Website-Based Digital School Information System Upt SMP Negeri 5 Medan With Agile Scrumban

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ABSTRACT

This research aims to design and implement a website-based digital school information system at UPT SMP Negeri 5 Medan. In today's digital era, the need for efficient and effective information systems is essential to support good education management. This information system is designed to facilitate the management of academic, administrative, and communication data between the school, students, and parents. The methods used in this study include literature study, needs analysis, and system development using the Agile approach. The results of the study show that this digital school information system is able to provide important features, such as student data management, grade management, announcements, and communication forums. With this system, it is hoped that it can increase efficiency in information management, speed up the administrative process, and facilitate access to information for all related parties. Evaluation of the system is carried out through trials involving users, which shows a high level of satisfaction and ease of use. This study concludes that the website-based digital school information system at UPT SMP Negeri 5 Medan can be a solution to improve the quality of education management, as well as provide significant benefits for the entire school community. Suggestions for further development are to improve interactive features and provide training for users so that the system can be used to the fullest

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1.   INTRODUCTION

In today's digital era, information technology plays an important role in various fields, including education. Schools as educational institutions are expected to be able to utilize technology to improve management efficiency and service quality to students, parents, and the community (Hermansyah et al., 2024; Wahyuni et al., 2024a, 2024b). UPT SMP Negeri 5 Medan, as one of the leading educational institutions in the city of Medan, faces challenges in the management of academic and administrative data that is still conventional. The limitations of the existing system can hinder the decision-making process and slow down the flow of information (Supiyandi et al., 2024).

A website-based digital school information system is a relevant solution to overcome this challenge. With an integrated system, student data management, grade reporting, and communication between the school and parents can be done more effectively and efficiently. However, the implementation of a good information system requires the right project management approach in order to meet user needs and adapt to rapid changes (Wahyuni, 2018; Wahyuni & Mesra, 2022).

The Agile Scrumban method is the ideal approach for the development of this information system. Agile Scrumban combines iterative and collaborative Scrum principles with workflow visualization from Kanban. This approach allows

development teams to dynamically adapt to changing user needs, while still maintaining a focus on delivering quality results (Sumartono et al., 2022; Wadly & Fitriani, 2023a, 2023b).

With this background, this research aims to design and develop an efficient and responsive digital school information system at UPT SMP Negeri 5 Medan (Nababan & Sitompul, 2018a, 2018b; Sitompul & Nababan, 2018). It is hoped that this system will not only improve the management of academic information, but also encourage the active participation of all stakeholders in the educational process (Akbar et al., 2022; Marlina et al., 2023; Sulistianingsih et al., 2019). This research is expected to contribute to the development of educational information systems in Indonesia, as well as become a model for other schools in implementing digital technology effectively (Hariyanto et al., 2017, 2019; Hariyanto & Wahyuni, 2020; Lubis et al., 2022; Wahyuni et al., 2022).

2. RESEARCH METHOD

1) Research Approach
This research uses a qualitative descriptive approach that aims to design and develop a website-based digital school information system. This method is chosen to understand the needs of users and evaluate the effectiveness of the developed system.

2) Development Methods
The method used in the development of this system is Agile Scrumban, which combines the principles of Agile, Scrum, and Kanban. This approach includes the following steps:
- Planning: Identifying user needs and compiling a product backlog based on priority. The team held discussions with stakeholders, including teachers, students, and parents, to gather input on the desired features.
- Design and Development: The development team designs the user interface and system architecture. The development process is carried out in short sprint cycles, with a focus on delivering usable features. Each sprint ends with a demonstration to stakeholders to get feedback.
- Workflow Visualization: Use Kanban boards to visualize task and workflow statuses, and limit the amount of work in progress (WIP limits) to improve focus and efficiency.
- Testing and Validation: After development, the system is tested through functional testing and user acceptance testing (UAT) to ensure that all features work as expected and meet user needs.

3) Data Collection
Data is collected through several methods:
- Interviews: Conduct interviews with teachers, students, and parents to explore their needs and expectations regarding the school's information system.
- Questionnaires: Distribute questionnaires to potential users to get quantitative data regarding their preferences and needs.
- Observation: Observing current administrative processes to understand the challenges faced and areas that need improvement.

4) Data Analysis
The collected data will be analyzed using qualitative analysis to identify patterns and themes that emerge from interviews and observations. The results of this analysis will be used to compile recommendations for the development of a better system.

