IMPLEMENTATION OF GIS MADRASAH DINIYAH TAKMILIYAH (MDTA) IN ASAHAN REGENCY

Kiki Ayu Wardani[1*], Bachtiar Efendi[2], Sumantri[1]
[1]Information Systems, Sekolah Tinggi Managemen Informatika dan Komputer Royal
[2]Computer System, Sekolah Tinggi Managemen Informatika dan Komputer Royal
email: [*]ayu292568@gmail.com

Abstract: Madrasah Diniyah Takmiliyah as an Islamic educational institution which is under the auspices of the Ministry of Religion. The problem that has occurred so far is that it is difficult to obtain information about facilities and mapping regarding the locations of MDTA schools that are spread across Asahan, still using a manual system in providing information on MDTA schools. The purpose of this research is to build a geographic information system application that can help the community find the location of MDTA schools in Asahan District, obtain information about MDTA facilities, can assist in adding data on MDTA school locations, and update data on MDTA schools. This study uses a qualitative research method by explaining more about the analysis related to MDTA, data collection techniques through observation and documentation. Based on the research results obtained, the application of a geographic information system to determine the location of MDTA can display information and points of location of MDTA in Asahan District easily and accurately. So that it can be concluded, the geographic information system that was built can make it easier for the Ministry of Religion and the community to search for information on MDTA locations in Asahan District.

Keywords: geographic information system; madrasah diniyah takmiliyah; information system.

Abstrak : Madrasah Diniyah Takmiliyah sebagai lembaga pendidikan islam yang dinaungin Kementrian Agama. Permasalahan yang terjadi selama ini sulit mendapatkan informasi mengenai fasilitas dan pemetaan mengenai lokasi sekolah MDTA yang tersebar di Asahan, masih menggunakan sistem manual dalam memberi informasi sekolah MDTA. Tujuan penelitian ini membangun aplikasi sistem informasi geografis dapat membantu masyarakat dalam mencari lokasi sekolah MDTA di Kabupaten Asahan, mendapatkan informasi mengenai fasilitas MDTA , dapat membantu dalam menambahkan data lokasi-lokasi sekolah MDTA, serta melakukan update data mengenai sekolah MDTA. Penelitian ini menggunakan metode penelitian kualitatif dengan lebih menjelaskan analisis berkaitan dengan MDTA, teknik pengumpulan data melalui observasi dan dokumentasi. Berdasarkan hasil penelitian yang diperoleh, penerapan sistem informasi geografis untuk mengetahui lokasi MDTA dapat menampilkan informasi dan titik lokasi MDTA di Kabupaten Asahan dengan mudah dan akurat. Sehingga dapat disimpulkan, sistem informasi geografis yang dibangun dapat mempermudah Kementrian Agama dan masyarakat dalam melakukan pencarian informasi lokasi MDTA di Kabupaten Asahan.

Kata kunci: sistem informasi geografis; madrasah diniyah takmiliyah; sistem informasi.

INTRODUCTION

Today, technology can do something to meet human needs with the help of reason and tools, thus strengthening or making more powerful the human limbs, senses and brain. [1].

This system was first introduced in Indonesia in 1972 under the name Data Banks for Development. The emergence of the term Geographic Information System as it is today [2]. This geographic information system aims to provide convenience and speed to the community, the ministry of religion and school principals in obtaining information regarding the location of Madrasah Diniyah Takmiliyah in Asahan District[3].

Madrasah Diniyah Takmiliyah Awaliyah (MDTA) as a non-formal Islamic religious education unit by organizing basic level education equivalent to SD/equivalent with a study period of 4 (four) years and a total of 18 (eighteen) hours of study per week[4].

At present the problems obtained from the ministry of religion are still using prints in paper form. So this does not provide inaccurate information and there is no mapping that can monitor website-based Madrasah Diniyah Takmiliyah Awaliyah school locations. Another problem is that the community finds it difficult to find information and locations regarding the MDTA schools that are spread across Asahan District. Data information can be processed so that it becomes a form that is more useful for recipients in making current or future decisions [5]. So that a system within the organization that meets the needs of daily transaction management, supports operations, is managerial, and strategic activities of a particular organization with the reports needed[6].

