preview next *source xml*

g. Emulation layouts with many devices at once

h. When editing XML and Java source and is associated with the icon / image will instantly appear the image.

i. Multiple language, translation input language to state masing2 can be edited directly in one view at a time
j. Many of the new library that functioned for android studio
k. Dependencies using Graddle.

3.3 Analysis of Data SMA / SMK Bandar Lampung

Table 2 *Latitude Longitude* high school in Bandar Lampung

No	Nama Sekolah	*Latitude* dan *Longitude*
1	MAN 1 BANDAR LAMPUNG	(-5.374440, 105.302584)
2	MAN 2 TANJUNG KARANG	(-5.435469, 105.279916)
3	MAS AL- ASY`ARIYAH PANJANG	(-5.463046, 105.320563)
4	MAS AL- HIKMAH	(-5.379770, 105.24232)
5	MAS AL- UTRUJIYYAH	(-5.456254, 105.258684)
6	MAS HASANUDDIN	(-5.435330, 105.254)
7	MAS HIDAYATUL ISLAMIYAH	(-5.403975, 105.200802)
8	MAS MASYARIQUL ANWAR	(-5.418620, 105.244751)
9	MAS MATHLAUL ANWAR KEDATON	(-5.370551, 105.252706)
10	MAS MUHAMMADIYAH I	(-5.425532, 105.250568)
11	MAS NAHDLATUL ULAMA	(-5.412570, 105.2357)
12	MAS TGIA PERKEMAS	(-5.458380, 105.25)
13	SMA ADIGUNA	(-5.419383, 105.245520)
14	SMA AL-AZHAR 3	(-5.378991, 105.27126)
15	SMA AL-KAUTSAR	(-5.361629, 105.236878)
16	SMA ARJUNA	(-5.417654, 105.261682)
17	SMA BINA MULYA	(-5.394976, 105.254938)
18	SMA BODHISATTVA	(-5.450841, 105.255595)
19	SMA BUDAYA	(-5.391312, 105.209448)
20	SMA DARMA BANGSA INTERNASIONAL	(-5.377855, 105.250517)
21	SMA DIRGANTARA	(-5.407077, 105.270477)
22	SMA FRANSISKUS	(-5.373412, 105.250617)
23	SMA GAJAH MADA	(-5.372228, 105.27692)
24	SMA IMMANUEL	(-5.429557, 105.26373)
25	SMA ISLAMIYAH	(-5.459480, 105.25259)
26	SMA MUHAMMADIYAH 1	(-5.412099, 105.255668)
27	SMA MUHAMMADIYAH 2	(-5.377698, 105.252434)
28	SMA NURUL ISLAM	(-5.443927, 105.281782)
29	SMA NUSANTARA	(-5.412641, 105.268759)
30	SMA PAHLAWAN	(-5.397785, 105.263253)
31	SMA PANGUDI LUHUR	(-5.362287, 105.278314)
32	SMA PERINTIS	(-5.417576, 105.248021)
33	SMA PERINTIS 2	(-5.418279, 105.246025)
34	SMA PERSADA	(-5.393215, 105.23057)
35	SMA PLUS KESUMA YUDHA	(-5.400190, 105.24724)
36	SMA SRIWIJAYA	(-5.392381, 105.260609)
37	SMA SURYA DHARMA 2	(-5.383214, 105.267234)
38	SMA TAMAN SISWA	(-5.444921, 105.266042)
39	SMA TAMAN SISWA TANJUNGKARANG	(-5.413790, 105.24114)
40	SMA TUNAS HARAPAN	(-5.376747, 105.245119)
41	SMA UTAMA 1	(-5.416260, 105.26737)
42	SMA UTAMA 2	(-5.422172, 105.264967)
43	SMA UTAMA 3	(-5.416260, 105.26737)
44	SMA WIJAYA	(-5.392381, 105.260609)
45	SMA XAVERIUS	(-5.424180, 105.267823)
46	SMA YP UNILA	(-5.415025, 105.256104)
47	SMA YPPL PANJANG	(-5.466170, 105.32212)
48	SMAK BPK PENABUR	(-5.418092, 105.270201)
49	SMAN 01 BANDAR LAMPUNG	(-5.421983, 105.265302)
50	SMAN 02 BANDAR LAMPUNG	(-5.427072, 105.254896)
51	SMAN 03 BANDAR LAMPUNG	(-5.419581, 105.244067)
52	SMAN 04 BANDAR LAMPUNG	(-5.435358, 105.270091)
53	SMAN 05 BANDAR LAMPUNG	(-5.379213, 105.284795)
54	SMAN 06 BANDAR LAMPUNG	(-5.437990, 105.295882)
55	SMAN 07 BANDAR LAMPUNG	(-5.404216, 105.201355)
56	SMAN 08 BANDAR LAMPUNG	(-5.449188, 105.257747)
57	SMAN 09 BANDAR LAMPUNG	(-5.390253, 105.247937)

58	SMAN 10 BANDAR LAMPUNG	(-5.428852, 105.276095)
59	SMAN 11 BANDAR LAMPUNG	(-5.472593, 105.242307)
60	SMAN 12 BANDAR LAMPUNG	(-5.375676, 105.310936)
61	SMAN 13 BANDAR LAMPUNG	(-5.346565, 105.256062)
62	SMAN 14 BANDAR LAMPUNG	(-5.380098, 105.212637)
63	SMAN 15 BANDAR LAMPUNG	(-5.360418, 105.267935)
64	SMAN 16 BANDAR LAMPUNG	(-5.399011, 105.23156)
65	SMAN 17 BANDAR LAMPUNG	(-5.463424, 105.325045)

