IMPLEMENTATION SMART SCHOOL

by RENI HAERANI HARIRI .

Submission date: 20-Sep-2023 06:54AM (UTC+0800)

Submission ID: 2112379035

File name: 21822_RENI_HAERANI_HARIRI_._IMPLEMENTATION_SMART_SCHOOL_49951_2071337393.doc (1.08M)

Word count: 1792

Character count: 10281

IMPLEMENTATION OF THE SMART SCHOOL APPLICATION WEB-BASED USING A PROTOTYPE MODEL

Reni Haerani[1*], Pradtya Adi Nugroho[2], Ahmad Sofan Ansor[3]
[1,3]Manajemen Informatika, Politeknik PGRI Banten
[2]Teknik Elektronik, Politeknik PGRI Banten
email: renihaerani39@gmail.com

Abstract: The advances in information technology have substantially affected the world of education. One of these impacts is the emergence of the concept of innovative schools. The Smart School application is a solution to increase the effectiveness and efficiency of managing the educational procedures in schools. This research intends to design a Smart School application using the Web-based Prototype method. The prototype method allows developers to design and develop application prototypes that can be tested by users (teachers, students, and parents) before implementing the actual application. This will help identify user needs, collect feedback and ensure that the resulting Smart School application meets the expectations and needs of all stakeholders. The Smart School application has many features, such as student data management, lesson schedules, homework and test management, communication between teachers, students and parents, and tracking student learning progress. This application is designed with a web interface like computers, tablets and smartphones. The resulting Smart School application using the Prototype approach will be better able to meet changing user needs and help improve the quality of education in schools. Apart from that, web technology will make it easier to access and use applications by all stakeholders in the world of education.

Keywords: Smart School Application; Prototype; Website

Abstrak: Kemajuan teknologi informasi sudah meninggalkan efek yang substansial terhadap dunia pendidikan. Salah satu dampak tersebut adalah munculnya konsep sekolah cerdas. Aplikasi Smart School merupakan solusi untuk meningkatkan efektivitas dan efisiensi pengelolaan prosedur pendidikan di sekolah. Riset ini bermaksud untuk merancang aplikasi Smart School dengan menggunakan metode Prototype berbasis Web. Metode Prototipe memungkinkan pengembang merancang dan mengembangkan prototipe aplikasi yang dapat diuji oleh pengguna (guru, siswa, dan orang tua) sebelum menerapkan aplikasi sebenarnya. Hal ini akan membantu mengidentifikasi kebutuhan pengguna, mengumpulkan umpan balik dan memastikan bahwa aplikasi Smart School yang dihasilkan memenuhi harapan dan kebutuhan seluruh pemangku kepentingan. Aplikasi Smart School dirancang dengan banyak fitur yang beragam seperti pengelolaan data siswa, jadwal pelajaran, pengelolaan pekerjaan rumah dan ulangan, komunikasi antara guru, siswa dan orangtua, serta pelacakan kemajuan perkembangan pembelajaran siswa. Aplikasi ini dirancang dengan antarmuka web seperti komputer, tablet, dan smartphone. Dengan menggunakan pendekatan Prototype, diharapkan aplikasi Smart School yang dihasilkan akan lebih mampu memenuhi perubahan kebutuhan pengguna dan dapat membantu meningkatkan kualitas pendidikan di sekolah. Selain itu, pemanfaatan teknologi web akan memudahkan akses dan penggunaan aplikasi oleh seluruh pemangku kepentingan di dunia pendidikan.

Kata kunci: Aplikasi Smart School; Prototype; Website

INTRODUCTION

The development of information and communication technology has had a significant impact on various fields, including education. Education is an essential issue in a country's development. With the development of technology, especially the internet and web-based devices, many schools and educational instituions are starting to adopt technology to increase the efficiency and effectiveness of the learning process. Web-based Smart School is a system that integrates ICT into various educational directions in schools. Thanks to this, students, teachers and administrative staff can access information in real time, communicate efficiently and take advantage of multiple features to improve the quality of education.

