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Web-based geographic information system for the location of computer equipment service centers in the city of Medan

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ABSTRACT

Medan City is one of the metropolitan cities in Indonesia with a population density in various fields and has various kinds of information related to its geographical location, such as road information and the location of a computer equipment service center, shopping places and so on. Of course, this information is needed by various parties for their respective needs. The absence of media for the community in finding a location makes it difficult for the community to find a place, especially the Computer Equipment Service Center. The community needs information about the geographical location of the computer equipment service center in Medan City digitally so that the community can more easily find the location and information about the computer equipment service center. With this problem, then giving the author an idea to raise the title "Geographical Information System Location of Web-Based Computer Equipment Service Centers in Medan City" in the preparation of this thesis. With this application, the author hopes to be able to help the community in finding the location of a computer equipment service center in the city of Medan. The programming language used to design this application is PHP, MySql as the database and ArcView as the map making application.

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1. INTRODUCTION

Medan City is one of the metropolitan cities in Indonesia with a population density in various fields and has various kinds of information related to its geographical location, such as road information and the location of a computer equipment service center, shopping places and so on.(Tambunan, 2019). Of course, this information is needed by various parties for their respective needs(Mifta, 2021).

In the city of Medan, the search for a location for a computer equipment service center has so far been done manually by asking several people around or by looking at brochures in marketing computer equipment.(Jelantik & Kom, 2021). So this is quite difficult for people, especially for people who are still familiar with computers to find a computer equipment service center in the city of Medan(Yahfizham, 2019).

From this, Medan City has many computer equipment service centers that function as computer service services, but the location of computer equipment service centers in Medan City(Sitanggang, 2019). Not much is known by the people of Medan City and people outside the City of Medan, the information is only manual from person to person, thus making it slow to find information about the location of computer equipment service centers in Medan City(Fibriasari et al., 2022).

To overcome this, making a web for the location of computer equipment service centers in the city of Medan plays a very important role in solving various problems regarding the location of

computer equipment service centers in Medan City.(Aulia, 2022). The application of a Geographic Information System (GIS) is the right step in carrying out the process of making a web for the location of computer equipment service centers in the city of Medan(Kurniawan, 2019). It has been recognized that a Geographic Information System (GIS) has the capability of spatial analysis (spatial analysis) and time (temporal analysis).(Mahfudz & Prakoso, 2019). With this capability, GIS can be utilized in making a web search for the location of a computer equipment service center because basically all processes will be related to the dimensions of space and time.(Simarmata et al., 2020). Thus any changes that occur in the web creation process will be monitored and controlled properly(Siswanto et al., 2019).

In general, a system can be defined as a collection of objects, ideas, and their interrelationships in (efforts) to achieve a goal (or certain common goals).(Mahdi & Minarni, 2019). Or in other words, the system can be described as a collection of components (physical and non-physical/logical subsystems) that are interconnected with each other and work together harmoniously to achieve a goal.(Mahdi & Minarni, 2019).

2. RESEARCH METHOD

To obtain the necessary data in writing this thesis, the authors use several methods, as follows:

a. Field Study
   In this method the author will make direct observations at the service center for computer equipment in the city of Medan.
b. Literature
   This research was carried out by collecting library materials which were carried out to add information about the development of the system designed from various reading sources such as: the book Basic Dynamic Web Programming Using PHP, ArchGIS-10, Zero To a Pro creating Web Applications with PHP + MySQL Database and Geographic Information System.

2.1 Analysis of Existing Systems

To analyze the existing system, in writing this thesis, the authors used several research steps, namely:

a. Target Research Objectives
   Creating a geographic information system with the intention of making it easier for the public to find online locations for computer equipment service centers in Medan.
b. Needs Analysis
   After going through the design procedure stage, the next stage is software requirements analysis, namely inputting data as planned in the design stage.
c. Specification
   At this stage, the specification and design of the software that will be realized is to build a Geographic Information System Location of Service Center Devices This web-based computer uses the PHP programming language and MySQL database.
d. Design and Implementation
   Describes the data processing operations that are applied to process the input into the required output by using the UML method as a data processing flow. Doing the design of the desired output, in designing this information system the resulting output is the location of the Computer Equipment Service Center in Medan City. Identify the input data needed to build the desired information page. Designing a database that will be used as a storage medium. After it is clear what the specifications and design have been designed, then form a logic that is implemented with a programming language. Connecting the web with the database that has been designed. To find out whether the designed system can work properly, it is necessary to verify it.

