Journal of Science and Social Research ISSN 2615 – 4307 (Print)
Nov 2024, VII (4): 1563 – 1569 ISSN 2615 – 3262 (Online)
Available online at http://jurnal.goretanpena.com/index.php/JSSR

IMPLEMENTATION OF DIGITAL REPORT SYSTEM APPLICATION IN VOCATIONAL HIGH SCHOOLS (SMK) BASED ON WEBSITE

Hanna Willa Dhany[1], Fahmi Izhari[2], Muhammad Davy Anggara Saragih[3]
Universitas Pembangunan Panca Budi, Medan
e-mail: hdhany@dosen.pancabudi.ac.id

Abstract: *Quality education requires an efficient and accurate evaluation system, one of which is through report cards that reflect student achievement. At SMK PAB 5 Kelambir Lima, report card management is still done manually, which often causes problems such as recording errors, delays in distribution, and difficulties in data access. To overcome this problem, a web-based digital report card system is needed that can improve efficiency and accuracy in managing student grades. This study aims to design and implement a digital report card system application that can facilitate the process of inputting, storing, and managing student report card data at SMK PAB 5 Kelambir Lima. This system is designed using web technology, allowing easy access for teachers and students, and providing more transparent and real-time reporting features. The results of this study indicate that the implementation of a web-based digital report card system application can accelerate the process of managing student report cards, minimize recording errors, and increase transparency in assessment. With this system, it is hoped that the quality of educational administration services can improve, thus supporting the development of student achievement more effectively.*

Keywords: *Digital Report System, SMK PAB 5, Value Management, Web-Based Application*

Abstrak: Pendidikan yang bermutu memerlukan sistem evaluasi yang efisien dan akurat, salah satunya melalui rapor yang mencerminkan prestasi siswa. Di SMK PAB 5 Kelambir Lima pengelolaan rapor masih dilakukan secara manual sehingga sering menimbulkan permasalahan seperti kesalahan pencatatan, keterlambatan distribusi, dan kesulitan akses data. Untuk mengatasi permasalahan tersebut diperlukan sistem rapor digital berbasis web yang dapat meningkatkan efisiensi dan akurasi dalam pengelolaan nilai siswa. Penelitian ini bertujuan untuk merancang dan mengimplementasikan aplikasi sistem rapor digital yang dapat mempermudah proses penginputan, penyimpanan, dan pengelolaan data rapor siswa di SMK PAB 5 Kelambir Lima. Sistem ini dirancang dengan menggunakan teknologi web, memberikan kemudahan akses bagi guru dan siswa, serta menyediakan fitur pelaporan yang lebih transparan dan real-time. Hasil penelitian ini menunjukkan bahwa penerapan aplikasi sistem raport digital berbasis web dapat mempercepat proses pengelolaan raport siswa, meminimalkan kesalahan pencatatan, dan meningkatkan transparansi dalam penilaian. Dengan sistem ini diharapkan mutu pelayanan administrasi pendidikan dapat meningkat sehingga mendukung pengembangan prestasi peserta didik dengan lebih efektif.

Kata kunci: Sistem Laporan Digital, SMK PAB 5, Manajemen Nilai, Berbasis Web Aplikasi

INTRODUCTION

Good education management cannot be separated from an effective evaluation system, one of which is through report cards. Report cards are important documents that reflect students' academic achievements and are a reference for parents in monitoring their children's learning development. At SMK

PAB 5 Kelambir Lima, the report card management process is still carried out manually, which includes recording grades, compiling reports, and distributing them to students and parents. This method often faces various obstacles, such as errors in recording grades, delays in issuing report cards, and difficulties in accessing accurate and up-to-date data. (Izhari & Dhany, 2023)(Hendrawan, Perwitasari, & Ritonga, 2023)(Syahputra Novelan & Putra, 2020)

Along with the development of information technology, many educational institutions have begun to switch to digital systems to improve efficiency and accuracy in managing academic data. The implementation of a web-based digital report card system application can be the right solution to the problems faced at SMK PAB 5 Kelambir Lima. With this system, the process of inputting, storing, and managing student grades can be done automatically and in an integrated manner, thereby reducing the risk of errors and increasing the speed of report card issuance. (Rizal & Fachri, 2023) (Rizal et al., 2022) (Septian Hardinata et al., 2022)(Supiyandi et al., 2022)(Bangun Sistem et al., 2019)

In addition, the digital report card system also provides easy access for teachers, students, and parents to see academic developments. Features such as real-time reports and transparent data access will support better communication between the school and parents. This in turn is expected to increase student learning motivation and support efforts to improve the quality of education at SMK PAB 5 Kelambir Lima. (Hendrawan, Perwitasari, & Arifin, 2023)(Tasril, 2018)(Hasan Putra & Syahputra Novelan, n.d.)

