# Web-Based Immunirec Information System As A Digitalization Innovation Of The Pink Book To Improve Effectiveness And Efficiency In Immunization Data Recording

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**Abstract:** The pink book is a book commonly used as a medium for recording the immunization data of infants and children in Indonesia. This book has long been an important part of the healthcare service process. Some benefits of the pink book include recording a child's development from birth and being required as proof of health history for school registration purposes. The research method used in this study is a descriptive method with a qualitative approach, namely conducting interviews with healthcare workers to understand the immunization data recording process carried out at one of the independent midwife practices as a basis for creating a digital-based immunization data recording system. The results obtained include several findings relevant to the objectives of this study, such as reduced recording time, increased data accuracy, and ease in the reporting process. Based on the research results, the implementation of the Web-Based Immunirec Information System as a digitalization innovation of the Pink Book to improve the effectiveness and efficiency in recording immunization data shows a very good improvement in the process of recording and generating immunization data reports.

## INTRODUCTION

The pink book is a book commonly used as a medium for recording immunization data for infants and children in Indonesia; it has long been an important part of the healthcare service process. Some benefits of the pink book include recording a child's development from birth and being required as proof of health history for school registration purposes. However, the use of physical notes in this pink book has several limitations. One of the main issues is the risk of losing or damaging the book, which can result in the loss of information or immunization history. In addition, physical books require additional administrative effort from healthcare workers in data management and recording.

With the development of information technology, there is an opportunity to

overcome the limitations of the pink book through the digitalization of immunization data by creating an immunization data recording information system. Digital transformation in the healthcare sector provides better data accessibility for healthcare workers in the immunization data recording process. Digital systems enable better and more secure data recording and storage, while minimizing the risk of data loss. The role of technology greatly assists in the process of human daily life. Due to the rapidly increasing demand for data, computer-operated data processing systems make it easier for users to perform computerized data processing.

## RESEARCH METHODS

Research is a systematic and structured process conducted to obtain knowledge or solutions to a problem. In the context of this research, the research stages consist of the stages that are passed through in the completion of the research. Whatever the stages of the research, they can be seen in the following figure 1.

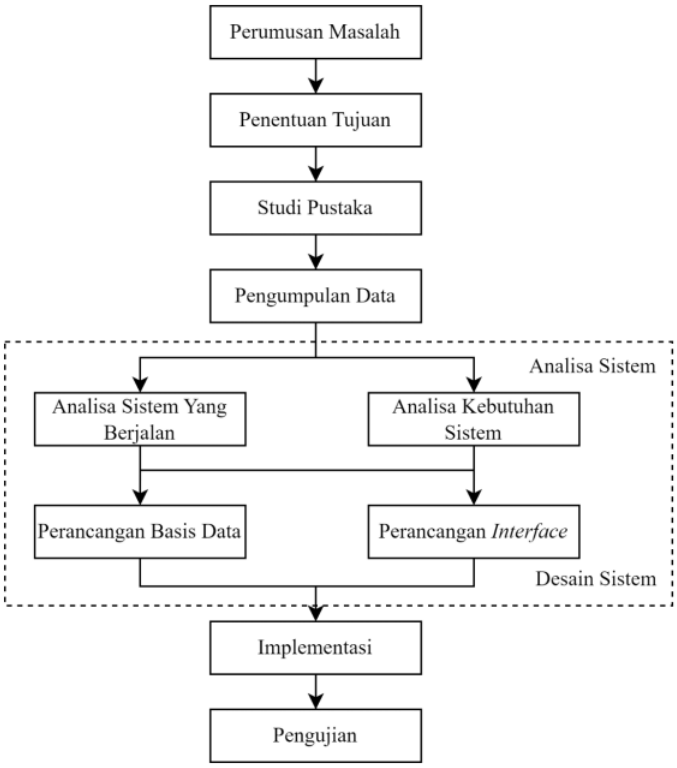



figure 1. Research Stages

The research activities are carried out in several stages as shown in Figure 1. The expected outcome is a web-based public information management system to facilitate the North Padang Lawas District Attorney's Office in managing and displaying public

information.