e. Verification
   At this stage, software verification will be carried out, to test whether the software is running as designed along with the database connection.
f. Validation
   After going through the implementation and verification stages, the next stage is validation. At this stage it is necessary to evaluate the performance and reliability of the software that is made to identify existing constraints, for example the completeness of mosque data, spatial data and other data, so at this stage efforts will be made to improve and perfect it. From this validation it can be seen that the suitability of the design results with the expected needs analysis.

g. Finalization
The system can already be used and published.

2.2 System Comparison

In Medan City, to see and find the location of the computer equipment service center is still done manually by asking local residents about the location of the computer equipment service center. The system that runs on the road data collection process in Medan City is as follows: all road data is viewed one by one to find the location of the computer service center. So far, finding a location for a computer equipment service center has taken quite a long time, so residents have had difficulty finding a location for a computer equipment service center. The system to be designed by the author uses a geographic information system, where the program to be designed can be accessed via the web which can be used at any time and at different locations.

2.3 Testing / Testing the system that has been made

This stage is the stage for identifying errors that arise after testing the design system that has been made. After the coding process is complete, a testing process will be carried out on the resulting program to find out whether the program is running correctly and in accordance with the design carried out and the results/output are correct and accurate. Learning.

3. RESULTS AND DISCUSSIONS

3.1 Results Display

The following is a display of the results and discussion of a web-based geographic information system for the location of computer equipment service centers in Medan City.

a. Main Menu Display
The main menu display is the initial page that will appear when the program is run. On this page the user can choose what menu he wants. Main Menu display can be seen in figure 1.

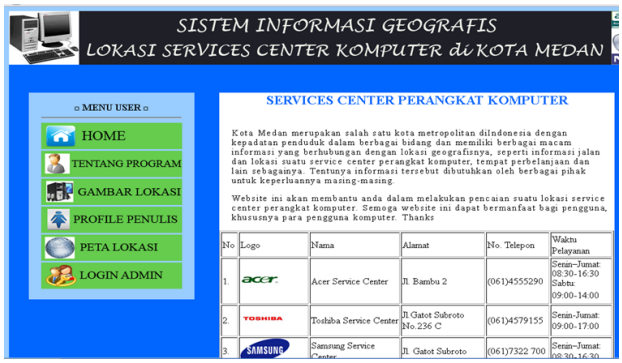

Figure 1. Main Menu Display

b. Display About Program
This display is a display of information about the program in the form of how to use the website and the purpose of making the website. Display Menu Info about the program can be seen in Figure 2. Activity.

Figure 2. Page Display About Program

c. Location Image Page Display
In this view, there is information about the Location Image so that the user knows an overview of the location of the computer equipment service center. Image Display Location can be seen in Figure 3.

Figure 3. Location Image Info Display

d. Author Profile View
In this view there is information about the author's profile so that users know the profile of the website creator. The author's profile display can be seen in Figure 4.

Figure 4. Author Profile View

e. Location Map View
In this view there is information about the map of the location of the computer equipment service center so that the user knows where the location of the computer equipment service center is in Medan City. The location map display can be seen in Figure 5.

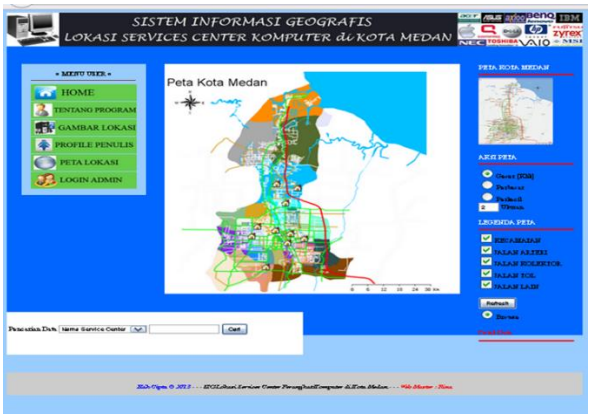

Figure 5. Location Map View

f. Admin Login view
This login page is a page to be able to enter the system and operate it. The Admin Login page can be seen in Figure 6.