Based on this background, this study aims to design and implement a web-based digital report system application that can help manage student report data more effectively and efficiently. With this system, it is expected that the quality of educational administration at SMK PAB 5 Kelambir Lima can increase, as well as provide a positive impact on student achievement.. (Fachri, 2018)(Informatika & Hasan, n.d.)(dan Pembuatan Aplikasi Manajemen Peminjaman Kendaraan Berbasis Web Dengan et al., n.d.)

METHOD

This study uses a development method called Agile, which is a development method from the approach used in descriptive-qualitative research. This method is a software development process that is carried out sequentially, where progress is seen as water that continues to flow down (like a waterfall) through the planning, modeling, implementation (construction) and testing phases.. (Rahmat et al., 2019)

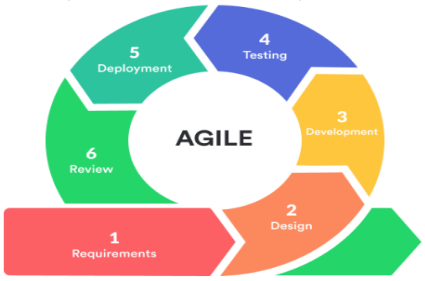

Figure 1. Method Agile

Based on Figure 3.1, the following is an explanation of each process of the Agile Software Development method, including:

1. *Requirement*
   This stage begins with listening to a collection of system activity requirements that allow users to understand the business processes for the system and get a clear picture of the main features, functionality and desired output. In the development of a web application, the selection of job training participants at this stage begins with identifying problems that arise in the running system, then an analysis of user needs for the system to be built is carried out.(Penjualan Online Berbasis Website et al., 2019)
2. *Design*

Journal of Science and Social Research ISSN 2615 – 4307 (Print)
Nov 2024, VII (4): 1563 – 1569 ISSN 2615 – 3262 (Online)
Available online at http://jurnal.goretanpena.com/index.php/JSSR

At this stage, the system design process is used to change the above needs into a representation in the form of a software blueprint before coding begins. The design stage involves designing a system where we will provide solutions to problems that arise at the analysis stage. (Fauzi Siregar & Sari, 2018)

3. Development
   This stage is the stage of developing a system to the coding stage to implement it based on the requirements and design that have been carried out in the previous stage to produce software.
4. Testing
   Something that is made must be tested. Likewise, software, all software functions must be tested carefully so that the software is free from errors, and the results must be truly in accordance with the needs that have been defined in the previous stage. The testing stage is also a stage that determines whether the design that has been made is in accordance with user needs or not. The purpose of this test is to minimize website design defects so that the system that is developed can really run as well as possible. This test will be carried out by interviewing several people as testers to assess whether the system created is in accordance with needs.
5. Deployment
   This stage hands over the system that has been created for use to end-users by launching it by providing a domain to the system that has been created.
6. Review
   This stage is a stage to ensure that it is running well and to ensure that the system is safe from bugs/system loopholes.

System Design

Use case is a modeling that displays the flow of the digital report application system in vocational high schools. The use case design can be seen in the image below.

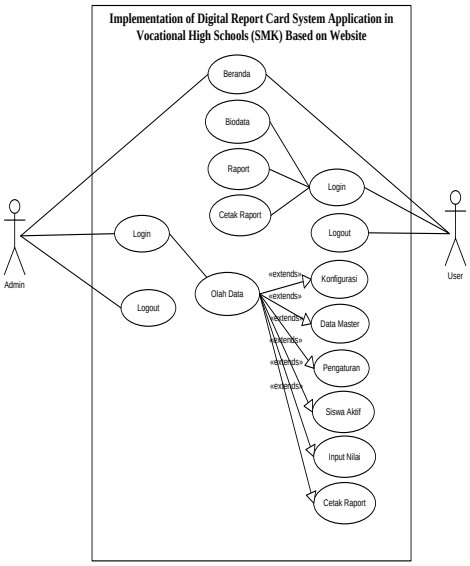

Figure 2. Research Use Case Diagram

1. *Activity Diagram*

Activity Diagram explains the activities carried out by the user on the system. This diagram will explain how the information system process interacts with the user. Figure 3 is an Activity Diagram of the designed system.