SDIT Mandiri in registering new students and entering data into the entry is always done manually by handwriting in a notebook. This will of course be very troublesome when searching for data and making reports because you have to serach on by one, so the data is often redundant and the errors are very large.

This research aims to design a prototype Smart School web application system to increase efficiency, effectiveness and transparency of education management in schools, as well as facilitate the schools implementation process.

By designing an integrated and comprehensive Smart School web application system, education in schools can adapt, respond more quickly and be more effective in facing future confrontations.

Several related studies regarding prototype design have been carried out previously and are relevant according to the survey. Based on research conducted by [1] using the Smart School application, whose primary function is to facilitate the work process in schools, using R&D development methods and using the K-Means algorithm as an identification systems, and class division for students who are advancing to grade.

Further research by [2] designed a web-based school inventory information system using the prototyping method, making it easier to record school supplies by recording reports. According to [3], web-based information systems provide an alternative to the problems faced when using manual methods. In addition, it minimizes the possibility of errors and makes it easier to find the necessary data. According to [4], school websites receive high attention and response in education and from various parties, including education staff, students and the community. Different school information and news can be presented more quickly and accurately using the Smart School web application.

PROTOTYPE

According to [5], Prototyping is a strategy in software engineering that directly represents how software components will behave before the architectural stage is executed. The prototype model functions as a reflection parameter that will be built in the future and separates two tasks; investigation and exhibition.

APPLICATION

Application is the use of instructions or instructions in a computer that are arranged so that the computer can process

input into output [6] [7]. Application is also the implementation of system design for data processing by applying the rules of a specific programming language [8].

DESIGN

Design is the next step in analyzing the system development cycle, including determining functional requirements, as well as describing how the system will be structured, which can be in the form of drawings, plans and sketches, or layouts to ensure integrity and function, including component configuration hardware and software of all systems [9].

WEBSITE

A web page can be understood as a combination of pages used to display information in the form of text, static or moving images, animation, sound or a combination of all of these, static or dynamic, building a link of interdependent constructions, each connected to the other by a network page [10], [11], [12]. The relationship between one web page and another web page is called a hyperlink, while the text used as a connecting tool is called hypertext [13].

METHOD

A. Research Framework

In line with the context described in this study, a structure can be created and implemented using a prototype approach. This research stage includes literature review, data accumulation, problem and needs analysis, software design, implementation, testing and analysis, and drawing conclusions and recommmendations. These steps are illustrated in Figure 1.

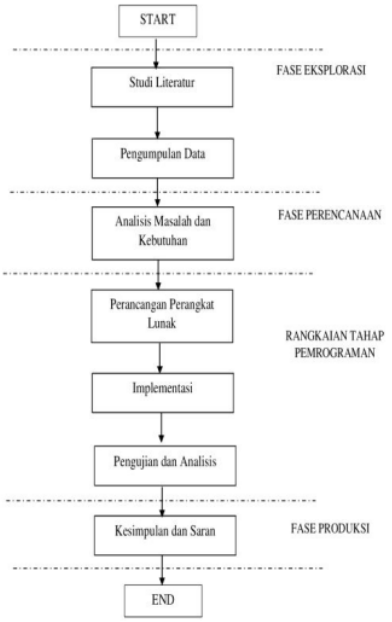


Figure 1. Research Stages

B. Development Method

The development method used is the prototyping model , [14] argues that the proto-typing process begins by gathering customer needs for creating the software. Next, a prototype program is designed so that customers can better visualize what they want; then it is evaluated by the customer or user until details are found that are in sync with the customers wishes. Prototyping method steps:

System Planning

In this stage, the system developer designs the system interface to be built. This step is crucial for understanding customer interests in the system. At this stage, the Smart School application design is impelemented from the website that will be built.