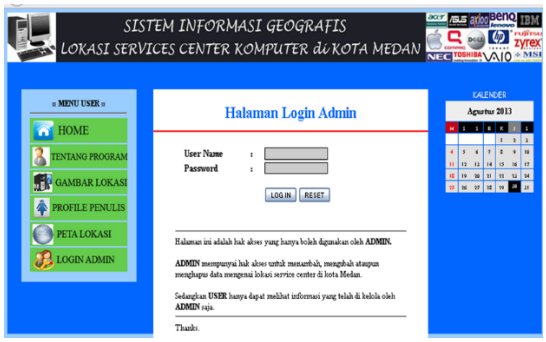

Figure 6. Admin Login view

g. Computer Service Data Page display
This Computer Data Service page is a page to fill in the computer service data center in the city of Medan. This computer service data page can be seen in Figure 7.

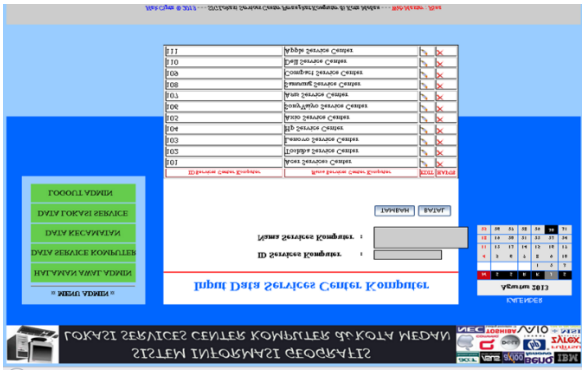

Figure 7. Computer Service Data page

h. District Data Page Display
This sub-district data page is a page for filling in sub-district data in the city of Medan. This sub-district data page can be seen in Figure 8.

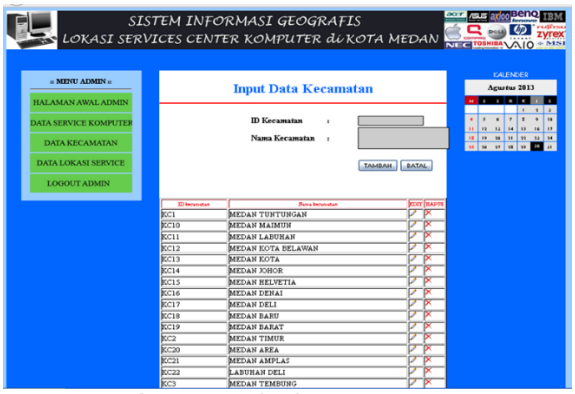

Figure 8. District Data Page

i. Service Location Data Page Display
This Service Location Data page is a page to fill in location data for computer equipment service centers in the city of Medan. This service location data page can be seen in Figure 9.

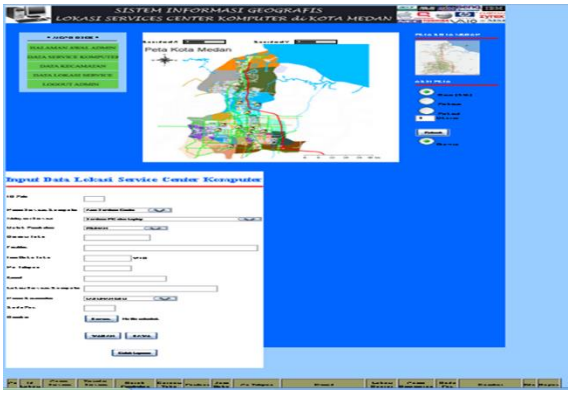

Figure 9. Service Location Data Page

j. Computer Service Center Report Print Display
This commuter service center report print page aims to display data on the location of computer equipment service centers in the city of Medan in the form of a report. This Computer Service Center Report page can be seen in Figure 10.