Here are some steps that need to be taken to achieve optimal results :

1. Problem formulation is the determination of the problem to be solved.
2. Determining the objectives is the direction of the research to be conducted and determines the direction of the application to be built.
3. Literature review is the search for resources related to the topic of the problem. Sources can be obtained from books, ebooks, articles, journals, or the internet that can help in finding materials related to the method.
4. Data collection was conducted by interviewing a healthcare worker at an independent midwife practice to obtain the necessary data.
5. Analysis of the current system is useful for comparing and identifying the shortcomings of the previous system, thus serving as a reference for improving the system to be built.
6. System requirements analysis is the determination of problem-solving techniques and identifying what is needed to build a new system after comparing it with the previous system.
7. Database design is the process of determining the tables needed as storage for data and information from the system to be built.
8. Interface design aims to determine the flow of communication between the user and the system.
9. System implementation is the stage of development work that has been previously designed.
10. Testing is a stage conducted to evaluate the functionality of the system.

**Research Design**

After identifying the existing problems, the next step is to carry out the system design process. System design can be defined as the depiction, planning, and sketching of the system to be created. The design of this system uses UML (Unifined Modeling Language)

a. Use Case Diagram

Below is the Use Case Diagram of the Web-Based Immunirec Information System as an Innovation in the Digitalization of the Pink Book to Improve the Effectiveness and Efficiency of Immunization Data Recording.

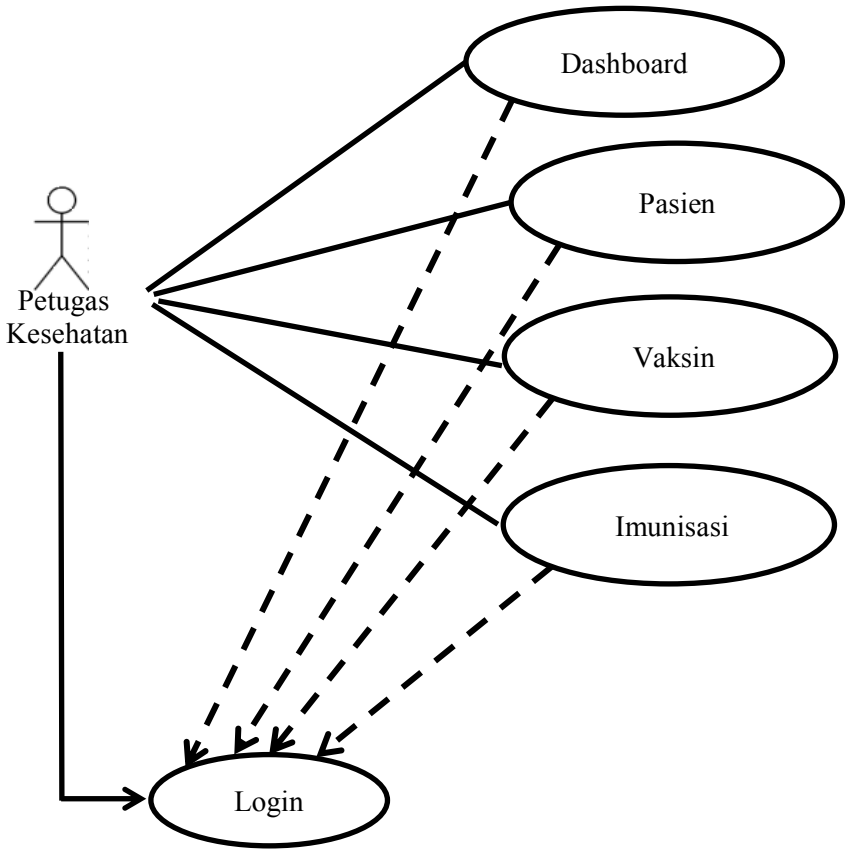



figure 2. Use Case Diagram

b. Activity Diagram

The following is the Activity Diagram of the Web-Based Immunirec Information System as a Digitalization Innovation of the Pink Book to Improve the Effectiveness and Efficiency of Immunization Data Recording.

