



Mobile-Based Geographic Information System of School Mapping in Tanjung Batu District

Sasrimita

Department of Information Systems of Dakwah and Communications, State Islamic University of Raden Fatah Palembang, Indonesia

ARTICLE INFO

ABSTRACT

Article history:

Received Feb 21, 2025

Revised Mar 10, 2025

Accepted Mar 24, 2025

Keywords:

Coordinates,
School,
UML,
Mobile Based.

The implementation of national education must ensure equity and improve the quality of education in the midst of global changes, so education must be carried out as well as possible by the government and the community in an integrated manner both in construction and in determining the location of schools to obtain complete information about schools, both elementary and high school levels in Tanjung Batu sub-district. This study aims to create an application for a Geographic Information System for Mapping Schools in Tanjung Batu District based on Mobile with the method used using the waterfall model. The design editor uses Eclipse software and uses Google Maps to display a map of the distribution of schools in Tanjung Batu District in the form of an Android smartphone application.

Based on this research, it can be seen the locations of schools in the Tanjung Batu District which allows users to search and find out pertinent information at each school, starting from the elementary, junior high, MTs, MA, SMA to SMK levels in Tanjung Batu sub-district.

This is an open access article under the [CC BY-NC](#) license.



Corresponding Author:

Sasrimita,

Department of Information Systems of Dakwah and Communications,

State Islamic University of Raden Fatah Palembang, Indonesia

Jl. Prof. K. H. Zainal Abidin Fikri No.KM. 3, RW.5, Pahlawan, Kec. Kemuning, Kota Palembang, Sumatera

Selatan 30126, Indonesia

Email: sasrimita11@gmail.com

1. INTRODUCTION

The rapid development of technology has brought humans into life side by side with information and technology itself which has an impact on some people to leave the process of searching for information manually which takes longer to get or find the desired information. Information technology that has developed at this time can manage information that is carried out more actual and optimally. The use of information technology aims to achieve efficiency in various aspects of information management, which is indicated by the speed and timeliness of processing, as well as the accuracy and precision of information. This resulted in the development of information systems appear new variations. The merging of information systems with geography which is currently one of the alternatives that is widely used in information management, namely Geographic Information Systems. In the world of information systems there are many models of information systems that will provide various information. The importance of this information provides a lot of inspiration for the creation of models for designing systems that can help activities in all aspects of life. Geographic Information System Mapping is one of the information systems models that are widely used to make various decisions, planning and analysis.

Geographic Information Systems can be used as the main tool that is interactive, interesting and challenging in an effort to improve understanding, learning and education regarding the idea or concept of location, space, population and geographical elements found on the earth's surface (Eddy Prahasta, 2014: 18). Education in an area that is still developing is sometimes still lacking, especially in the Tanjung Batu sub-district so that education in that sub-district must not have many people know the location of the schools in each village in one sub-district. The information needed to find out

the location of schools both at the elementary level to the high school level is quite difficult to know because the information presented from the school and the Education Office Branch is not in the form of brochures or outreach to the community, making it difficult for the public to see the distribution of schools in the sub-district, the community can only know from local residents. whose information is not necessarily accurate, to obtain accurate information the community must come to the schools themselves while the location of the schools is far enough to be reached. The Tanjung Batu Education Office branch requires school data which is usually sent periodically every month by the school at the end of the following month. The data is used as an annual report by the Department of Education, then the author wants to help schools and the Education Office Branch in conveying school information that will display the location of the school along with detailed information about the location of the school to make it easier to see which schools have information. education is still lacking so that the Education Office can pay more attention to schools that still lack educational facilities and infrastructure.

Therefore, with the construction of a Geographic Information System application for the Freeis Mobile School Mapping, it is intended that this application can provide convenience to users in finding information about school information and the location of the school they want to know, both from public schools and private schools from elementary to high school levels. in the Tanjung Batu sub-district which can be accessed through the users' own cellphones.