SISTEM INFORMASI GEOGRAFIS
LOKASI SERVICES CENTER PERANGKAT KOMPUTER
Periode 1 Tahun 2013

NO	Nama Services Komputer	Melayani Services	Jam Buka	No Telepon	Lokasi Toko	Nama Kecamatan	Kode Pos
1	Samsung Service Center	Services PC atau Laptop	08-18	7322 700	JL. Gatot Subroto	MEDAN PETISAH	20134
2	SonyVaiyo Service Center	Services PC atau Laptop	08-18	4140352	Plaza Medan Fair Lt.4 No.17 Jl. Gatot Subroto	MEDAN PETISAH	20130
3	Acer Services Center	Services PC atau Laptop	08-19	(061)455529	Jln. Bambu 2	MEDAN PERJUANGAN	34321
4	Acer Services Center	Services PC atau Laptop	08-18	4555290	Jl. krakatau	MEDAN TIMUR	20236
5	Hp Service Center	Services PC atau Laptop	08-18	7361260	Jl. Asia No.14	MEDAN BARAT	20122
6	Axio Service Center	Services PC atau Laptop	08-19	7322300	Jl. Asia no 6 (dekat simp Sutomo)	LABUHAN DELI	20156
7	Asus Service Center	Konfigurasi PC, Server, Sc	08-18	(061)750518	Kompleks Asia Mega Mas, Jalan Asia Raya Blok N 30	MEDAN KOTA	20216
8	Lenovo Service Center	Services PC atau Laptop	09-17	(061)4158836	Jl Putri Hijau No 12 Gedung Antara Lantai 3 Medan	MEDAN BARAT	20126
9	Toshiba Service Center	Services PC atau Laptop	08-18	4579155	Jl Gatot Subroto No.236 C	MEDAN PETISAH	20122
10	Axio Service Center	Services PC atau Laptop	08-18	87655	Jl. asia	MEDAN DENAI	20132
11	Compact Service Center	Konfigurasi PC, Server, Sc	08-18	987892136	Jl. Asia	MEDAN MAIMUN	20143
12	Lenovo Service Center	Services PC atau Laptop	08-18	4158388	Jl Putri Hijau No 12 Gedung Antara Lantai 3	MEDAN BARU	20231
13	Axio Service Center	Services PC atau Laptop	08-18	(62) 61 7322	Jl. Asia no 6 (dekat simp Sutomo)	MEDAN BARU	25131
14	Asus Service Center	Services PC atau Laptop	09-17	(061) 452 37	Jl. S. Parman, Komplek MBC Blok AA No.1, Medan	MEDAN PETISAH	45126
15	SonyVaiyo Service Center	Services PC atau Laptop	09-17	87632234	Jl Putri Merak Jingga 78 MEDAN	MEDAN PERJUANGAN	29747
16	Lenovo Service Center	Services PC atau Laptop	08-18	896327	jl. bilal	MEDAN BARU	12213
17	Dell Service Center	Services PC atau Laptop	09-17	765659	Jl Putri Merak Jingga 78 MEDAN	MEDAN PERJUANGAN	32116
18	Dell Service Center	Services PC atau Laptop	08-18	(061) 455 92	Jl. Jend. Gatot Subroto No. 165 (Simpang Jl. Nibung)	MEDAN PETISAH	32343
19	Compact Service Center	Services PC atau Laptop	09-17	5345345	Jl Jamin Ginting 692-B MEDAN	MEDAN POLONIA	32654
20	SonyVaiyo Service Center	Services PC atau Laptop	08-18	4523465	Jl. Jamin Ginting Km 8 MEDAN	MEDAN POLONIA	25443

Dikeluarkan di : Medan
Pada Tanggal : 07 Nov 2013
Disahkan Oleh :

(Rina Juwita Sari)

1 / 1 100%

Figure 10. Computer Service Center Report

3.2 Discussion

In designing a "Geographical Information System for Web-Based Computer Service Center Locations in Medan City", the author uses the PHP programming language with MySql as the database. This system is designed as simple as possible to make it easier for users to use it. Software used to make this application are: Windows Xp SP, Adobe Dreamwaver 8, MySQL (phpMyAdmin). The hardware used to make this application is: ASPIRE 4732Z Intel ®Pentium® processor T4400, 1 GB Memory, 320 GB hard drive.

4. CONCLUSION

After completing the design of a Web-Based Geographic Information System for Computer Service Center Locations in Medan City, the authors draw the following conclusions: The process of searching for computer equipment service center locations in Medan City can be done more quickly and easily. This system provides information in the form of location, facilities and service times at computer equipment service centers in Medan City. Submission of information on the location of the computer equipment service center in the city of Medan is displayed in the form of a map along with the location points of each location of the computer equipment service center in the city of Medan. This application is designed without using a login for the user, so the user can immediately see how the website page looks without having to register and log in.

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