Journal of Artificial Intelligence and Engineering Applications

Website: https://ioinformatic.org/

15th October 2025. Vol. 5. No. 1; e-ISSN: 2808-4519

Design of Anastasia Private School Profile Website Using Waterfall Method

Maria Sere Vina Simatupang[1*], Feriani Astuti Tarigan[2], Jakri Hendrik[3]

[1,2,3]*Information Systems Study Program, Stmik Time Medan*
Simatupangmaria27@gmail.com[1*], ferianiastutitime@gmail.com [2], jakri.hendrik@gmail.com[3]

Abstract

The development of information technology encourages educational institutions to utilize digital media as a means of delivering information, one of which is through a school profile website. Anastasia Private School located on Jl. Jamin Ginting has four levels of education, namely kindergarten, elementary school, junior high school, and high school. However, the current website is still not interactive and informative, making it difficult for the public to obtain complete information about the school. Reliance on traditional promotional media such as banners and brochures is no longer considered effective in building the image and attractiveness of schools in today's digital era. This study aims to design a profile website for Anastasia Private School that is more informative, interactive, and easily accessible to the wider community. The system development uses the Waterfall method, which consists of the stages of needs analysis, design, implementation, testing, and maintenance. This website is designed with eight main features, including Home, Profile, About Us, Academic, Gallery, News, and PPDB Info. The result of this research is a website that is able to present comprehensive information about the school, so that it can be an effective socialization media, strengthen the school's image, and facilitate the community in accessing the education information needed.

Keywords: *School Profile,School Website,Waterfall Method*

1. Introduction

School is an institution used for learning activities for educators and a place to give and receive lessons according to their. Schools are places to educate children to be able to become useful human beings for the nation and state. Schools also play an important role in the life of the nation and become a space to expand knowledge and instill values [1].Education in society is now growing rapidly, along with advances in information and computer technology. This makes students and teaching staff more sensitive to technology- based educational information. Internet as one of the results of technological development has been widely used by the community. Through the internet, education in remote areas can also access information from the center and be able to compete in the world of [2].Anastasia Private School is an educational institution under a foundation located on Jl. Jamin Ginting and has 4 levels of education, namely kindergarten, elementary, junior high, and high school. Although it already has a website, the delivery of information available is still less interactive and informative. Dependence on traditional promotional media such as banners and brochures makes the school socialization process not optimal, which has an impact on decreasing the interest of prospective students and a less positive image of the school.To overcome these problems, it is necessary to design a school profile website that is informative, interactive, and easily accessible. This website is designed with eight main features, namely Home, Profile, About Us, Academic, Gallery, News, and PPDB Info. This research uses the waterfall method, which is a software development method with a systematic and sequential approach. and costs, and is suitable for large-scale projects. However, its weaknesses include the need for solid team management, relatively long processing time, and potential cost increases [3]. The stages in the waterfall method consist of requirements, design, implementation, verification, and maintenance [4].Based on this background, this research is entitled **"Designing Anastasia Private School Profile Website Using the Waterfall Method.**

2. Theoretical foundation

2.1 Website

Website is a collection of interconnected pages and serves as a medium for displaying information in various formats, such as text, sound,video, or a combination of all of these.Website multi-platform, which means it can be accessed from all devices connected to the internet. So it can be concluded that the *web* is a hypertext facility that can display and can also store data in the form of text, images, and sound whose contents are interconnected [5].

2.2 School profile

School profile is an overview of the school's identity that aims to provide information to those in need. The contents include name, address, principal, accreditation, infrastructure, vision and mission, goals, achievements, and school activities.

2.3 Information system

Information system is a set of interconnected information components that collect or obtain, process, store, and distribute information [6].

2.4 Waterfall method

The Waterfall method is a linear and systematic software development model, where each stage is carried out, starting from requirements analysis, planning, design, implementation, testing, to maintenance. Introduced by Winston Royce in 1970, this method does not allow returning to the previous stage [7].

2.5 Software

The software used includes balsamiq mockups for interface design, HTML, CSS, PHP, and JavaScript for web development, XAMPP as a local server, MySQL for database, and Sublime Text as a text editor.

3. Research methods

The data collection methods used in this research include the following:
1.Interview method
Interviews are used to gather information directly from the Anastasia Private School, such as the principal or related staff.
2.Observation method
Observation is done by directly observing the process of delivering information in the school environment.
3.Library method
Collecting theoretical data through, print media, or reference sources from the internet.