No	Nama Sekolah	*Latitude* dan *Longitude*
1	SMK 2 MEI	(-5.372272, 105.246559)
2	SMK ARJUNA	(-5.417654, 105.261682)
3	SMK BHAKTI UTAMA	(-5.393430, 105.22088)
4	SMK BHINNEKA	(-5.374821, 105.265886)
5	SMK BINA LATIH KARYA	(-5.382538, 105.293633)
6	SMK BINA MULYA	(-5.394895, 105.255028)
7	SMK BPK PENABUR	(-5.417971, 105.270447)
8	SMK DHARMA PALA	(-5.483595, 105.324602)
9	SMK DHARMA UTAMA	(-5.356598, 105.245201)
10	SMK Dwi Pangga Bandar Lampung	(-5.394368, 105.265883)
11	SMK GAJAH MADA	(-5.372162, 105.276908)
12	SMK GUNA DHARMA	(-5.435668, 105.259135)
13	SMK KRIDA WISATA	(-5.392460, 105.284428)
14	SMK MUHAMMADIYAH 1	(-5.425875, 105.260616)
15	SMK MUHAMMADIYAH 2	(-5.378394, 105.252422)
16	SMK PERSADA	(-5.389770, 105.2105)
17	SMK PGRI 1 BANDAR LAMPUNG	(-5.403590, 105.281)
18	SMK PGRI 2 BANDAR LAMPUNG	(-5.419662, 105.245223)
19	SMK PGRI 4 BANDAR LAMPUNG	(-5.382010, 105.292866)
20	SMK SATRIA BAHARI	(-5.393407, 105.274963)
21	SMK SATU NUSA 1	(-5.435017, 105.261661)
22	SMK SATU NUSA 2	(-5.435103, 105.261584)
23	SMK SATU NUSA 3	(-5.435127, 105.261728)
24	SMK SURYA DHARMA	(-5.380590, 105.25102)
25	SMK TAMAN KARYA	(-5.417310, 105.24738)
26	SMK TAMAN KARYA (TEKNIK OTOMOTIF)	(-5.445758, 105.259732)
27	SMK TAMAN SISWA	(-5.445026, 105.257355)
28	SMK TARUNA	(-5.394457, 105.296757)
29	SMK TRI SAKTI	(-5.419271, 105.243584)
30	SMK UTAMA	(-5.421996, 105.264962)
31	SMK YAGSMI	(-5.415680, 105.26665)
32	SMK YAPENA	(-5.418370, 105.27168)
33	SMK YP 57	(-5.362366, 105.278414)
34	SMK YPPL PANJANG	(-5.467060, 105.32245)
35	SMKN 1 BANDAR LAMPUNG	(-5.393767, 105.278937)
36	SMKN 2 BANDAR LAMPUNG	(-5.364249, 105.24571)
37	SMKN 3 BANDAR LAMPUNG	(-5.434770, 105.260688)
38	SMKN 4 BANDAR LAMPUNG	(-5.423646, 105.262057)
39	SMKN 5 BANDAR LAMPUNG	(-5.398665, 105.306257)
40	SMKN 6 BANDAR LAMPUNG	(-5.463838, 105.247572)

3.4 Interface Design

This application runs on a *mobile phone* operating system Android. The interface is contained in the search application SMA / SMK Bandar Lampung among others:

Figure 2. Main Display

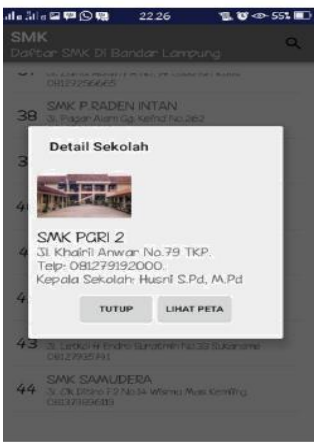

Figure 3. Profile School Details

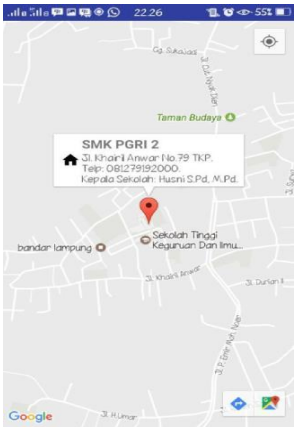

Figure 4. Profile School Details

Figure 5. School Image Marker Figure

Figure 6. Menu List Accreditation

4. Conclusions And Recommendations

4.1 Conclusion

Based analysis and discussion carried out can be concluded as follows:

1. Application of GIS search SMA / SMK Bandar Lampung-based *mobile phone* can be designed and developed using the Java programming language.
2. Application *mobile phone* of this can be accessed on mobile phones with the Android operating system is minimal 4.1.2.
3. The application *of mobile phone* can provide information on the location of the school / vocational school in the city of Bandar Lampung.
4. Application *of mobile phone* can display 64 high schools and 63 vocational school in the city of Bandar Lampung.
5. The application *of mobile phone* displays the address and information about the school when the *marker* is clicked.

4.2 Recommendations

Apart from the contribution that is given, in order to improve further, particularly with respect to methodology research, the author intends to convey some suggestions as follows:

1. In the app *mobile* search Geographic Information Systems or equivalent high school can be developed further by extending the distance range of search , not only centered on the city of Bandar Lampung alone.
2. The authors also wish in writing may further include information about the school in greater detail and also can be equipped with information about the means of transportation that can be used to go to school so that users more easily towards the desired location.
3. The author hopes that this paper can be a source / reference for another script that does the writing of Geographic Information Systems in the search for high school or equivalent.

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