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Development of Posyandu (Pos Pelayanan Terpadu) Information System

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Abstract:
Data management and information dissemination of Posyandu in Wanasari village, Brebes Regency is done manually. Data management is done by recording data into books, and the information is disseminated through oral. This method is not efficient because it causes difficulties in processing data and information of Posyandu. To overcome this problem, a website information system was created with exploiting the SMS (short message service). The website is used to display posyandu participant data or information, while the SMS gateway is used to send messages automatically to participants. The test results using the black-box method have not found a problem. Thus the Posyandu Information System is made ready to be tested on the community of Wanasari village, Brebes Regency.

Keywords: Information system, Posyandu, black-box

I. INTRODUCTION

Posyandu is one form of Community-based Health [1]. Posyandu activities involve community participation in health service activities. Posyandu officers are local community cadres who have been trained by the Puskesmas [2]. Cadres are expected to bridge between health workers and the community [3]. One of the Posyandu in Brebes District, Central Java, is Posyandu Wanasari. Management of data management and delivery of information at the Posyandu is still manual. Data management is done by taking notes on books, while information on Posyandu is spread by word of mouth. By using manual methods, it requires a long time and data accuracy is not good. With the support of information technology, manual data processing work can be replaced with computer information systems [4].

One information system that can be used in Posyandu services is with a website. Several case studies have been completed using a website-based information system. The application of an information system for Posyandu cadres has been made in South Semarang District [5]. Other case studies; making Posyandu immunization information system in Jepara [6], development of a data information system for toddlers at Posyandu in Ploso village, Pacitan district [7], development of the Posyandu Information System for the Surabaya City Health Office [8], and the application of the Posyandu Mawar information system in the Simpang Empat village [9]. Other case studies related to public health have been completed by development and use a website-based information system. Such as; development of a Healthy Rembang Health Insurance Information System [10], development of Pakis Baru Nawangan Health Center management information system (MIS) [11], and development of a geographic information system (GIS) in Pelaihari sub-district health services [12].

Research or case study relating to the development or use of the web as a solution for processing or disseminating information on Posyandu has been carried out in several regions. However, the system is still not optimal. The public will find out information after opening the website provided. Then, people who cannot use the internet will get problems. Thus, the dissemination of information that is spread is not optimal.

The information system needed is a system that is able to provide information optimally. Besides being accessible through a website, the system created must be able to provide information for people who do not open the website. One way that can be done is to send an SMS gateway (short message service). An SMS gateway can send information automatically to the public. Some problems had solved by using the website and SMS gateway. Such as; making application-based

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communication and information media that can send SMS gateways at STMIK Pringsewu [13]. Desktop-based KB information system with SMS gateway at BPM Delima Tampubolon [14]. Web-based and SMS-gateway of Information system and data management to car course. [15]. This article contains the development of a web-based Posyandu information system by using the SMS gateway in a case study at Posyandu Wanasari, Brebes Regency.

II. RESEARCH METHOD

The research material used in making this information system is toddler data, posyandu schedule data, data no. Citizen cell, midwife data. Data analysis based on the results of data collection. The analysis is used as a reference for making the system. Thus, the system is made according to user needs.

The research method used is using the waterfall model. The Waterfall Model is a model that provides sequential or sequential software lifecycle approaches starting from analysis, design, coding, testing and supporting stages [16]. The stages of making the waterfall model software are shown in Figure 1 [17].

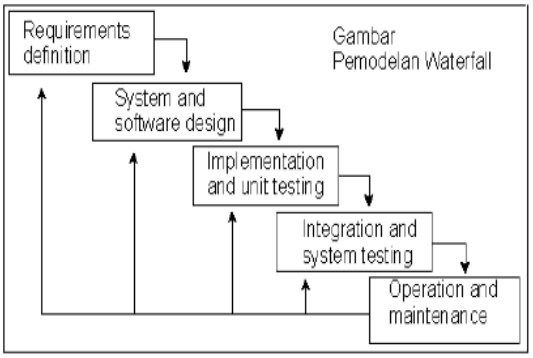

Figure 1. Waterfall's steps

The steps are taken only to arrive at implementation and testing. Integration and testing of systems and operations and maintenance have not been carried out. The research stages carried out are shown in Figure 2.

1. *Requirement definition*
   Requirement Definition is done by identifying problems and collecting data. Problem identification was carried out at Wanasari Posyandu, Brebes Regency. The method of data collection is carried out using interviews, observation, and literature studies. After the required data is collected, data analysis is performed. Data analysis is used to perform the application design stages and to find out whether the required data is sufficient or not..
2. *System and Software*
   This stage is done by making a system design. The system design is made by making UML (Unified Modeling Language). The UML made are; use case, activity, class, and sequence.
3. *Implementation and Testing*
   The implementation and testing phase is done by entering the code that is made in the programming language. After the system has been created, testing is done using the black-box method.

