

Web-Based School Information System in Permata Hati Speacial School for Autism Manado

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Abstract

Keywords: School Information System; Autism; Website; Inclusive Education;

This research aims to design and develop a web-based school information system for Permata Hati Autistic Special School in Manado, North Sulawesi. This information system will be an effective means to convey information about school achievements, school activities, and student creativity to parents/guardians, as well as to provide an introduction to the wider community about children who are categorized as autistic. From this information system, the school will be able to easily provide information related to school achievements, activities, and student creativities to parents/guardians through a website that can be accessed via the internet. In addition, this system will also help schools in explaining to the wider community about the introduction of children who fall into the category of autism through the website provided. This research will limit the design of information systems to the education process of autistic children and school activities carried out at the Permata Hati Special Autistic School in Manado. Based on the results of tests that have been carried out using the blackbox testing method to determine the functionality of the system made get 99% results according to its function.

1.INTRODUCING

Currently, Indonesia has limited special schools for autistic children, especially in the province of North Sulawesi. Autistic special schools are educational institutions built to provide appropriate education, care and support for autistic children. Among the general public, special autistic special schools are not well known, even though there are many children who fall into the category of autistic disabilities who must be anticipated early, starting from the readiness of parents and participation in the world of education[1]-[3].

School information systems are an effective means to facilitate communication, collaboration, and data management related to the education of autistic children, and become a forum for the development of autistic students and teachers in the learning process, which is not only useful for the scope within the school but also has an impact on the outside community as a means of information to promote or show school achievements and school activities carried out[4]-[6].

After the author made observations at the research site, it turned out that there was still a lack or limited media explaining to the outside community about Special Autistic Special Schools which have a very important role in the lives of autistic children, and autistic children have their own uniqueness and advantages. Permata Hati Manado Autistic Special School is also a Braking School in the city of Manado, North Sulawesi Province.

The purpose of this research is to be able to facilitate the school in providing information about school

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achievements, school activities, and student creativity to parents / guardians by children of SLB Khusus Autis Permata Hati through a website using the internet, and to be able to help schools in explaining to the wider community about the introduction of children classified as Autistic disabilities through the website.

The benefits of this research are to facilitate parents/guardians in school achievements, school activities, and student creativity by children of SLB Khusus Autis Permata Hati through a website using the internet and to help schools explain to the wider community about the introduction of children classified as Autistic disabilities through the website.

2. RESEARCH METHOD

A. Time and Place

This research began in Mei 2023 until Juni 2023, which was conducted at the Special Autistic Special School Permata Hati Manado which is located in North Sulawesi, precisely in Manado City, Wanea District. Jln Babe Palar No 25, Tanjung Batu.

B. Software Development Methods

The waterfall method is the earliest SDLC approach that is usually used for software development. The sequence in this waterfall method is serial in nature starting from the planning process, design analysis, and implementation of a system [7], [8].

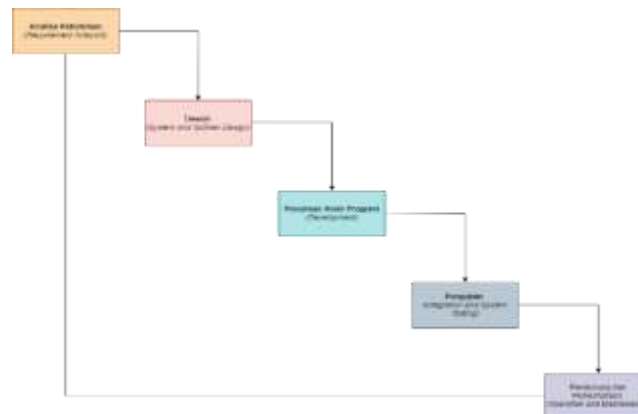


Figure 1. Metode Waterfall

C. Data Collection Technique

In collecting data used in making a web-based school information system at Permata Hati Autistic Special School, as follows:

- Direct observation method (Observation) is data collection by making direct observations about the activities that will be carried out at that location.
- Interview (Interview), this data collection activity is a way of asking questions with sources related to the topic to be discussed.
- Documentation, is an indirect data collection by taking or collecting data from existing documents or data.
- Library Study (Library), is data collection through journals that are used as references to make this research.

D. Design

1) System Design

The purpose of designing this system is to provide school information, information related to the activities of the special autistic school Permata Hati Manado, student data, and website-based teacher data.

