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Web-Based Child Growth and Development Monitoring (Case Study: PKD Karangkemojing)

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Abstract
Children's nutritional health is a crucial factor in their growth and development. Regular monitoring of nutrition is essential for detecting and preventing dietary issues. This study aims to develop a web-based application for monitoring children's nutrition at the Village Health Center (PKD) in Karangkemojing Village. The methodology employed is the System Development Life Cycle (SDLC) approach, involving analysis, design, implementation, and evaluation. This web-based application allows health workers and parents to monitor children's nutritional status regularly through data on weight, height, and other nutrition indicators. It is expected that this application will enhance the efficiency of Posyandu cadres in monitoring children's nutrition. Additionally, the application facilitates access to nutritional information for health workers and parents while supporting decision-making regarding dietary interventions. The utilization of this application is anticipated to serve as a model for other regions in improving the quality of children's health services at the village level.

Keywords: Web-Based Application, Child Health, Nutrition Monitoring

Pemantauan Tumbuh Kembang Anak Berbasis Web (Studi Kasus: PKD Karangkemojing)

Abstrak
Kesehatan gizi anak merupakan faktor krusial dalam pertumbuhan dan perkembangan anak. Pemantauan gizi secara berkala sangat penting untuk mendeteksi dan mencegah masalah gizi. Penelitian ini bertujuan untuk mengembangkan aplikasi berbasis web untuk pemantauan gizi anak di Pusat Kesehatan Desa (PKD) Desa Karangkemojing. Metodologi yang digunakan adalah pendekatan System Development Life Cycle (SDLC), yang meliputi analisis, desain, implementasi, dan evaluasi. Aplikasi berbasis web ini memungkinkan petugas kesehatan dan orang tua untuk memantau status gizi anak secara berkala melalui data berat badan, tinggi badan, dan indikator gizi lainnya. Diharapkan aplikasi ini akan meningkatkan efisiensi kader Posyandu dalam memantau gizi anak. Selain itu, aplikasi ini memudahkan akses informasi gizi bagi petugas kesehatan dan orang tua sekaligus mendukung pengambilan keputusan terkait intervensi gizi. Pemanfaatan aplikasi ini diharapkan dapat menjadi model bagi daerah lain dalam meningkatkan kualitas layanan kesehatan anak di tingkat desa.

Kata kunci: Aplikasi Berbasis Web, Kesehatan Anak, Pemantauan Gizi

INTRODUCTION

Human growth and development begin from birth to death. Infancy and toddlerhood are known as the golden age (Siswati et al., 2023), which greatly determines the quality of a child's life in the future. A healthy child is a child who grows and develops according to predetermined standards. Therefore, monitoring child growth and development is very important to prevent disorders at this stage. The government, through various health programs, one of which is Posyandu (Integrated Service Post) (Kusumadewi et al., 2019),

provides child health monitoring services down to the village level as an early prevention effort against health problems, including malnutrition or stunting (Kemenkes RI, 2015).

Stunting is a serious condition that indicates chronic malnutrition, where children experience stunted physical growth (Gita, 2022). This not only affects physical condition, but can also reduce intellectual ability, and productivity, and increase the risk of hereditary diseases later in life. To prevent and treat stunting, intensive monitoring of child growth and development is very important, especially during the early stages of life up to the age of four (Kurniawati, 2017) (Candra Wahyuni, 2018), a crucial period in child development.

Karangkemojing Village is served by seven Posyandu, which are essential in delivering health services to the community. The activities conducted at Posyandu include measuring the weight, height, head circumference, and arm circumference of children and toddlers (Hernanda & Yustanti, 2016). The results of these measurements are recorded by the Posyandu cadres and reported to the village midwife and the local Health Center. However, the process of manual recording presents challenges, particularly regarding the accuracy and efficiency of data processing. In Karangkemojing Village, several children have been diagnosed with malnutrition, indicating the need for further treatment.