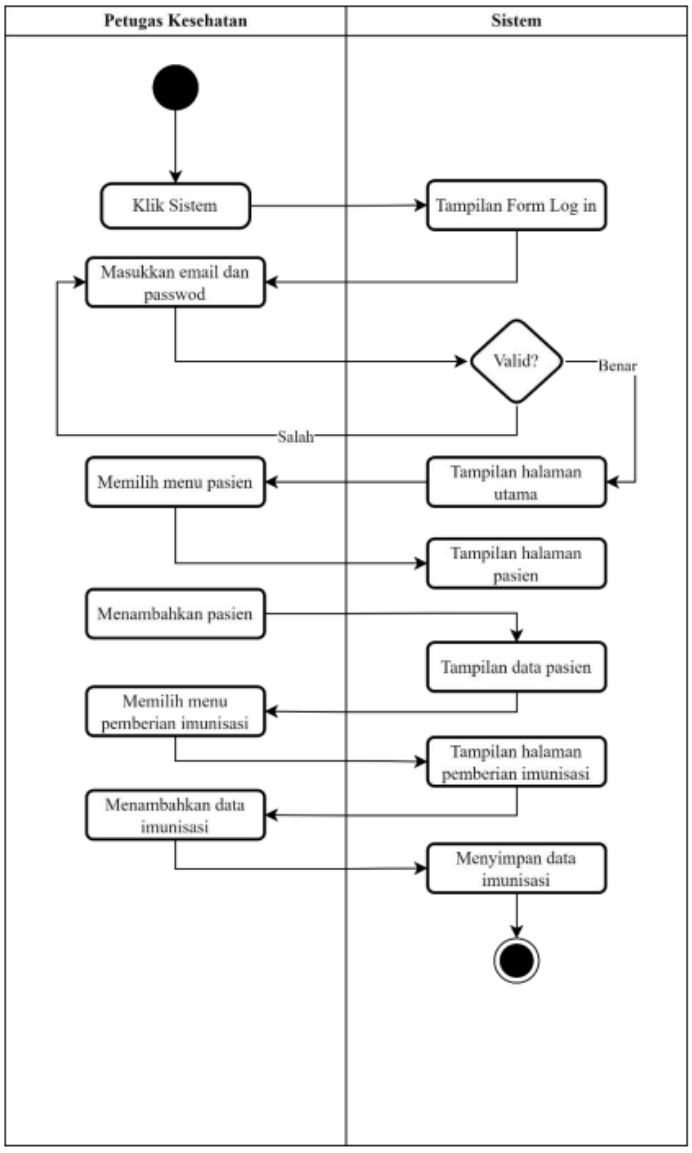



figure 3. Activity Diagram

## RESULTS AND DISCUSSION

In this section, the results obtained from the research on digitalization innovations in immunization data recording will be presented. This digitization process aims to enhance the effectiveness and efficiency in recording, managing, and reporting immunization data. Some findings relevant to the objectives of this research include a reduction in recording time, an increase in data accuracy, and ease in the reporting process. The following is the interface of the Web-Based Immunirec Information System as a

digitalization innovation of the Pink Book to improve the effectiveness and efficiency in recording immunization data.