The purpose of this research is to build and design a geographic information system application that can help the community find the location of MDTA schools in Asahan District, get information about MDTA facilities, find out if the school is active or no longer active. Mapping the location of MDTA schools in Asahan District and can assist the Ministry of Religion in adding data on the location of MDTA schools in Asahan District, can update data on new and old MDTA schools.

A computer-based system that has the ability to handle geographically referenced data, namely data entry, data management (storage and recall), data manipulation and analysis, and output as the final result (output).

Previous research entitled "Web-Based Mapping of Madrasah Islamiyah Schools in Asahan District". The result is that the MDTA school mapping geographic information system is built on a web-based basis, and can be accessed appropriately and effectively anywhere and anytime as long as the user is connected to the internet. The creation of this system utilizes xampp software as localhost and sublime to create a website design through the coding process. Google maps as an online map that displays the location of the MDTA school in Asahan District [4]

Previous research entitled "Geographical Information System Mapping Irrigation Networks and Reservoirs in Central Lombok". This research The method used in this research is spatial analysis, which is a collection of techniques that can be used to process GIS data. The results of spatial data analysis are very dependent on the location or place where the object is being analyzed. Data manipulation will display non-spatial data manipulation windows for

irrigation networks, reservoirs, and districts. In the data manipulation window, users can add, change and delete existing tabular data, and have search facilities according to the data being accessed. [7].

Previous research entitled "Geographical Information System (Sig) Tourism in Bandung City Using Google Maps Api and Php" The results of this study are that in order for tourists to easily get tourism information in the city of Bandung, a web-based geographic information system was created using the Google Maps API and PHP. It is hoped that by making this geographic information system, it can help tourists get information about the tourist destinations they will visit[8].

The benefits of GIS make it easy for users or decision makers to determine the policies to be taken, especially those related to spatial aspects.[9]. So the source for making geographic data maps, which if the map is made produces a valid digital map [7]. Map of the entire earth's surface painted on a flat plane [10]. Vector data models can display, locate and store spatial data with a structure of points, lines or curves and polygons [11].

METHOD

Geographic Information System as a computer-based system, which can be designed to work using data that has spatial information, can capture, check, manipulate, analyze, and display data that spatially references earth conditions [12].

The Asahan Regency area has 25 sub-districts and 98 Madrasah Diniyah Takmiliyah Awaliyah schools are spread in each sub-district. The data that has been added to the application is based on data coverage from 10 sub-districts such as Kisaran Barat, Kisaran Timur, Meranti, Simpang Empat, Pulau Bandring, Air Joman, Silau Laut, Teluk Dalam, Sei Dadap, and Setia Janji.

Components that can build geographic information systems as follows: First, the hardware required to run the system is a computer, Central Processing Unit (CPU), printer, scanner, digitizer, plotter, and other supporting devices. Second, GIS software is an application program that has the ability to manage, store, process, analyze, and display spatial data (example: Google Map API). Third, data and information are used either indirectly by importing them from other GIS software or directly by handling spatial data from maps and entering attribute data from tables and reports using the keyboard. Fourth, users, including people who operate, develop, and even benefit from the system. There are various categories of people who are part of GIS, for example operators, analysts, programmers, database administrators, even stakeholders. Fifth, Applications, procedures used to process data into information, for example addition, classification, rotation, geometry correction, queries, overlays, buffers, join tables, and so on.

A map is a picture of part or all of the earth's surface painted on a flat plane [10]. Research stage in Imagae 1.
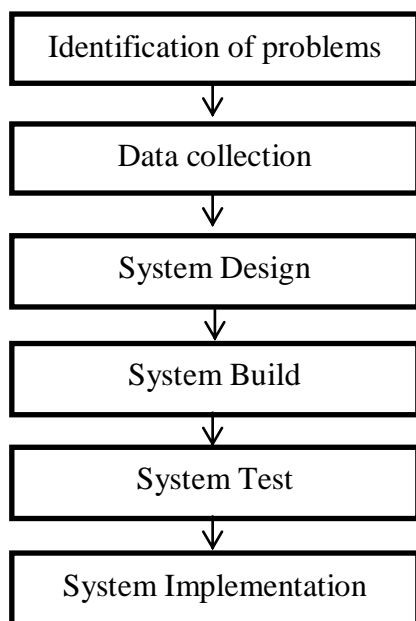
Image 1. Research Stages

1. Identification of problems

   The problem identified in this research is that people find it difficult to find information and locations regarding the MDTA schools that are spread across Asahan District

2. Data Collection

   Data collection was carried out by taking data from MDTA schools in Asahan District at the Ministry of Religion. In addition, information on MDTA school data was obtained directly from each MDTA school in Asahan District by documenting and recording school information.