3.1. System analysis

System analysis in this study is divided into 3 stages of the process, namely:

1. Analysis of the current system used at this time, especially in promoting school profiles.
2. Analysis of the method used, namely the Waterfall Method which consists of needs analysis, design, implementation, verification and maintenance.
3. The proposed follow-up system analysis is a web-based profile website, presenting information such as vision and mission, teacher/student data, facilities, achievements, activities, as well as contacts and location. The website is designed to be responsive, user-friendly, and easily accessible. Developed using the *Waterfall* method using HTML, CSS, PHP, and MySQL. Admin can manage content through the backend with login features and CRUD functions.

3.2. System design

System design in this study is divided into 2 stages, namely:
1. UI/UX display design using Balsamiq Mockups Wireframe software.
2. Database design that shows the relationship between tables from each database modeled using *Entity Relationship Diagram* (ERD) *tools*.

3.3. Analysis of the proposed method

This subchapter describes the method used in this research. The method applied is the Waterfall Software Development Life Cycle, which is systematic and sequential. The stages involved are:
1.Requirement analysis
This stage involved data collection through observation and interviews with the school staff. It was found that the school profile promotion was still limited and manual, and there was no effective digital media. Therefore, a school profile website was needed as a solution.
2.System design
At this stage, the system structure was designed, including the Use Case Diagram, Entity Relationship Diagram (ERD), and the user interface (UI) using Figma. The design was tailored to be user-friendly for school administrators.
3.Implementation
The website was developed using PHP and MySQL for the backend, and HTML, CSS, and Bootstrap for the frontend. All school profile features such as general information, vision and mission, staff data, and achievements were included in the system.
4.Testing
This phase aimed to ensure all functions work properly. Testing was carried out on main features such as the profile page, admin data management, and the homepage view.

5.Maintenance

After the system was deployed, maintenance was carried out in the form of bug fixes, content adjustments, and feature improvements based on user feedback to keep the system running optimally.

3.4. Analysis of the proposed system

Next, the author analyzes the proposed system, usually referred to as functional requirements analysis and will be described using a *Use Case Diagram*.

1. Use case diagram

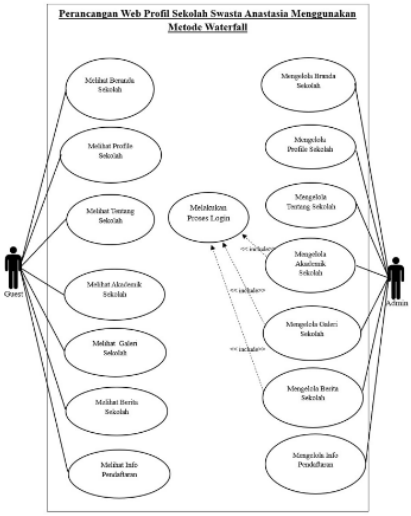

Fig. 1: Use case of anastasia school website

2. Database design

The following is the database design for the profile website of Sekolah Swasta Anastasia, along with its table structure, illustrated using an Entity Relationship Diagram (ERD). This design aims to describe the relationships between data such as staff information, student records, achievements, and general school information in a systematic and structured manner.

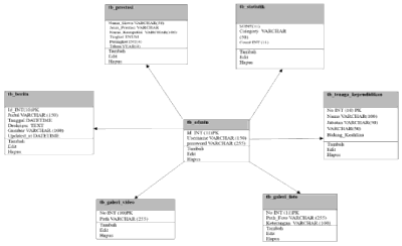

Fig. 2: Entity relationship diagram of anastasia school

4. Results and discussion

The following will describe the results of this research in the form of the construction of an Anastasia Private School *website* to help promote the school profile to prospective students.

4.1. Guest page view

1.Guest home page

On the guest home page can see the number of students, teachers, achievements & testimonials available.

Fig. 3: Guest home page

2. Profile page display
On the guest profile page there will be a choice of submenus, namely vision - mission, school history & facilities.

Fig. 4: Vision-mission & motto page

Fig. 5: School history page

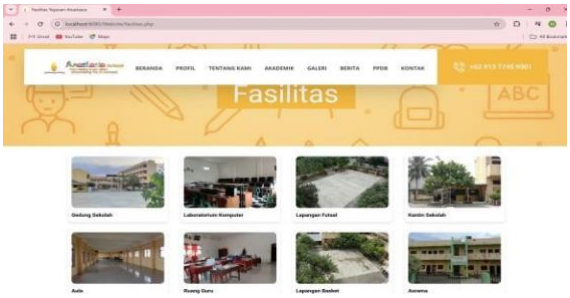

Fig. 6: School facilities page

3. About page display
On the guest profile page display, there will be a choice of submenus, namely about the level of education starting from kindergarten, elementary, junior high & high school at each level there is an organizational structure.