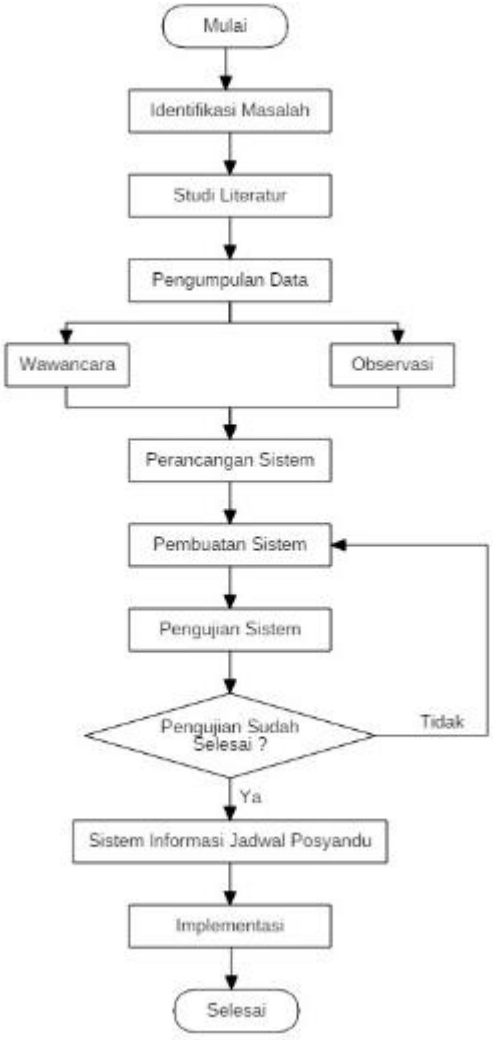

Figure 2. Research's steps

III. RESULT AND DISCUSSION

The results display the interface of the application that contains;

1. Home

This page contains general information about Wanasari Posyandu. In addition to general information, this page can also display baby development data by entering the code. The code used is the code given by Posyandu officers/cadres to users (mothers) when conducting checks at the Posyandu. This main page can be accessed by the public without the need to log in first.

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The general information page shown in Figure 3 and information on infant development data is shown in Figure 4.

Figure 3. Home Page

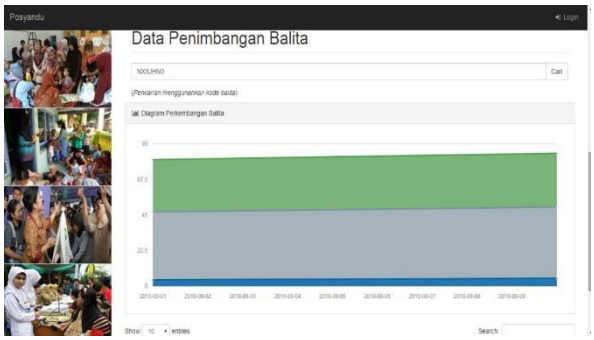

Figure 4. Infant information

2. Admin Page

The admin page is a page for posyandu officers / cadres. The admin page can only be accessed by posyandu officer's / cadres by first logging in as shown in Figure 5.

Figure 5. Page of log-in admin

After successfully log-in, the officer can access Posyandu data as shown in Figure 6. Posyandu data contains Posyandu data in the village of Wanasari.

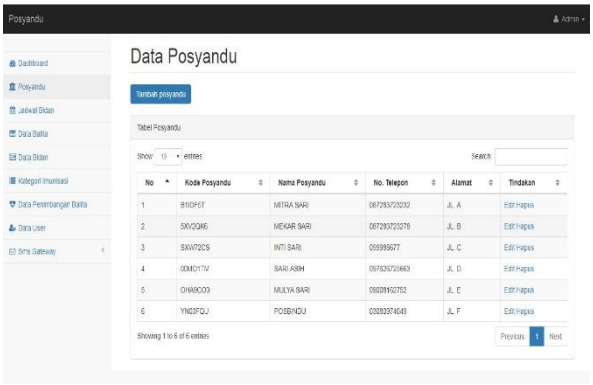

Figure 6. Posyandu data

In addition to the posyandu data, officers can also arrange posyandu schedule data such as Figure 7, manage toddler data such as Figure 8, add and reduce midwife data such as Figure 9, immunization data such as Figure 10, toddler and user weighing data such as Figure 11 and Figure 12.