3. System Design

   The system design will start from UML design, namely use case diagrams, class diagrams, activity diagrams, sequence diagrams, ERD, flowcharts which are useful for making it easier to build systems.

4. System Build

   In creating the system, what will be done is software preparation, namely sublime text, XAMPP, and MySql da-

tabase for the process of creating a geographic information system.

5. System Test

   At this stage, the activities in testing the system that has been built are in accordance with the system requirements or in accordance with the expected results.

6. System Implementation

   System implementation, namely ensuring whether it is in accordance with the application of geographic information systems. System implementation is carried out to complete the design contained in the document, namely the approved system design, testing, installing, starting and using the new system or repaired system.

RESULT AND DISCUSSION

System analysis can be proposed as a technique for describing problems and finding the current picture of the system at the Ministry of Religion in Asahan District with an analysis of the current system that can be identified. As for now, information about the Madrasah Diniyah Takmiliyah school in Asahan Regency is still being done manually by the Ministry of Religion and has not yet used the information system application, but there is no structured system. This research will display a geographic information system regarding the mapping of MDTA locations spread across Asahan District. Results of the system implementation, namely:

Main User Page Display

The display of the user's main page is the display of the main page of the user/community who uses this website in Image 2.

Image 2. Page Display Main User

View the School List Page

The display of the school list page can be used by users to view data on school locations in Asahan District in Image 3.

Image 3. Display of the MDTA School Data List in Asahan

Detailed Route Page view

The display of the route page can be used by users to see the detailed route to the Madrasah Diniyah Takmiliyah (MDTA) location to the location in Image 4.

Image 4. Display of Detailed Route Pages

Login Page Display

The login page display can be used where the admin will go through the log-in process to manage the system in Image 5.

Image 5. Display of the Login Page

Admin Main Page Display

The admin main page display can be used if the admin successfully logs in then it will enter the main admin page view in Image 6.

Image 6. Display of the Main Admin Page

Display of the Admin and Principal Location Pages

The location display on this page is in the form of table data for Madrasah Diniyah Takmiliyah (MDTA) school locations in Asahan for both adding, editing and deleting MDTA school locations in Asahan. Meanwhile, the display of the location of the principal is a table data page display for the location of the Madrasah Diniyah Takmiliyah (MDTA) school in Asahan which was carried out by the principal to edit or delete the loca-

tion of the MDTA school in Asahan in Image 7.

Image 7. View of the page Location of the MDTA school in Asahan

View the Add Location Page

The added location display can be used by the admin to add location data for Madrasah Diniyah Takmiliyah (MDTA) in Image 8.

Image 8. Display of the Add Location Madrasah Location page
Diniyah Takmiliyah (MDTA)

Display User Page

The display of the user page that can be used to log into the MDTA mapping system in Asahan is shown in Image 9.

Image 9. Display of User Pages

Display Add User Page

The display of the added user page can be used by the admin in adding user data to be able to login to the website in Image 10.

Image 10. Page Display Add User

Display of the Main Page of the Principal

The principal's main page display can be used if the principal has successfully logged in, it will enter the principal's main page view in Image 11.

Image 11. Display of the Principal's Main Page

CONCLUSION

The ongoing system and designing the proposed system can assist the community in finding MDTA school locations in Asahan District. help to get information about MDTA facilities, find out if the school is active or not active and information about the number of students and the number of teachers in the MDTA. This geographic information system also assists school principals in updating MDTA school data so there is no need to wait for updates from the ministry of religion.