5) System Evaluation
After implementation, the system will be evaluated based on the specified success criteria, such as ease of use, speed of information access, and user satisfaction level. This evaluation is conducted through surveys and follow-up interviews with users.
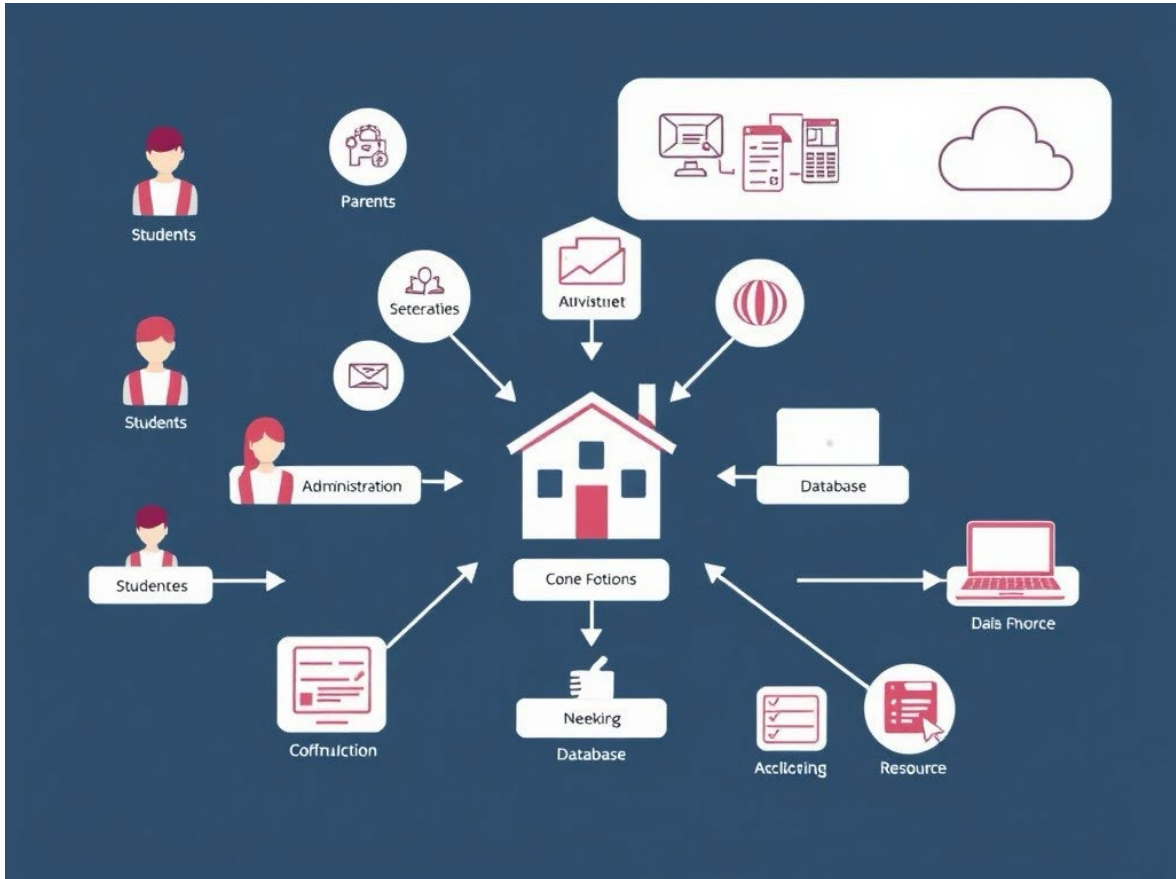
Fig 1. Digital School Architecture

System Planning

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Fig 2. Digital School Information System Design

3. RESULTS

This program can be run on a website-based system by using a web browser by accessing the https://www.uptsmpnegeri5medan.sch.id/ to enter the main page of the Website-based UPT SMP Negeri 5 Medan Digital School Information System:

A. *Main Menu Interface Display*

The main page is the main page when accessing the UPT SMP Negeri 5 Medan digital school website, from the main page and there are menus that can be accessed when accessing the web-based digital school information system as follows:
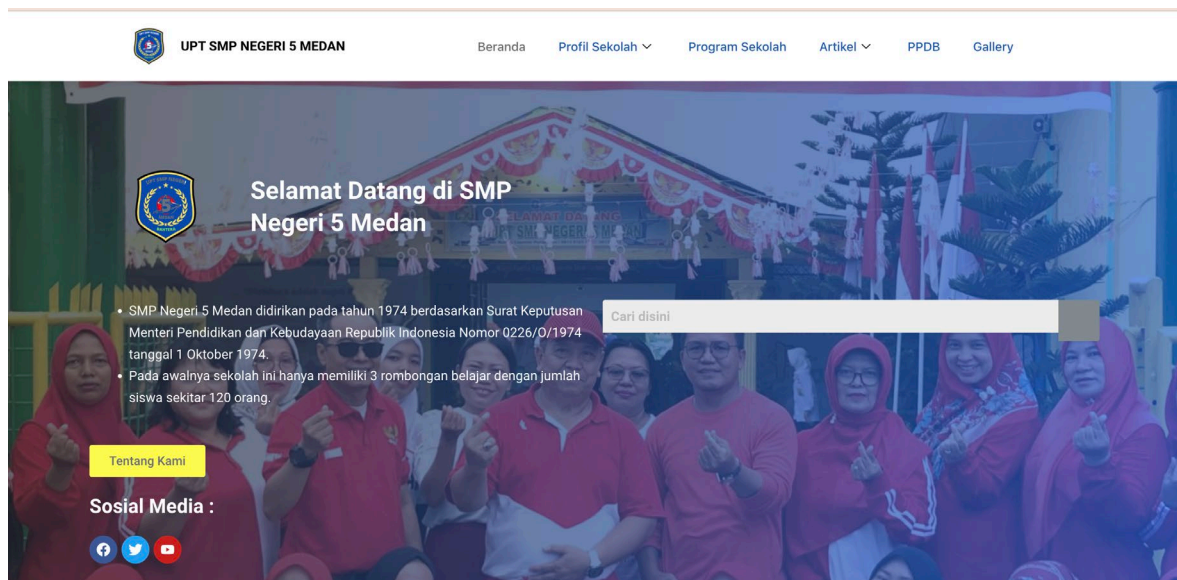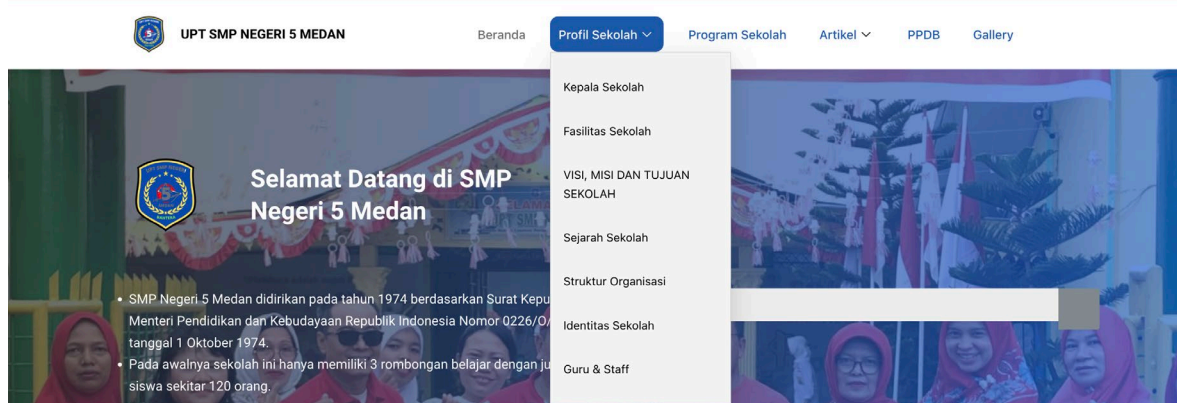