2) System Modeling

In modeling this system, it is poured in the form of Unified Modeling Language (UML), which consists of Activity Diagram System, Use case Diagram System, Entity Relationship Diagram (ERD), Data Flow Diagram, and Class Diagram.

a) Use Case Diagram

Use case diagrams help in a better understanding of system requirements from the user's perspective and help identify key scenarios that the system should accommodate[9].

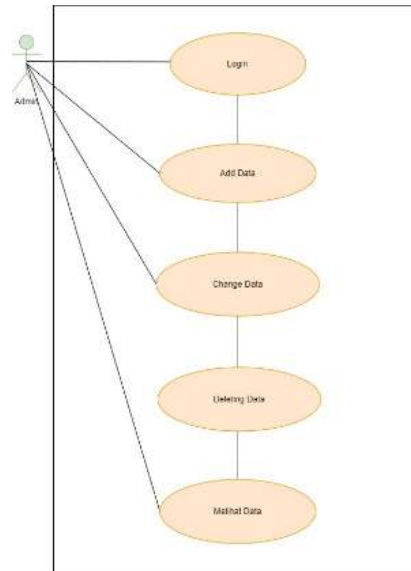


Figure 2. Use Case Diagram admin

Figure 2 explains that the admin has 6 predetermined scenarios. That is, the admin logs in to the admin page, the admin can add data, the admin can change data, the admin can delete data, the admin can manage data and the admin can see the results of the data that has been added.

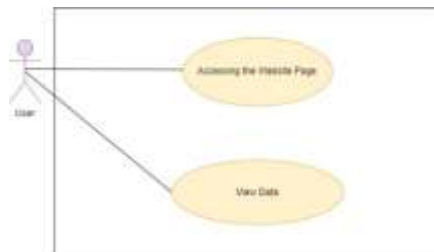


Figure 3. Use case Diagram User

In Figure 3. the use case diagram of the user explains that the user is an actor and has 2 specified scenarios, namely the user can only access the website page and see the information managed by the admin. More details can be seen in the use case description table.

b) Sequence Diagram

Sequence diagram is a diagram that displays the results of interactions that display the results of interactions that occur from responses between objects that send messages to each other. Sequence diagram consists of vertical dimension and horizontal dimension[10].

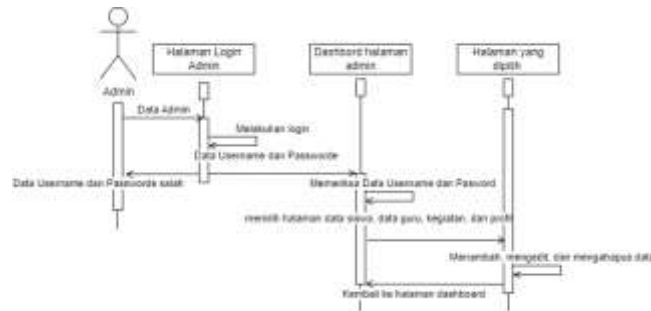


Figure 4. Sequence Diagram

Based on Figure 8 above, it is explained that the admin can access to manage, update, edit, delete data, and view data. Then the system will provide the results of the information entered by the admin. Furthermore, users can view existing data on the system, then the system will display the results of user requests.

c) Class Diagram

Class Diagram is a diagram that is usually used to display classes to fulfill one of the package requirements that will later be used. According to the journal reference Web-Based Special School Academic Information System written by Kustiyahningsih, et al. 2021. From the references that the author sees, the author makes a class diagram as shown in figure 5 about the class diagram

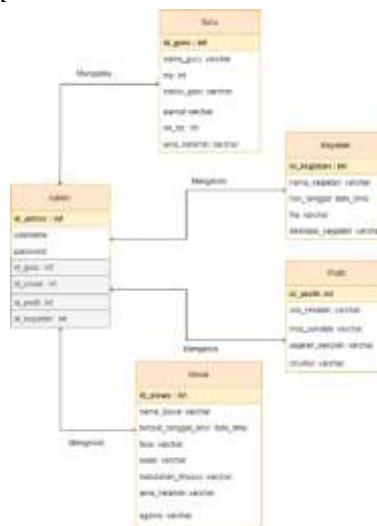


Figure 5. Class Diagram

d) Activity Diagram System

Activity Diagram System is a diagram that can integrate various processes that occur in the system. This stage will produce a series of processes running a system and described vertically. Based on references from a journal written by (Nugrah, et al.2021). Creating this diagram with the admin access workflow using the school website, admin login, admin will input data, change data, edit data, and delete data.