Needs Analysis

At this stage, an analysis of what is

needed to expand the information system is carried out. At this point, there needs to be communication between system users and developers regarding what is required.

System Evaluation

This step is a negotiation phase between the system developer and the user., to understand whether the function carried out by the developer is by the users wishes or not. At this stage, the developer must understand and know the users needs for the system.

Cryptographic Systems

After knowing the needs and functionality of the Smart School application, the next step is to implement it in code form until it becomes a mandatory system. This system uses a MySQL database.

Here is the proto-type model cycle:

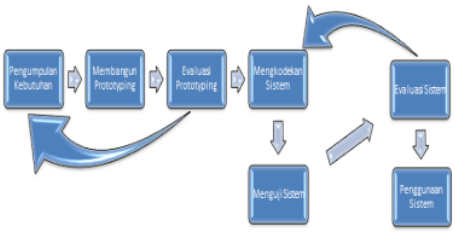


Figure 2. Prototyping Model Cycle

C. Data Collection Techniques

Maintenance

Interview data collection is a method of collecting data through direct interviews with related people in the academic department. Interviews were conducted by sources in the management environment so that valid data was obtained [15].

Observe

Data collection by observation is a way of collecting data through direct observation and recording. Learn everything about the current system. Observe directly the existing Smart School process system.

Document

It is a method of collecting theoretical data by reading, taking notes, and quoting from books and journals as a basis for research preparation [16].

RESULTS AND DISCUSSION

This section explains how to produce program results by showing an example form. Deployment is the stage where the system is ready to be activated in reality, so that it can be found that the system has been created to achieve the required goals. System implementation is based on use case design and system appearance [17].

Implementation program

1. Home page

This is an image showing the main page of the SDIT Mandiri Smart School website.

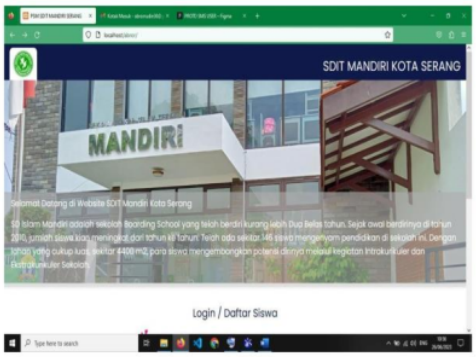


Figure 3. Main Page

2. Student Registration Page

Displays a registration page so students can move on to the next page.

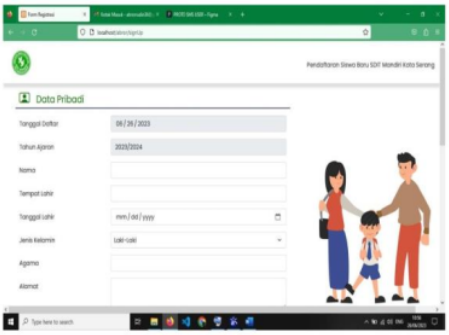
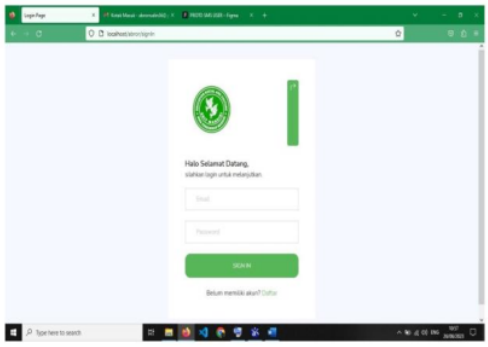


Figure 4. Registration Page

3. Student and admin login page

Displays the login page that students and administrators use with their username and password so they can access the home page.



