JURTEKSI (Jurnal Teknologi dan Sistem Informasi) ISSN 2407-1811 (Print)
Vol. X No 1, Desember 2023, hlm. 37 - 42 ISSN 2550-0201 (Online)
DOI: https://doi.org/10.33330/jurteksi.v10i1.2561
Available online at http://jurnal.stmikroyal.ac.id/index.php/jurteksi

IMPLEMENTATION OF GEOGRAPHIC INFORMATION SYSTEM MAPING POSYANDU IN ASAHAN AREA

Muliyanti[1*], Adi Prijuna Lubis[2], Endra Saputra[1]
[1]Sistem Informasi, STMIK Royal Kisaran
[2]Sistem Komputer, STMIK Royal Kisaran
email: *muliyanti838@gmail.com

Abstract: Posyandu as a container for health assistance carried out at the Puskesmas, the implementation is carried out in the sub-district / RW and managed by the village midwife. The problem that occurs is not having a system that can accurately provide information related to the location of posyandu spread across the Asahan area in the form of a digital map, managed posyandu data is still not enough to inform the location of the intended posyandu. With the GIS, it is hoped that it will provide information regarding the location of the posyandu in the Asahan area which can make it easier and save time for puskesmas officers and the health office in finding posyandu locations, and can monitor the development of the number of under-fives who are malnourished. This study uses a qualitative method by explaining the analysis based on observation and documentation related to posyandu. The research results obtained, the application of geographic information systems to determine the location of posyandu and display posyandu information easily and accurately in Asahan District. With this concluded, the application built can facilitate the Health Service in searching for Posyandu locations in Asahan District.

Keywordss: geographic information system; posyandu; Information System

Abstrak: Posyandu sebagai wadah bantuan kesehatan yang di laksanakan di Puskesmas, pelaksanaannya dilakukan di kelurahan/RW dan di kelola oleh Bidan Desa. Permasalahan yang terjadi belum mempunyai sistem yang dapat memberikan informasi terkait lokasi posyandu yang tersebar di wilayah Asahan dengan akurat dalam bentuk peta digita, data posyandu dikelola masih belum cukup menginformasikan titik lokasi posyandu yang dituju. Dengan adanya SIG ini diharapkan memberikan informasi mengenai lokasi posyandu di wilayah Asahan yang dapat mempermudah serta menghemat waktu bagi petugas puskesmas dan dinas kesehatan dalam mencari titik lokasi posyandu, dan dapat memantau perkembangan jumlah balita yang kurang gizi. Penelitian ini menggunakan metode kualitatif dengan menjelaskan analisis berdasarkan obsevasi dan dokumentasi berkaitan dengan posyandu. Hasil penelitian yang didapatkan, penerapan sistem informasi geografis untuk mengetahui lokasi posyandu dan menampilkan informasi posyandu dengan mudah dan akurat di Kabupaten Asahan. Dengan ini disimpulkan, aplikasi yang dibangun dapat mempermudah Dinas Kesehatan dalam melakukan pencarian lokasi posyandu di Kabupaten Asahan.

Kata Kunci: sistem informasi geografis; posyandu; sistem informasi

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INTRODUCTION

Currently, technology is a tool as an action that can reduce uncertainty in a causal relationship in achieving a desired thing [1].

Geographic Information System (GIS) as a system used to unify, control, combine, and analyze information about the earth's surface. Basically, the term GIS as a combination of the three main elements, namely systems, data, and geography [2].

Posyandu (Integrated Service Post) has a basic health program that aims to monitor and improve public health, especially in the group of infants (children aged 0-5 years) and pregnant women in Indonesia and make it easier for the public to know, health checks are carried out, especially for pregnant women and infants. Family activities and each posyandu will certainly affect the nutritional status of their children aged 5 years, because one of the objectives of the posyandu is to monitor the improvement of the nutritional status of the community, especially children under 5 years old [3].

Healthcare activities in undeveloped areas are still not optimal such as in the Asahan Regency area, where healthofficers , especially obstetricians in villages or cities, do not know the location of Osyandu. Another problem is that the Health Office does not yet have a system that can provide information related to the location of posyandu spread in the Asahan area accurately in the form of digital maps. Posyandu data is managed at the Health Office, but these data are still not enough to inform the location of posyandu in the Asahan Regency area. So that the number of posyandu makes officers who go to the field and doctors have difficulty in getting to the intended posyandu location. Currently the information obtained still uses prints in paper form. So this does not provide accurate information and there is no mapping that can monitor the locations of website-based posyandu.

Information in the form of data processed in a meaningful form for the recipient can be in the form of facts, and useful value [4].

With this geographic information system, it is expected to be able to provide geographical information on the locations of posyandu in the Asahan area which can later facilitate and save time for puskesmas officers and health offices in finding posyandu location points in the Asahan area, as well as make it easier for health offices to get information on posyandu locations and can monitor the development of the number of malnourished toddlers.

Research entitled "Gis Web System Position of Tourism Objects in the Asahan Regency Area". From the results of this study, a geographic information system has been produced in determining various locations to find out tourist attractions in Asahan Regency. This can make it easier for every user to find tourist attractions in Asahan Regency [5].

Research entitled "Mapping of Geographic Information Systems of Vocational High Schools in the Labuhanbatu Area Using Webgis". This Geographic Information System allows users to easily search for Vocational High School routes. There are also waterfall methods to create this GIS such as analysis, implementation, design, maintenance and also the testing phase [6].