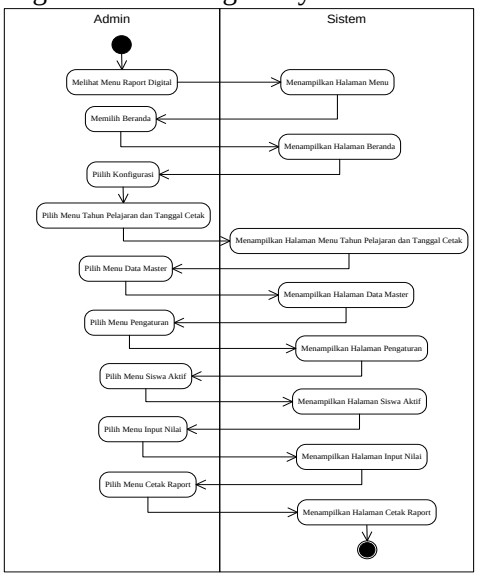

Figure 3. Activity Diagram Admin

From the image above explains how the admin account is active in running its system. There are several menus that can be accessed by the admin, namely the configuration menu, master data, settings, active students, input values and print

Journal of Science and Social Research ISSN 2615 – 4307 (Print)
Nov 2024, VII (4): 1563 – 1569 ISSN 2615 – 3262 (Online)
Available online at http://jurnal.goretanpena.com/index.php/JSSR

report cards. Next, it will be shown how the user activity process is in using this digital report card application. Figure 4 shows the user activity diagram process.

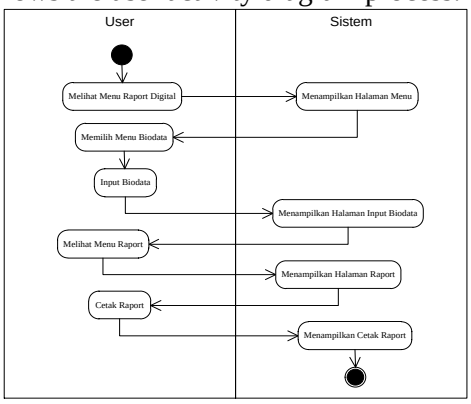

Figure 4. Activity Diagram User

2. Sequance Diagram

Sequence Diagram is a sequence of activities carried out by the admin in running the digital report system application in vocational high schools (SMK) based on the website. Figure 5 is the admin sequence diagram used in this study.

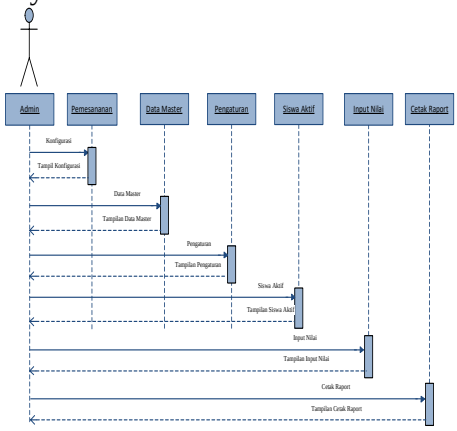

Figure 5. Sequance Diagram

RESULTS AND DISCUSSION

The results and discussion are the results of the implementation of the Design of a Digital Student Report Information System at SMK PAB 5 Based on a Website. The author conducted a trial using data provided by the company. However, before conducting the test, there are several device requirements for the information system.

Home Menu Display

On the home menu page is the admin home menu display when after the admin logs in, the front page containing school profile data will be displayed. The admin home menu is displayed in the image below.