Fig 3. Home Page

B. *Page Profile*

On the "profi Sekolah page" page there is a Principal's menu containing the principal's remarks, School facilities, School Vision, Mission and Objectives, School history, Organizational Structure, School identity, Teachers & Staff as follows:
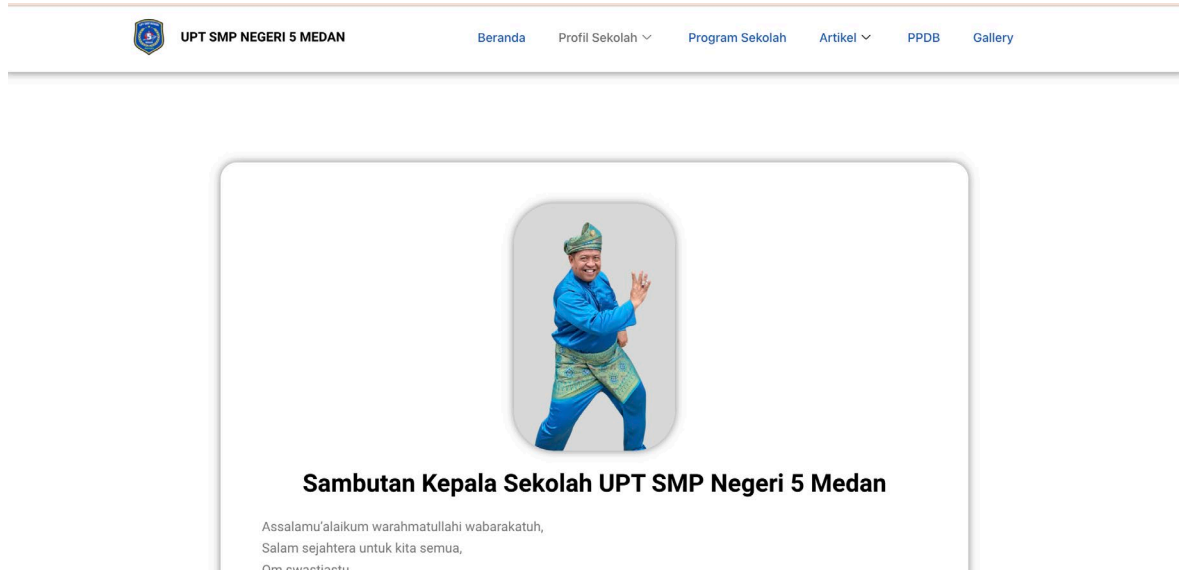
Fig 4. Page Profile

C. Page Article

On the "article" page there is a "School News" menu which contains information about the activities of UPT SMP Negeri 5 Medan which can be accessed by parents, students and school partners and "Student Achievements" which contains information about the achievements of SMP Negeri 5 Medan students as follows:
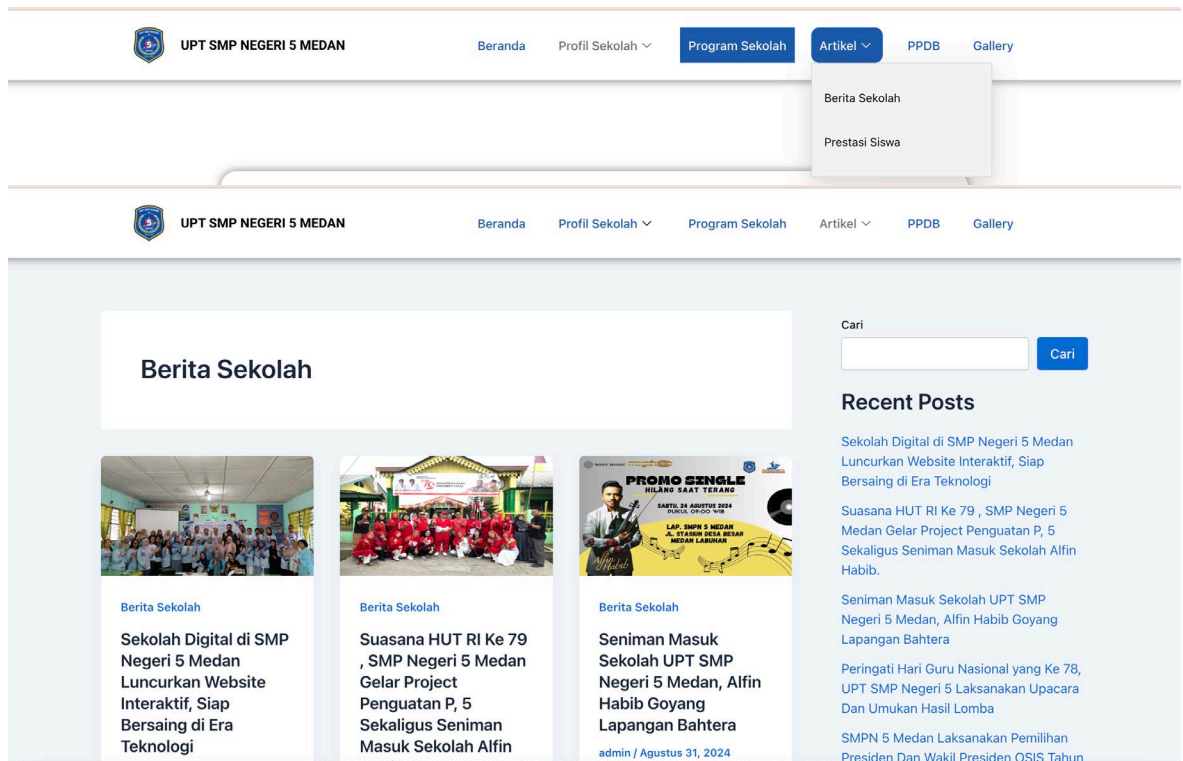