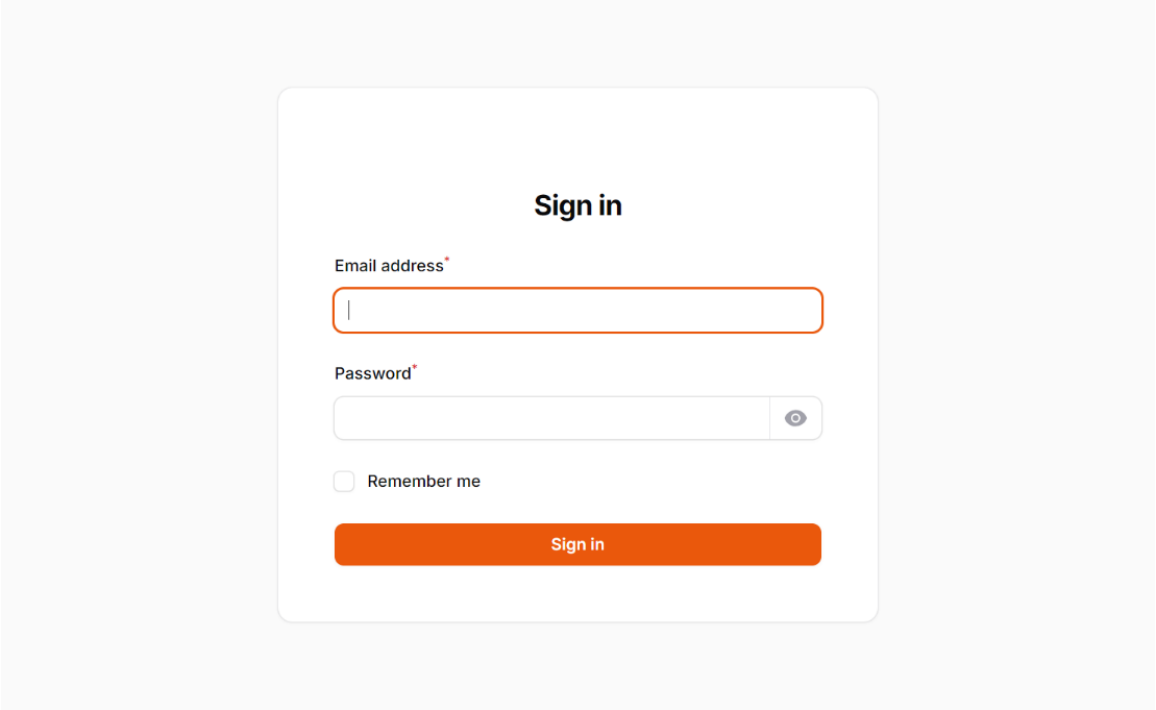



figure 4. Login Page Display

The login page is the first page that appears when users open the application. This page aims to ensure that only registered users can access the Web-Based Immunirec Information System as a Digitalization Innovation of the Pink Book to Improve the Effectiveness and Efficiency in Recording Immunization Data.