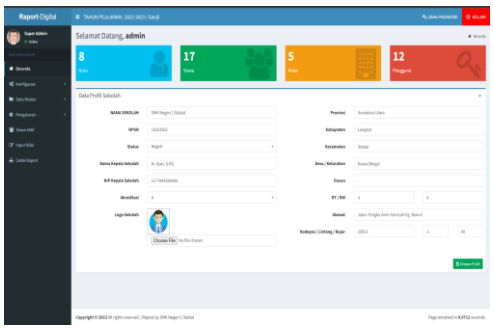

Figure 6. Home Menu Page View

Admin Configuration Menu Display

On the admin configuration menu display is a page where the admin configures the school year that is implemented and manages the current semester. To see the configuration display on the admin menu can be seen in the image below.

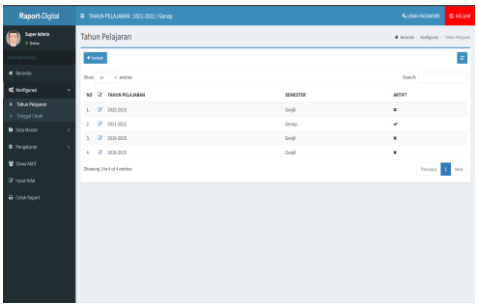

Figure 7. Admin Configuration Menu View

Master Data Menu Display

In the master data menu there are several sub menus in it in the form of teacher, student, class, subject, and user menus. As for each of these data is data that will be registered on the digital report account. To see the master data menu, it can be displayed in Figure 8 Master data menu display below.

Journal of Science and Social Research ISSN 2615 – 4307 (Print)
Nov 2024, VII (4): 1563 – 1569 ISSN 2615 – 3262 (Online)
Available online at http://jurnal.goretanpena.com/index.php/JSSR

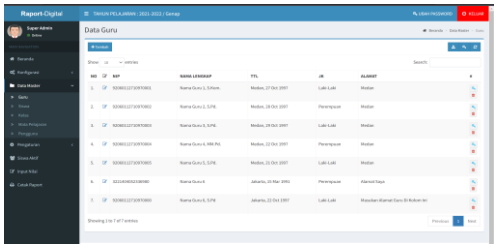

Figure 8. Master Data Menu View

Settings Menu Display

On the settings menu page, there are several menus in it in the form of teaching and homeroom teacher settings. For teaching settings, the admin inputs subjects according to the field of knowledge of each teacher. For the homeroom teacher menu, this is also data where the admin also inputs data on teachers who are made homeroom teachers in each class that has been determined. For the teacher's teaching settings page, it can be seen in Figure 9 and the homeroom teacher settings page can be seen in the image below.

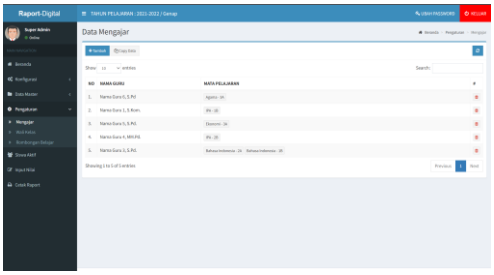

Figure 9. Teaching Settings View

Active Student Menu Display

On the active student menu page, the admin inputs the master data of active and inactive students, which will then appear in the active student menu. The active student menu page can be seen in the image below.

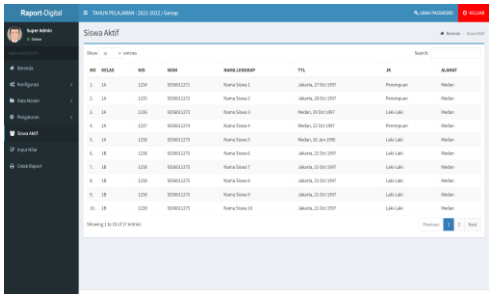

Figure 10. Active Student Menu View

Input Value Display

On the value input page, this is where the homeroom teacher gives a value with the operator, then the operator will input the value for each subject. The value input display can be seen in the image below.

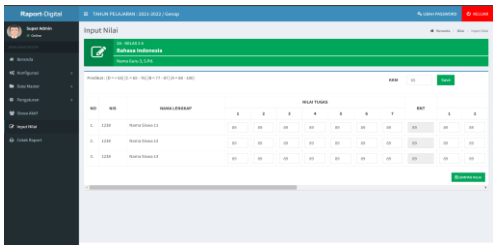

Figure 11. Value Input View

Report Card Print View

On the report card print display is a design where the admin has also completed the report card data and grades, then the admin can print the report card. For the report card print design, it can be seen in the image below.