Fig. 7: Example of a page about school level

4. Academic page display

On the guest academic page display, there will be a choice of submenus, namely the curriculum, extracurricular, achievement & education personnel menu.

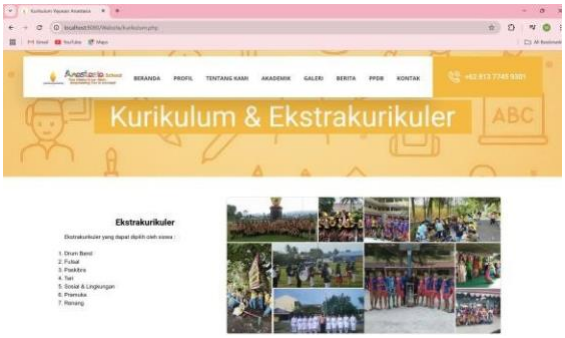

Fig. 8: Curriculum & extracurricular page

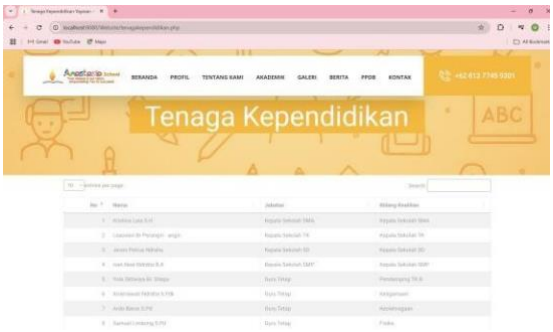

Fig. 9: Education personnel page

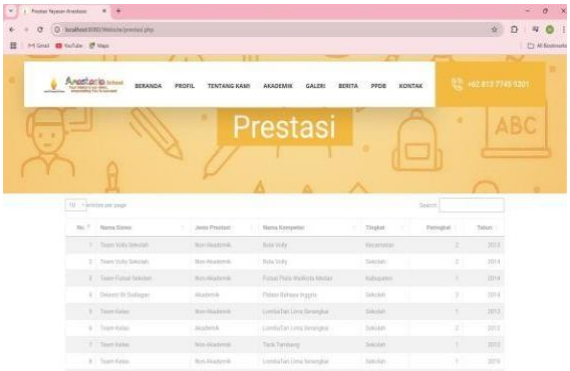

Fig. 10: Achievement page

5. Gallery page display

On the page there are two submenus, namely Photo Gallery and Video Gallery.

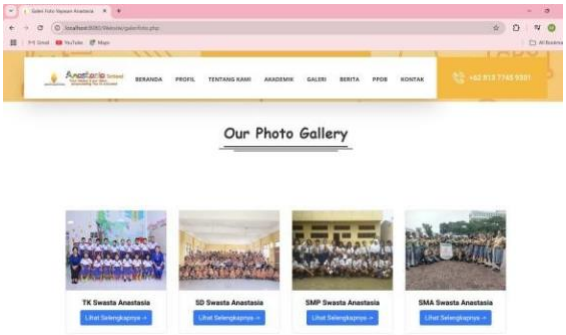

Fig. 11: Photo gallery

Fig. 12: Example of a photo gallery page

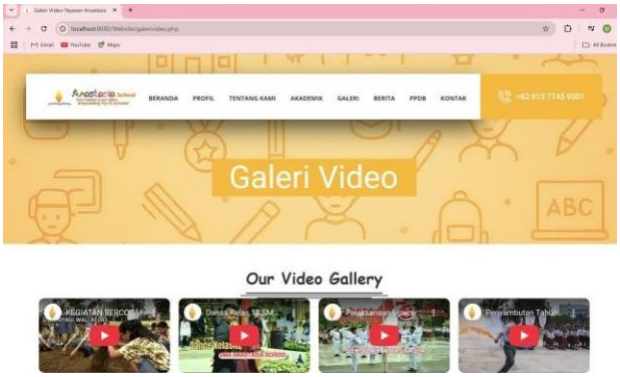

Fig. 13: Video gallery page

6. News page display

On the news page display, will be displayed various latest information (up to date) that can be accessed by visitors (guests).

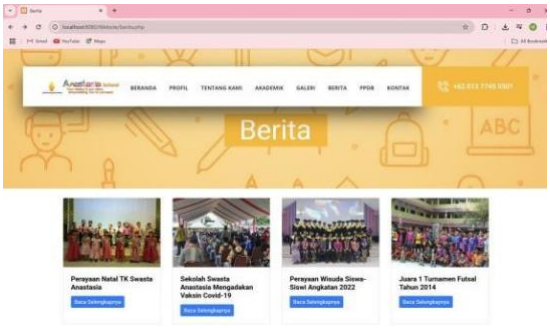

Fig. 14: News page

Fig. 15: News detail page

7. PPDB page view

On the PPDB (New Student Admission) page, information is displayed about registration requirements and details of fees charged for each level of education.