Research entitled "Gis Mapping

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of Small and Medium Enterprises in the Web-Based Eastern Range". This research includes fashion, handicrafts, furniture, café, and restaurant businesses. One of the obstacles that UKM often face is limited advertising resources and uncharted locations. Geographic information systems are used web-based and use Google Maps APIs to map locations by determining coordi-nates. *WebGIS* users can facilitate localization in public information and UKM locations, which can be displayed accurately and quickly in the form of mapping UKM areas [7].

The purpose of this posyandu gis can develop a system that has advantages compared to the manual way of managing the location of hospitals and puskesmas. Besides being more efficient and easy, the app is also more secure because data is stored digitally and can be accessed only by registered health workers [8].

Mapping is carried out in the form of a system with a database that has a special function to present data spatially or in the form of geographical coordinates, as well as several operations to manage the data [9]. *Google Map API* as a software component that can be integrated with information systems in order to visualize data [10].

METHOD

The abbreviation Geographic Information System (GIS) means the management of data that has spatial information (spatial reference) or in a narrow sense, computer systems have the ability to build, manage, and display geographically related information, such as information identified based on its location, in a database [11].

This study uses a qualitative method by explaining the analysis based on observation and documentation related to posyandu.

Asahan Regency itself has 25 sub-districts, 27 sub-districts, 177 villages and 962 posyandu data. In this study, the author took 3 sub-districts, namely Simpang Empat District, Sei Dadap District and West Kisaran District. From the three sub-districts, there are 31 villages and 159 posyandu data. The author took 3 villages from the three sub-districts because of the location that can be reached and the location of posyandu that is still active or not, the author chose 3 villages from the three sub-districts.

Digital information in GIS is divided into two parts: Spatial data is used to represent geographical features such as roads, rivers, etc., which can be presented in the form of spatial data. Non-Spatial Data stores attribute features on the earth's surface.

Mapping the process of presenting information about the earth's surface, and the shape of the earth's surface based on the map size of the map projection system, as well as the symbols of the earth's surface elements it represents.[12].

The research framework can be seen can be seen in Image 1:

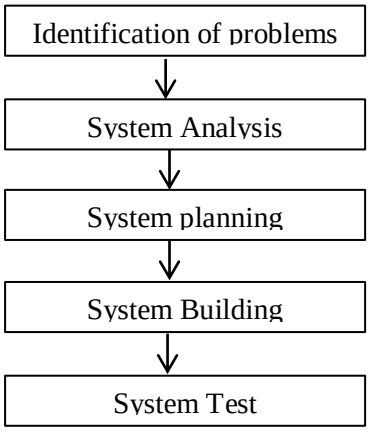

Image 1. Research Work

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Problem Identification

Identification of the problem in this study is that it can make it easier for employees and the public to see the location of posyandu locations in Asahan District, especially in the Simpang Empat, Sei Dadap, and West Kisaran areas.

System Analysis

At this stage an analysis of the running system is carried out. With this, it is hoped that researchers can find constraints and problems that occur in the process of mapping posyandu locations in Asahan Regency so that researchers can find solutions to these problems.

System Design

At the planning stage, a geographic information system stage is planned that will map the posyandu location in the Asahan area. The explanations are sufficiently detailed so that no new decisions are needed to take advantage of what has been decided at the implementation and planning stages.

System Development

The development stage is the stage where the program preparation is ready to draw conclusions. This system is implemented using web programming language and Google Maps API, PHP and MySQL.

System Test

The trial of this system was carried out after the creation of the system module was completed with experiments on the user interface computer. By conducting this trial, it can be seen that the deficiencies in the system that has been made are running well, whether the system that is made is according to the design of the system that was designed, and whether the error handling function is functioning properly.

RESULTS AND DISCUSSION

In system analysis it can be proposed to be one of the techniques to be able to describe the problem and find the current picture of the system at the Health Office in Asahan District. As for now, information about the posyandu in Asahan District is still being done manually by the Health Office, they still haven't used the geographic information system application, but there is no structured system. This research will display a geographic information system regarding the mapping of posyandu locations spread across Asahan District. The following are the results of the system implementation, namely**:**

Posyandu List Display

The posyandu list display is a dis- play of posyandu location data that has been inputted in the system.

Image 2. Posyandu List Display

Detail View

Detail view is a complete data pagedisplay about posyandu, posyandu imag- es and routes from the user's location to the selected destination

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location will thendisplay mileage data.

Image 3. Detail View

Posyandu Admin Data Display

Posyandu Data Display is a posyandu data display that can be selected by the admin**.**

Image 4. Posyandu AdminData Display

Posyandu Admin Data Input Display

Display to input posyandu location data.

Image 5. Posyandu Admin Data Input Display

CONCLUSION

The design of a geographic information system using the programming language PHP and MySQL as its database by analyzing the running system and designing the proposed system to determine the location of the posyandu in the Asahan area in assisting health service employees.

The results of creating a web-based geographic information system to find out the location of the posyandu in the Asahan area by designing the appearance of the posyandu location page, the main user page, designing the database, and designing the interface that can facilitate the design of a GIS for posyandu locations in the Asahan area.

The results obtained after applying GIS to find out the location of posyandu in the Asahan area, this system can help make it easier for health service employees to find out posyandu locations accurately and provide information about posyandu in Asahan District.

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