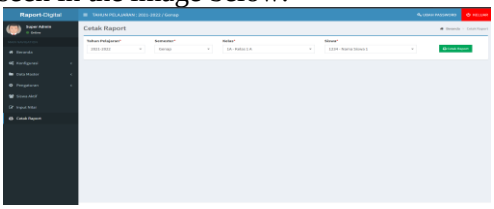

Figure 12. Report View

CONCLUSION

The implementation of the Digital Student Report Information System at SMK PAB 5 has several conclusions that can be presented, including:

1. The implementation of a web-based digital report system application has succeeded in increasing the efficiency of student grade data management. The process of recording, storing, and distributing report cards can be done automatically and integrated, thus reducing the time and effort required compared to manual methods.
2. The digital report card system allows real-time access to information on students' grades and academic progress for teachers, students, and

parents. This supports transparency in assessment and makes it easier for related parties to monitor academic performance accurately and in a timely manner.

3. With a structured and efficient information system, schools can more easily identify the potential and obstacles faced by students in the learning process. This allows schools to provide appropriate interventions, which ultimately contribute to improving students' academic achievement in vocational schools.

BIBLIOGRAPHY

Agung Saputro, M. (2022). RANCANG BANGUN SISTEM RAPORT DIGITAL BERBASIS JAVA (D-RAPORT) DI SDN SUKATANI 03 DEPOK. In Jurnal TEKNOINFO (Vol. 16, Issue 1).

Amin, M., Rizal, C., Rama Sanjaya, A., & Info, A. (2022). http://infor.seaninstitute.org/index.php/infokum/index INFOKUM is licensed under a Creative Commons Attribution-Non Commercial 4.0 International License (CC BY-NC 4.0) ANALYSIS OF GEOGRAPHIC INFORMATION DESIGN FOR HOTEL LOCATIONS IN LAU GUMBA VILLAGE BASED ON ANDROID. JURNAL INFOKUM, 10(2). http://infor.seaninstitute.org/index.php/infokum/index

Fachri, B. (2018). PERANCANGAN SISTEM INFORMASI IKLAN PRODUK HALAL MUI BERBASIS MOBILE WEB MENGGUNAKAN MULTIMEDIA INTERAKTIF. Jurnal Riset Sistem Informasi Dan Teknik Informatika (JURASIK), 3, 98–102. http://tunasbangsa.ac.id/ejurnal/index.php/jurasik

Fauzi Siregar, H., & Sari, N. (2018). Rancang Bangun Aplikasi Simpan Pinjam Uang Mahasiswa Fakultas Teknik Universitas Asahan Berbasis Web. Jurnal Teknologi Informasi, 2(1).

Hasan Putra, P., & Syahputra Novelan, M. (n.d.). PERANCANGAN APLIKASI SISTEM INFORMASI BIMBINGAN KONSELING PADA SEKOLAH MENENGAH KEJURUAN. Jurnal Teknovasi, 07, 1–7.

Hastriyandi, H. (2018). PENERAPAN SISTEM PEMASARAN BERBASIS ONLINE PADA PRODUK BADAN USAHA MILIK DESA (BUMDES) “USAHA BERSAMA” DESA SEBAYAN

Hendrawan, J., Perwitasari, I. D., & Arifin, D. (2023). DIGITALISASI USAHA MIKRO KECIL DAN MENENGAH DI DESA MELALUI APLIKASI KEDE DESA BERBASIS WEB. In Jurnal Jaringan Sistem Informasi Robotik (JSR) (Vol. 7, Issue 1). http://ojsamik.amikmitragama.ac.id

Hendrawan, J., Perwitasari, I. D., & Ritonga, R. S. (2023). SISTEM INFORMASI SISKAMLING UNTUK MEWUJUDKAN DESA DIGITAL. Jurnal Indonesia : Manajemen Informatika Dan Komunikasi, 4(2), 652–661. https://doi.org/10.35870/jimik.v4i2.263

Hidayatun, N. (2016). PROBLEM SOLVING SISTEM PENGGAJIAN KARYAWAN DALAM MANAJEMEN OPERASIONAL KOMPUTER MENGGUNAKAN PENDEKATAN SISTEM. In Indonesian Journal on Computer and Information Technology (Vol. 1, Issue 2).