Fig. 16: PPDB page

8. Contact page display

On the Contact page, a location map (Google Maps) is displayed that points directly to the location of the school, making it easier for visitors to find the address.

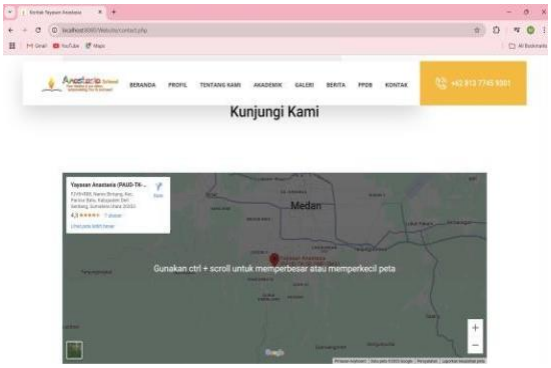

Fig. 17: Contact page

9. Footer Display

In addition to the main page display, there is also a footer section that contains school contact information and links to official social media.

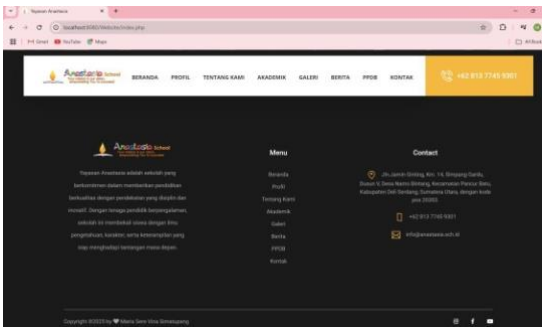

Fig. 18: Footer page

5. Conclusion

Based on the discussion from Chapter 1 to Chapter IV, it can be concluded that:
1. Successfully designed a school *website* as an informative promotional media to display the school profile.
2. Through this *website*, prospective students and parents can easily find out various information available at the school.
3. This *website* makes it easier for the school to deliver the latest information, such as news, activities and important announcements.
4. Admins can manage *website* content such as achievement data, teachers, galleries and news more efficiently.
5. The *website* helps improve the school's professional image in the eyes of the community through an attractive appearance and user-friendly navigation.

6. Suggestions

To ensure that the proposed system can operate as expected, several suggestions can be considered for future development:

1. Add interactive features such as a comment section, guest book, and an online academic calendar.
2. Implement full integration with the database to enable more dynamic and efficient data management.
3. Enhance website security features to protect data and information from external threats.
4. Add an online registration form to facilitate prospective students in the registration process.

References

[1] SMAN 1 Abung Semuli, "School Vision and Mission," *2023 a*, vol. 1, no. 1, pp. 271-275, 2023.
[2] I. Arthalita and R. Prasetyo, "The Use of a Website as a Means of Evaluating Student Academic Activities at Sma Negeri 1 Punggur Central Lampung," *JIKI (Journal of Comput. lnformatics)*, vol. 1, no. 2, pp. 93- 108, 2020, doi: 10.24127/jiki.v1i2.678.
[3] P. System, I. Profil, R. A. Fauzan, and R. T. Arinanto, "Web-based School Using the Waterfall Method," vol. 1, no. 1, pp. 88-97, 2023.
[4] Z. Ariza, "COMPARISON OF WATERFALL MODEL AND PROTOTYPE METHOD FOR APPLICATION DEVELOPMENT ON INFORMATION SYSTEMS," *J. Inf. Syst. Educ. Dev.*, vol. 2, no.1.pp. 13-19, 2024, doi: 10.62386/jised.v2i1.50.
[5] M. Prayoga, I. Surya, and H. Kurniawan, "Designing a Web-based School Information System Using the Agile Method at Sdn 056001 Karang Rejo," vol. 13, pp. 1248-1258, 2024.
[6] A. Nitami, A. A. Munthe, and Masrizal, "Web-Based Rantauprapat Hotel Reservation Information System with Codeigniter Framework," *J. Student Dev. Inf. Syst*., vol. 1, no. 3, pp. 7-17, 2021.
[7] A. A. Wahid, "'Analysis of the Waterfall Method for Information System Development, '" *J. Sciences Inform. and Manaj. STMIK*, vol. 1, no. November, 2020