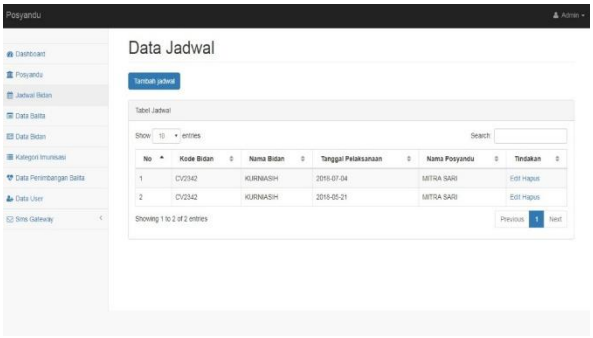

Figure 7. Schedule data settings

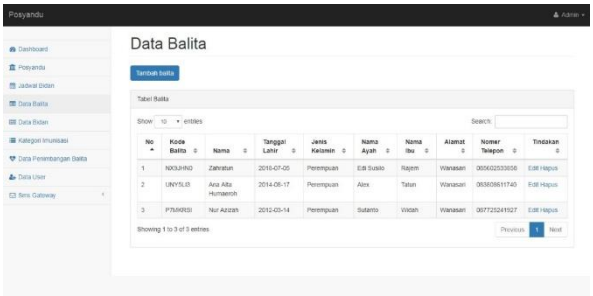

Figure 8. Data settings for infant

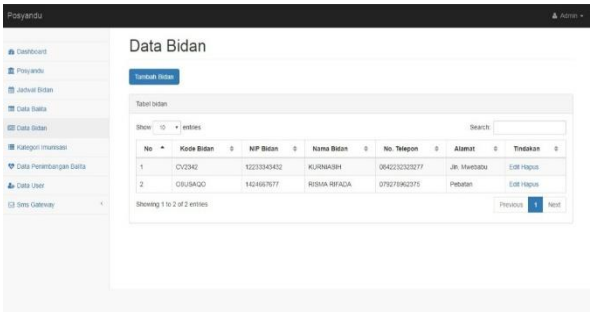

Figure 9. Data setting for Bidan

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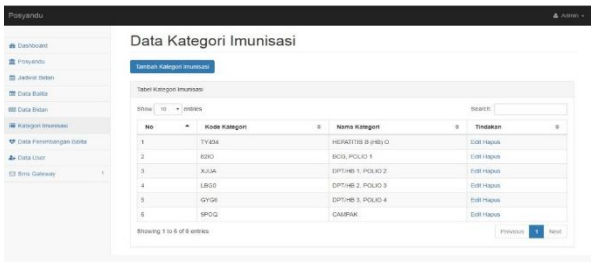

Figure 10. Data setting for immunization

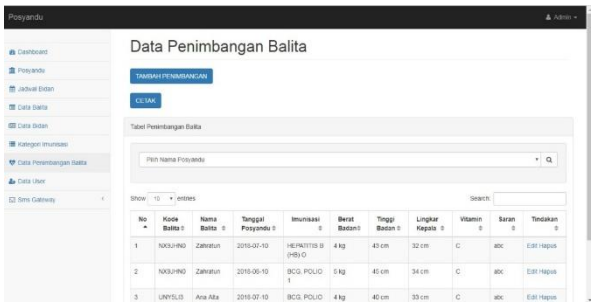

Figure 11. Baby weighing data

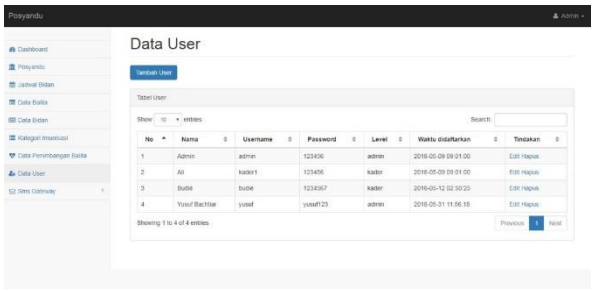

Figure 12. User data setting

In addition, the admin can send SMS automatically to the people who have registered. SMS sent according to the condition of each baby. Display of broadcast data and send broadcast are shown in Figure 13 and Figure 14. The broadcast data contain lists the destination numbers to be sent information. The send broadcast page contains the form used to write information that will be distributed to the public.

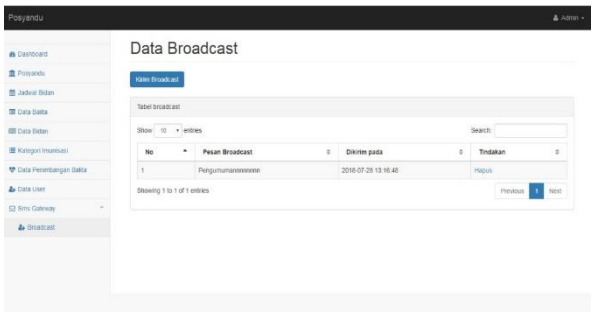

Figure 13. Broadcast data

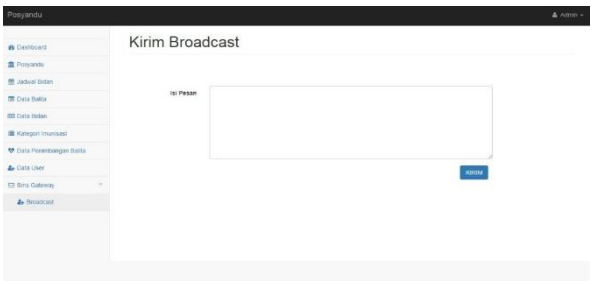

Figure 14. Send information form

The finished system is then tested using the black-box technique. Testing is done on the main page and admin page. The test results show that the system can run according to the planning carried out.

IV. CONCLUSION

A website-based information system has been completed. The system created contains general information and information on toddler development on the main page. While on the admin page, officers can make arrangements including; Posyandu data, schedule data, toddler data, midwife data, immunization data, weighing info, user data settings, and broadcast via an SMS gateway. The test results using the black-box method have not found a problem. Thus the Posyandu Information System is made ready to be tested on the people of Wanasari village, Brebes Regency.

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