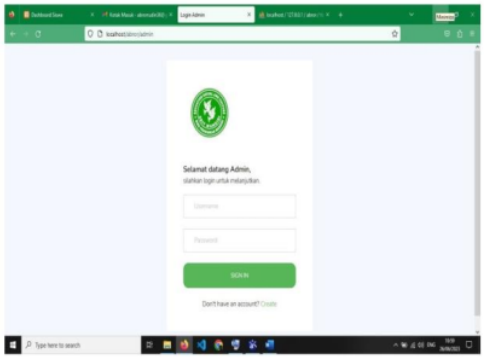


Figure 5. Student and admin login

4. Administrator Dashboard Page

The initial form view is the one an application administrator uses to respond to other forms.

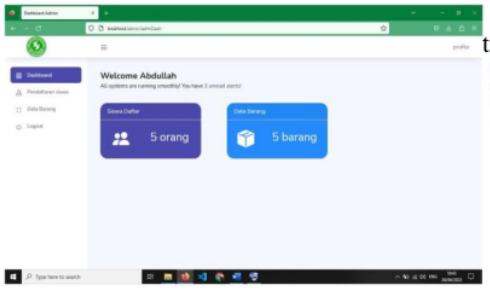


Figure 6. Admin Dashboard Page

5. Student registration report page

Display the reporting page for those who have registered and completed the required documents. On this page, administrators and principals can view the document.

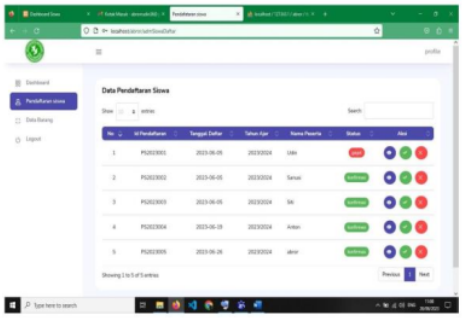


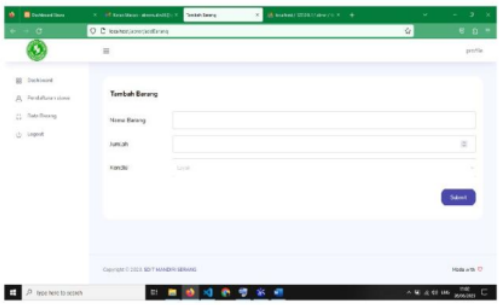
Figure 7. Report Page

6. Goods data collection report page
Viewing reports that collect data entered by adminstrators and school principals allows you to see the results.

Figure 8. Goods Data Collection Page

7. Add item data page

Displays an input page for administrators to enter warehouse data.



Gambar 9. Add Item Data Page

CONCLUSION

Based on the results of the analysis and design, it can be concluded that the implementation of a web-based smart school application using a proto-type model allows rapid adaptation to changing needs and demands of the education system, making it easier for parents to register new students, helping officers collect data, item data more easily, to minimize the possibility of data loss. A prototype model can indetify potential problems or errors in advance, saving time and resources needed for improvements that can help create practical Smart School applications. In this way, the application used can increase efficiency, adaptability, stakeholder involvement and ultimately provide a better educational experience for all parties involved in the education system, especially at SDIT Mandiri.

IMPLEMENTATION SMART SCHOOL

ORIGINALITY REPORT

5%	3%	5%	2%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Cornelia Tri Wahyuni, Darius Antoni, Widya Cholil. "E-Warung Systems Development", 2022 International Conference on Informatics, Multimedia, Cyber and Information System (ICIMCIS), 2022 Publication	1%
2	turcomat.org Internet Source	1%
3	repository.unsoed.ac.id Internet Source	1%
4	ejournal.insuriponorogo.ac.id Internet Source	1%
5	Sri Restu Ningsih, Yolanda, Rosida Tiurma Manurung, Ahmad Bahtiar et al. "Information System Design E-Assignment in High School to Increase The Effectiveness of Learning", Journal of Physics: Conference Series, 2018 Publication	1%

Exclude quotes	Off	Exclude matches	Off
Exclude bibliography	Off		