Fig 5. School News Page

D. Village Management Page

Halam Gallery Sekolah which contains information on all flagship activities carried out by the Website-Based Digital School Junior High School Unit as follows:
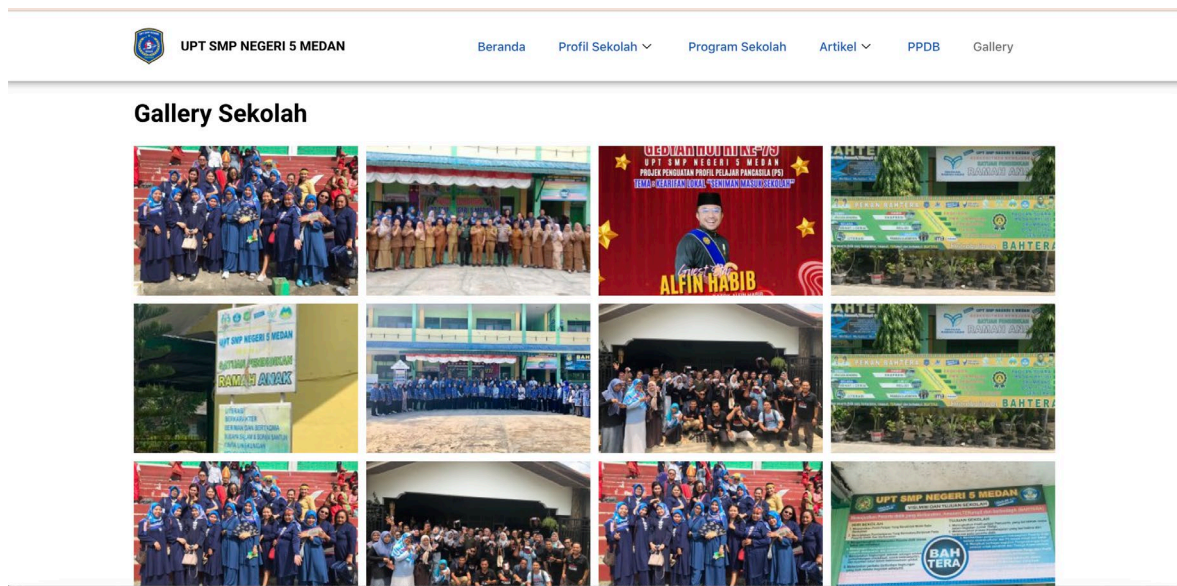

Fig 6. School Gallery Page

E. Organizational Structure Page
Menu The organizational structure page of UPT Negeri 5 Digital School Based Website which displays the organizational structure as follows:

Fig 7. Organizational Structure Page

F. Teacher and Staff Page
The menu of the Teacher and Staff page contains information pages for all teaching staff of the field of study, administrative staff. Along with social media links that can be accessed by students, parents and partners as follows:
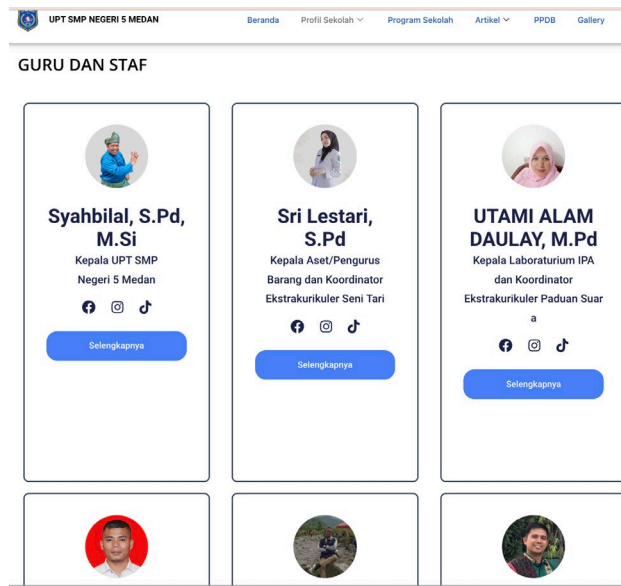
Fig 8. Teacher and Admin Staff Page

G. School Identity Page

The school identity page can be accessed to get information on the UPT SMP Negeri 5 Medan 5 digital school based on the Website as follows:
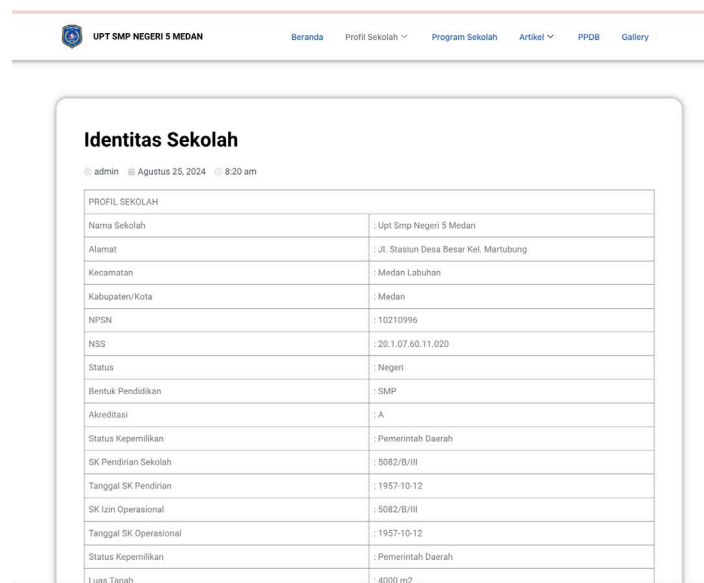

Figure 9. Mangrove Tree Management Page

4.   CONCLUSION

The research entitled "Website-Based Digital School Information System of UPT SMP Negeri 5 Medan with Agile Scrumban" succeeded in designing and developing an efficient and responsive information system to support academic and administrative data management at UPT SMP Negeri 5 Medan. By adopting the

Agile Scrumban method, this study shows that this approach is very effective in dynamically managing changes in user needs, so that the resulting system is able to meet stakeholder expectations.

The results of the system development show that the features provided, such as student data management, grade management, and communication between the school and parents, can be easily accessed and provide significant benefits in improving school operational efficiency. The tests conducted showed a high level of user satisfaction, as well as ease of use of the system.

Thus, this study concludes that the implementation of a website-based digital school information system not only improves the quality of education management at UPT SMP Negeri 5 Medan, but also encourages the active participation of all stakeholders. Suggestions for further development include improvements to interactive features and more in-depth training for users, so that the system can be used optimally and sustainably

Suggestion:

1. **Improved Interactive Features**: It is recommended to add interactive features that can improve student and parent engagement, such as discussion forums, school announcements, and online learning aids. This feature can encourage better communication between all parties involved.
2. **User Training**: It is important to provide comprehensive training for teachers, students, and parents regarding the use of the system. This training will help users better understand the features of the system and maximize the benefits obtained.
3. **Continuous Feedback**: Implement a mechanism for collecting feedback periodically from users to find out new constraints and emerging needs. This feedback can be used to make continuous improvements and adjustments to the system.
4. **Integration with Other Platforms**: Consider integrating the school's information system with other platforms, such as a school payment app or library management system. This will create a more comprehensive and integrated digital ecosystem.
5. **Continuous Development**: Adopting an Agile approach in the continuous development of systems to respond to changing needs and technological trends. The development team should be ready to iterate and make adjustments based on user feedback.
6. **Data Security**: Ensuring that the system has adequate security measures in place to protect student data and other sensitive information. Regular security audits need to be carried out to maintain data integrity and confidentiality.

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