Izhari, F., & Dhany, H. W. (2023). Journal of Intelligent Decision Support System (IDSS) Optimizing Urban Traffic Management Through Advanced Machine Learning: A Comprehensive Study. In Journal of Intelligent Decision Support System (IDSS) (Vol. 6, Issue 4).

Novia Satriana, D., Yasin, V., & Sianipar,

A. Z. (n.d.). PERANCANGAN APLIKASI PENGELOLAAN BUKU INDUK SISWA BERBASIS WEB MENGGUNAKAN MODEL WATERFALL PADA SDN RAWAMANGUN 09. Jurnal Widya, 2(2), 90–101. https://jurnal.amikwidyaloka.ac.id/index.php/awl

Oktavia, E., Hidayat, R., Informasi, T., D4, P., Rekayasa, T., Lunak, P., & Padang, P. N. (2020). Pengembangan Sistem Informasi Industri Jasa Menjahit Online Berbasis Web Menggunakan Metode Waterfall. In JISKa (Vol. 5, Issue 2).

Penjualan Online Berbasis Website, S., Susena, E., & Budi Santoso, T. (2019). ELTI Jurnal Elektronika, Listrik dan Teknologi Informasi Terapan (Vol. 1, Issue 1). https://ojs.politeknikjambi.ac.id/elti

Rizal, C., & Fachri, B. (2023). RESOLUSI : Rekayasa Teknik Informatika dan Informasi Implementasi Model Prototyping Dalam Perancangan Sistem Informasi Desa. Media Online, 3(3), 211–216. https://djournals.com/resolusi

Rizal, C., Supiyandi, S., Zen, M., & Eka, M. (2022). Perancangan Server Kantor Desa Tomuan Holbung Berbasis Client Server. Bulletin of Information Technology (BIT), 3(1), 27–33. https://doi.org/10.47065/bit.v3i1.255

Salem, Muh. A., & Samad, Y. A. (2021). Implementasi Penilaian Hasil Belajar Siswa Berbasis Aplikasi Raport Digital (ARD) Di MTs Negeri Kota Kupang. SATESI: Jurnal Sains Teknologi Dan Sistem Informasi, 1(2), 79–84. https://doi.org/10.54259/satesi.v1i2.40

Septian Hardinata, R., Sulistianingsih, I., Wijaya, R. F., & Rahma, A. M. (2022). PERANCANGAN SISTEM INFORMASI PELAYANAN REKAM MEDIS MENGGUNAKAN METODE DESIGN THINKING (Studi kasus : PUSKESMAS SIMEULUETENGAH) DESIGN OF MEDICAL RECORD SERVICE INFORMATION SYSTEM USING THE DESIGN THINKING METHOD (Case study: PUSKESMAS SIMEULUE TENGAH). Journal of Information Technology and Computer Science (INTECOMS), 5(2).

Sriwidya Lafu, L. (2021). IMPLEMENTASI SISTEM PENJUALAN ONLINE BERBASIS E-COMMERCE PADA USAHA UKM IKE SUTI MENGGUNAKAN METODE WATERFALL IMPLEMENTATION OF ONLINE SALES SYSTEM BASED ON E-COMMERCE IN UKM BUSINESSES IKE SUTI USING THE WATERFALL METHOD. In JOURNAL OF INFORMATION AND TECHNOLOGY UNIMOR.

Supiyandi, S., Zen, M., Rizal, C., & Eka, M. (2022). Perancangan Sistem Informasi Desa Tomuan Holbung Menggunakan Metode Waterfall. JURIKOM (Jurnal Riset Komputer), 9(2), 274. https://doi.org/10.30865/jurikom.v9i2.3986

Syahputra Novelan, M., & Putra, P. H. (2020). Penerapan Aplikasi Resep Makanan Khas Toba Berbasis Android. In Prosiding Seminar Nasional Sains dan Teknologi Terapan (Vol. 3, Issue 1).

Tasril, V. (2018). Sistem Pendukung Keputusan Pemilihan Penerimaan Beasiswa Berprestasi Menggunakan Metode Elimination Et Choix Traduisant La Realite. INTECOMS: Journal of Information Technology and Computer Science, 1(1), 100–109. https://doi.org/10.31539/intecoms.v1i1.163