2. RESEARCH METHOD

2.1 Object of research

a. History of Tanjung Batu District

Tanjung Batu District was formed since it was still merged with Ogan Komering Ilir Regency, namely since 1950. Then through the expansion of Ogan Ilir Regency in 2004 in accordance with Law Number 37 of 2003, Tanjung Batu Subdistrict was re-established as a District based on Ogan Ilir Regency Regional Regulation Number 22 2005. Tanjung Batu District is geographically located between 30 14' South Latitude to 30 26' South Latitude and between 1040 32' East Longitude to 1040 45' East Longitude. Tanjung Batu District has an administrative area of 263.75 km² or 26,375 hectares. The administrative boundaries of the Tanjung Batu District are:

To the north: North Indralaya and Indralaya sub-districts. South: Lubuk Keliat sub-district. West: Payaraman and Muara Enim districts. East: Tanjung Raja sub-district and South Indralaya sub-district. The number of villages and sub-districts in Tanjung Batu District is 19 villages and 2 sub-districts. The widest villages are: Burai Village which covers an area of 3,952 hectares, Sentul Village reaches 3,492 hectares, and the narrowest village is Desa.

Problem Analysis Obtained from the author's interview with the research site at the Tanjung Batu District Education Office Branch, as follows:

1. The author asks for school data collection what staff are responsible for the Tanjung Batu District Education Office Branch?
2. How do schools send their school report data?
3. Did the school send their complete report data?
4. If the data sent from the school is incomplete, how is the staff of the Education Office Branch responsible for confirming it?
5. From the results of the school report data that has been sent from the school, may I make it an Android-based application to inform the public so that the public knows that there are various schools with their respective facilities and advantages from each school in Tanjung Batu sub-district that have not they know, as well as displaying the location of the school location so that later application users can know the distance between the user and the desired school?

3. RESULTS AND DISCUSSIONS

3.1 System Implementation

The system implementation stage is a procedure that must be carried out to complete the system design in the approved system design document, as well as test, install and start using the new system. In general, the purpose of this implementation is to carry out trials of the system development concept that has been prepared. In this stage, activities are focused on researching whether the system concept that has been prepared can be implemented correctly or not. While the output produced in this stage is a recommendation for a trial on the results of research on research

results during the implementation of trials within a certain period of time (Tata Sutabri, 2004: 92). Based on the design that has been done in Chapter III, so in this section, we will discuss the implementation of the School Mapping Geographic Information System application system in Tanjung Batu District. The purpose of implementing this system is to ensure that the software created can work effectively and efficiently as expected. This mobile-based Geographic Information System application for school mapping in the Tanjung Batu sub-district was built using Google Map to display maps and Eclipse for the media interface.

3.2 System Test

Testing is a set of planned and systematic activities to test or evaluate the desired truth. A software needs to be maintained its quality that quality depends on customer satisfaction (customer). Often software contains errors (errors) in certain processes when the software is in the hands of the user (Rosa AS-M.Shalahuddin, 2013:271-272). The tests used for the School Mapping Information System in Tanjung Batu District are Mobile Based This method uses Black-Box-Testing (black box testing) which is testing the software in terms of functional specifications without testing the design and program code. Testing is intended to determine whether the functions, inputs and outputs of the software are in accordance with the required specifications (Rosa AS-M.Shalahuddin, 2013:

Table 1. Application Testing Addressed to Users

Application Test Result Case					
NO	Action Executed	Process Design	Expected results	Test result	
				can	Not
1	Initial view of the application	Running the application via HpAndroid	Showing the start page of the application	✓	
2	Select the application menu icon	Press the button above on the left	Displays a choice of school types, general maps and admin	✓	
3	Choose a type of school	Shift the choice of school names	Displays all selected schools in one type of school	✓	
4	Choose a school name	Clicking on the name of the selected school	Shows school maps, details, galleries and history	✓	
5	School details	Touch the details icon above on the map view	Displays the map of the selected school	✓	
6	School history	Touch the history icon at the top of the map view	Showing the story of the founding of the school	✓	
7	school gallery	Touch the gallery icon at the top of the map view	Showing school photos	✓	
8	Select the general map icon	Touch the general map icon	Show map TanjungBatu District	✓	
9	Exit	Select exit	Exit app	✓	

Table 2. Admin Login Test

Test Result Case (Normal Data)			
Input data	Expected results	Observation	Conclusion
Username: AdminPassword: *****	Go to the desired Admin page	The system displays the Admin page as desired	[] Accepted [] Denied
Test Result Case (False Data)			
Input Data	Expected results	Observation	Conclusion

Username:			
AdminPassword: ***** (wrong)	Unable to enter the Admin page and display message "user or password wrong"	Unable to enter the Admin page	<input type="checkbox"/> Accepted <input type="checkbox"/> Denied

4. CONCLUSION

Based on the discussion that has been described, some conclusions are, This school mapping geographic information system was developed on a mobile-based basis equipped with information related to local schools. Information presented about local schools in the form of coordinate points, school name, name of the principal, address, accreditation, year of establishment, land area, building area, facilities, scholarships, average value data, number of classes, student data, teacher data, data TU, pictures and school history. This application media allows users to find out and search for schools in Tanjung Batu District which can be accessed easily online using an Android user.