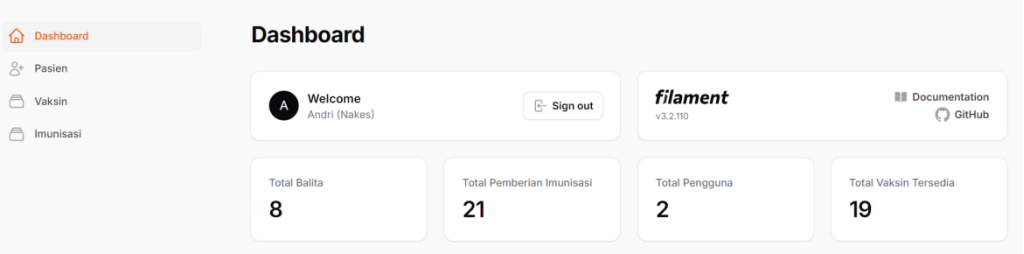
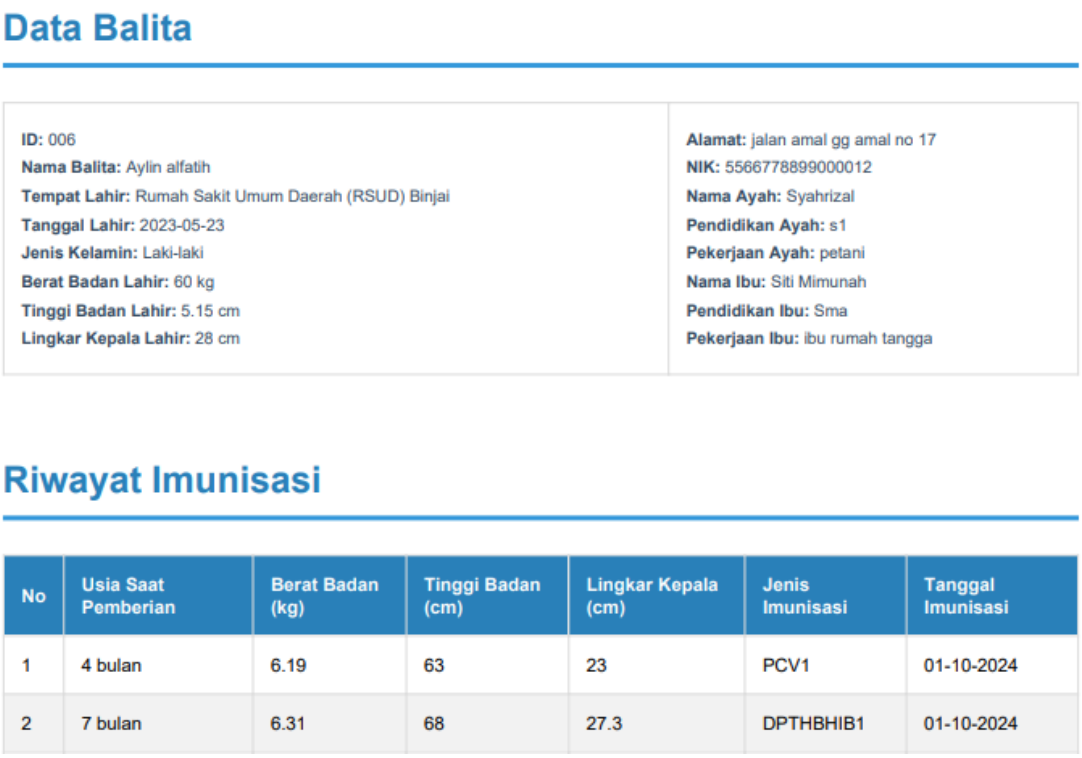



figure 5. Dashboard View

The dashboard is the main page displayed after login. This page serves as a control for users to access various application features.



## Data Balita

**ID:** 006
**Nama Balita:** Aylin alfatih
**Tempat Lahir:** Rumah Sakit Umum Daerah (RSUD) Binjai
**Tanggal Lahir:** 2023-05-23
**Jenis Kelamin:** Laki-laki
**Berat Badan Lahir:** 60 kg
**Tinggi Badan Lahir:** 5.15 cm
**Lingkar Kepala Lahir:** 28 cm

**Alamat:** jalan amal gg amal no 17
**NIK:** 5566778899000012
**Nama Ayah:** Syahrizal
**Pendidikan Ayah:** s1
**Pekerjaan Ayah:** petani
**Nama Ibu:** Siti Mimunah
**Pendidikan Ibu:** Sma
**Pekerjaan Ibu:** ibu rumah tangga

## Riwayat Imunisasi

| No | Usia Saat Pemberian | Berat Badan (kg) | Tinggi Badan (cm) | Lingkar Kepala (cm) | Jenis Imunisasi | Tanggal Imunisasi |
|---|---|---|---|---|---|---|
| 1 | 4 bulan | 6.19 | 63 | 23 | PCV1 | 01-10-2024 |
| 2 | 7 bulan | 6.31 | 68 | 27.3 | DPTHBHIB1 | 01-10-2024 |

figure 6. Immunization History View

## CONCLUSION

This research aims to explore the application of digitalization in the immunization data recording system, replacing the conventional use of the Pink Book. Based on the research results, the implementation of the Web-Based Immunirec Information System as an Innovation in Digitalizing the Pink Book to Improve the Effectiveness and Efficiency in Immunization Data Recording shows a significant improvement in the data recording and reporting process. The use of the Web-Based Immunirec Information System as an Innovation in Digitalizing the Pink Book to Improve the Effectiveness and Efficiency in Immunization Data Recording is considered easier due to its user-friendly interface. Additionally, the use of the system provides convenience to health workers in managing data and can minimize errors..

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