In Figure 6 the admin will start the page by logging in first to add data to the website, after logging in the system will direct to the database, to execute and display student data, teacher data, activity data, and profile data. Then the admin will add, change, and delete data. The system will perform the command, and will ask the admin to save the changes. If the admin chooses "no" then the system will return to the previous stage. If the admin chooses "yes" then the system will continue and the database will save the data.



Figure 6. Activity Diagram Admin using the *website*

In the picture below, Figure 10 the user will start the page by entering the website page, then the system will display the website page. The system also displays the Dashboard. Then the user selects the student data page, teacher data, activities, and profile. The system will display the page selected by the user, the user can view the selected page. Then the system displays the home page again

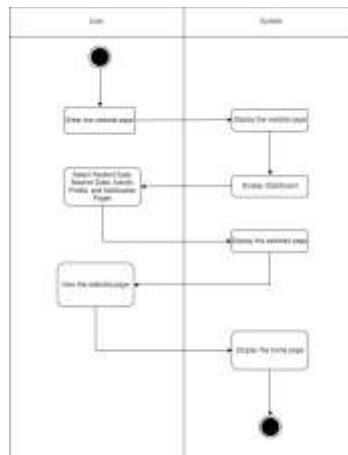


Figure 7. Activity Diagram Admin using the website

e) Entity Relationship Diagram



Figure 8. Entity Relationshi Diagram

Entity Relationship Diagram is a way or technique of describing a basic design that will map a data model. Based on references from a journal written by (Nugraha, et al., 2021). In the ERD it is explained that it has 4 interrelated entities, namely admin, students, teachers, activities, and

profiles. Then in each entity there are several attributes used, namely the admin entity has 3 attributes, the student entity has 10 attributes, the teacher entity has 6 attributes, then the activity entity has 4 attributes, and the profile entity has 5 attributes. For greater clarity about the attributes used can be seen in Figure 8.

3.RESULTS AND DISCUSSION

3.1 Needs Analysis Results

Based on the results of the needs analysis for the creation of a Website-Based Information System at the Special Autistic Special School Permata Hati Manado, in the first system needs analysis, the author first observes the factors that occur so that he raises the research. Then conduct interviews or interviews conducted directly at the special autistic special school Permata Hati with the principal, and teachers. Then the author conducts indirect data collection by taking data from existing school documents. Then the author collects data through journals that are used to become a reference in this study.

Implementation of the School Information System Home Page



Figure 9. Home Page

Figure 9 is the first page display, which is a banner that provides a welcome greeting and also an explanation of the school.

Implementation of School Profile Page History, Vision and Mission, and Organizational Structure



Figure 10. Profile Page

Figure 10 is a view of the profile page, which provides several optional features in the profile, namely there is History, Vision and Mission, and Organizational Structure.



Figure 11. History Page

Figure 11 is a view of the school history page. Which explains the history of the special autistic school Permata Hati Manado.



Figure 12. Vision and mission page

Figure 12 shows the school's Vision and Mission page.



Figure 13. Organization structure page

Figure 13 is a view of the School Organization structure page.

Implementation of School News or Activities Page

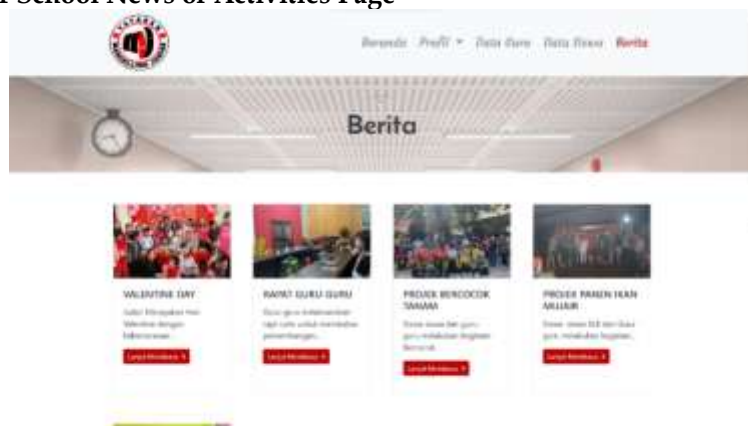


Figure 14. News/activities page

Figure 14 is a display of the school news/activities page, and provides some of the latest news or activities carried out by autistic students.