REFERENCES

- A.S, Rosa dan M.Shalahuddin. *Rekayasa Perangkat Lunak terstruktur dan berorientasi objek*. Bandung: Informatika. 2013. Diterbitkan atas kerjasama. *Android Programming With Eclipse*. Yogyakarta: ANDI. 2013.
- Dr. Suwartono, M. Hum. *Dasar-dasar Metodologi Penelitian*. Yogyakarta: Andi. 2014
- Enterprise, Jubilee. *Step By Step Ponsel Android*. PT Elex Media Komputindo: Jakarta. 2010.
- Huda, Arif Akbarul. *24 Jam!! Pintar Pemrograman Android*. Ttp. Tp. Tt.
- Irwansyah, Edy. *Sistem Informasi geografis: Prinsip Dasar dan Pengemaangan Aplikasi*. Yogyakarta: Digibook. 2013.
- Irwansyah, Edy dan Jurike V. Moniaga. *Pengantar Teknologi Informasi*. Deepublish: Yogyakarta. 2014.
- K. Wardiyatmoko. *Geografi*. Ttp. Erlangga. 2014.
- Kepegawaian Dinas Pendidikan, diakses pada 04 September 2014 dari <http://oganiirkab.go.id/index.php/unit-kerja/dinas/38-dinas-pendidikan-kabupaten-ogan-ilir>
- Komputer, Wahana. *Membuat Aplikasi Profesional Dengan Java*. PT Elex Media Komputindo. Jakarta. 2005.
- Lotfus, Jhon Lewis Willian. *Java Software Solutions*. Ttp: Addison Wesley Longman. 2001. *Peta Kabupaten Ogan Ilir Cabang Dinas Pendidikan*. Tanjung Batu. 21 April 2015.
- Prahasta, Eddy. *Konsep-Konsep Dasar Sistem Informasi Geografis*. Bandung: Informatika. 2002.
- Prahasta, Eddy. *Sistem Informasi Geografis Konsep-Konsep Dasar (Perspektif Geodesi & Geomatika)*. Bandung: Informatika. 2014. *Sejarah Kecamatan Tanjung Batu*, diakses pada 04 September 2014 dari <http://oganiirkab.go.id/index.php/profil-16-kecamatan/35-kecamatan-tanjung-batu>
- Soeherman, Bonnie dan Morion Pinotoan. *Designing Information System*. PT Elex Media Komputindo: Jakarta. 2008. *Struktur Kepegawaian Cabang Dinas Pendidikan*. Tanjung Batu. 08 September 2014. *Sujana Nana dkk. Buku kerja pengawas Sekolah*. Jakarta: Pusat Pengembangan Tenaga Kependidikan, Badan PSDM dan PMP Kementerian Pendidikan Nasional. 2011. Sutabri, Tata. *Analisa Sistem Informasi*. Andi: Yogyakarta. 2004.
- Tharsyah, Adnan. *16 Jalan Kebahagiaan Sejati. Hikmah (PT Mizan Publika)*: Jakarta. 2006. *Tupoksi Kepala Cabang Dinas Pendidikan*. Tanjung Batu. 08 September 2014. *Tupoksi Penilik Cabang Dinas Pendidikan*. Tanjung Batu. 08 September 2014. *Tupoksi Tata Usaha Cabang Dinas Pendidikan*. Tanjung Batu. 08 September 2014.
- Utami, Ema dan Sukrisno. *Konsep Dasar Pengolahan dan Pemrograman Database dengan Sql Server, Ms. Access Dan Ms. Visual Basic*. Andi: Yogyakarta. 2005. *Visi Misi Dan Motto Dinas Pendidikan Cabang Dinas*. Tanjung Batu. 08 September 2014.