Based on the research results obtained, the application of a geographic information system to determine the location of MDTA can display information and points of location of MDTA in Asahan Regency easily and accurately according to the coordinates of the location of MDTA in Asahan Regency. So that it can be concluded, the geographic information system that was built can make it easier for the Ministry of Religion and the community to search for information on MDTA locations in Asahan District.

BIBLIOGRAPHY

[1] V. A. Krisnandela, D. A. Maryam, D. Satria, and Y. Kartika, "Teknologi Tepat Guna (TTG) Berupa QR Code Sebagai Media Informasi Desa Sambirejo Kabupaten Jombang," vol. 01, no. 02, pp. 71–77, 2023.

[2] Ryan, Cooper, and Tauer, "Sistem Informasi Geografis pengertian dan Aplikasinya," *Pap. Knowl. . Towar. a Media Hist. Doc.*, pp. 12–26, 2019.

[3] H. Kurniawan and M. R. Tanjung, "Sistem Informasi Geografis Objek Wisata Alam di Provinsi Sumatera Utara Berbasis Mobile Android Geographic Information System Object of Natural Tourism in North Sumatra Province Based Mobile Android," *J. Ilm. SISFOTENIKA*, vol. 7, no. 1, pp. 13–24, 2019.

[4] O. Okmaya, J. Eska, and M. Mardalius, "Pemetaan Sekolah MDTA Islamiyah Berbasis Web Di Kabupaten Asahan," *JUTSI (Jurnal Teknol. dan Sist. Informasi)*, vol. 1, no. 1, pp. 95–102, 2021, doi: 10.33330/jutsi.v1i1.1053.

[5] J. Asmara, "Rancang Bangun Sistem Informasi Desa Berbasis Website (Studi Kasus Desa Netpala)," *J. Pendidik. Teknol. Inf.*, vol. 2, no. 1, pp. 1–7, 2019.

[6] Y. Anggraini, D. Pasha, D. Damayanti, and A. Setiawan, "Sistem Informasi Penjualan Sepeda Berbasis Web Menggunakan Framework Codeigniter," *J. Teknol. dan Sist. Inf.*, vol. 1, no. 2, pp. 64–70, 2020, doi: 10.33365/jtsi.v1i2.236.

[7] A. Adil and B. K. Triwijoyo, "Sistem Informasi Geografis Pemetaan Jaringan Irigasi dan Embung di Lombok Tengah," *MATRIK J. Manajemen, Tek. Inform. dan Rekayasa Komput.*, vol. 20, no. 2, pp. 273–282, 2021, doi: 10.30812/matrik.v20i2.1112.

[8] S. Utomo and M. A. Hamdani, "Sistem Informasi Geografis (SIG) Pariwisata Kota Bandung menggunakan Google Maps API dan PHP," *J. Teknol. Inf. dan Komun.*, vol. XI, no. 1, pp. 1–9, 2021.

[9] S. Informasi, G. Sig, M. Lokasi,

K. M. Wibowo, I. Kanedi, and J. Jumadi, "PERTAMBANGAN BATU BARA DI PROVINSI BENGKULU," vol. 11, no. 1, pp. 51–60, 2020.

[10] Iin Wariin Basyari, Iis Yeni Sugiarti, and Nurul Ikhsan Karimah, "Daur Ulang Limbah Kertas Menjadi Media Pembelajaran Literasi Peta pada KKG SD Kota Cirebon," *Bima Abdi J. Pengabdi. Masy.*, vol. 2, no. 1, pp. 87–96, 2022, doi: 10.53299/bajpm.v2i1.149.

[11] P. K. A. Krisna, I. N. Piarsa, and P. W. Buana, "Sistem Informasi Geografis Pemetaan Penyebaran Penyakit Berbasis Web," *Merpati*, vol. 2, no. 3, pp. 271–279, 2019.

[12] I. Fathurrahman, M. F. Wajdi, H. Mandala Putra, and B. V. Widarina, "Sistem Informasi Geografis Pemetaan Sebaran Data Covid-19 Pada Puskesmas Kerongkong Kabupaten Lombok Timur Berbasis WebImam," *Infotek J. Inform. dan Teknol.*, vol. 5, no. 1, pp. 42–52, 2022, doi: 10.29408/jit.v5i1.4392.