Implementation of Teacher Data and Student Data Pages

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#	NAMA GURU	NIP	JENJANG PENDIDIKAN	STATUS GURU	ALAMAT
1	Agustina Tessa Tjandjaja S.Pd	1978010101000000000	1	Guru Kelas	Perumahan Bumi Per... Makassar
2	Arif Nur Hafidha S.Pd	1991111801100000000	1	PAK	Ujungluwu
3	Arif Nur Hafidha S.Pd	1991111801100000000	1	PAK	Ujungluwu
4	Arif Nur Hafidha S.Pd	1991111801100000000	1	PAK	Ujungluwu
5	Arif Nur Hafidha S.Pd	1991111801100000000	1	PAK	Ujungluwu
6	Arif Nur Hafidha S.Pd	1991111801100000000	1	PAK	Ujungluwu
7	Arif Nur Hafidha S.Pd	1991111801100000000	1	PAK	Ujungluwu
8	Arif Nur Hafidha S.Pd	1991111801100000000	1	PAK	Ujungluwu

Figure 15. teacher data page

Figure 15 is the teacher data page at the Permata Hati Manado Autistic Special School

#	NAMA SISWA	JENIS KELAKSIAN	TEMPAT LAHIR	WAKTU LAHIR	ALAMAT	KELUARGA	ALAMAT	NO HP
1	Agustina Tessa Tjandjaja S.Pd	1978010101000000000	1	PAK	Ujungluwu	Perumahan Bumi Per... Makassar	1991111801100000000	08123456789
2	Arif Nur Hafidha S.Pd	1991111801100000000	1	PAK	Ujungluwu	Ujungluwu	1991111801100000000	08123456789
3	Arif Nur Hafidha S.Pd	1991111801100000000	1	PAK	Ujungluwu	Ujungluwu	1991111801100000000	08123456789
4	Arif Nur Hafidha S.Pd	1991111801100000000	1	PAK	Ujungluwu	Ujungluwu	1991111801100000000	08123456789
5	Arif Nur Hafidha S.Pd	1991111801100000000	1	PAK	Ujungluwu	Ujungluwu	1991111801100000000	08123456789
6	Arif Nur Hafidha S.Pd	1991111801100000000	1	PAK	Ujungluwu	Ujungluwu	1991111801100000000	08123456789
7	Arif Nur Hafidha S.Pd	1991111801100000000	1	PAK	Ujungluwu	Ujungluwu	1991111801100000000	08123456789
8	Arif Nur Hafidha S.Pd	1991111801100000000	1	PAK	Ujungluwu	Ujungluwu	1991111801100000000	08123456789

Figure 16. Student data page

Figure 16 is the student data page at the Permata Hati Manado Autistic Special School.

System Testing Results

In testing this system, the author uses BlackBox testing, Blackbox testing is one of the young software testing methods used because it only requires the lower limit and upper limit of the expected data. Blacbox test conducted, and shared to 13 students as respondents. user testing using this black box shows that of the 13 respondents all are positive or can be used as shown in the figure.

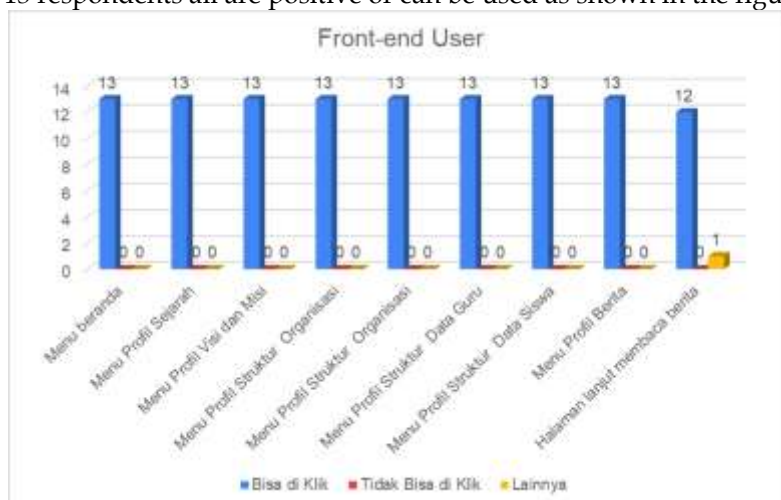


Figure 17. Front-end user



on admin testing using this black box shows that of the 13 respondents all are positive or can be used as shown in the figure.



Figure 18. Front-end admin

Based on the results of tests that have been carried out using the blackbox testing method to determine the functionality of the system made get 99% results according to its function.

4.CONCLUSION

Based on the results obtained, it can be concluded that this website can easily help the school in providing information about school achievements, school activities, and students creativities to parents / guardians of students in Permata Hati Autistic Special School. this website can help school in explaining to the wider community regarding promotion and providing education about children with special needs. Based on the results of tests that have been carried out using the blackbox testing method to determine the functionality of the system made get 99% results according to its function.

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