To overcome this challenge, a website-based information system was developed that aims to help monitor child growth and development in real-time and integrated (Takdir Muslihi et al., 2018). This system not only makes it easier for Posyandu cadres to record and manage data but also allows users to discuss without having to wait for Posyandu activities to take place (Sari & Hayuningtyas, 2020). In addition, this system is expected to provide more effective support for village midwives in making reports to the Health Center regarding the growth and development status of children and toddlers in Karangkemojing Village (Egeten et al., 2019).

METHOD

This community service activity was conducted in multiple stages, as illustrated in Figure 1.

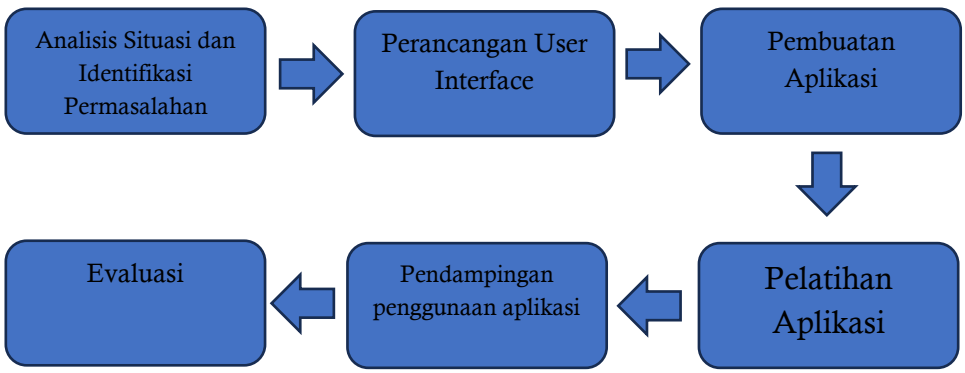

Figure 1. Implementation Method

A. Situation Analysis and Problem Identification
   This activity is the initial stage carried out by the service team to find and identify problems at the Karangkemojing Village Posyandu by conducting interviews with village midwives and several Posyandu cadres.
B. User Interface Design
   This activity was conducted to begin developing solutions for the challenges faced by the integrated health post in Karangkemojing Village, taking into account feedback from the health post cadres.
C. Application Development
   This activity involves the creation of a child nutrition monitoring application that includes several features: child data management, immunization tracking, and health news updates. The development process follows the sprint design methodology and adheres to the established user interface design.
D. Application Training
   The training activity is designed for Posyandu cadres who work directly at Posyandu and is conducted only once.
E. Application Usage Assistance
   This activity aims to assess whether the application meets user needs, focusing on user-friendliness and identifying any remaining errors or bugs.
F. Evaluation
   The evaluation aims to assess the application's success in the integrated health post of Karangkemojing Village.

FINDING AND DISCUSSION

The training activity began with a preliminary process during which the service team visited the Posyandu cadres and health workers responsible for the Karangkemojing PKD. This visit aimed to identify issues within the Posyandu. After pinpointing the root causes of these problems, the service team designed a website-based application to serve as a solution.

Figure 2. Pre-community service activity visit

The Posyandu cadres of Karangkemojing Village were tasked with implementing web-based applications. Karangkemojing Village has a total of seven Posyandu posts. Prior to this, the service team observed and participated in toddler Posyandu activities, which included measuring height, weighing children, and assessing head and arm circumference. The results of these measurements were recorded both in the Maternal and Child Health (KIA) book and in the cadre's archive book.

Figure 3a. Toddler weighing process

Figure 3b. Process of recording weighing results

The results of the implementation of the website-based application design to help monitor child nutrition were aimed at several Posyandu cadres from 7 Posyandus in Karangkemojing Village along with the village midwives responsible for PKD.

Figure 4. Home page of the Child Nutrition Monitoring Information System

Upon displaying the application, the home page will show various menus, including login, registration, profile, monitoring data, news, and contact.

Figure 5a. User Registration Form

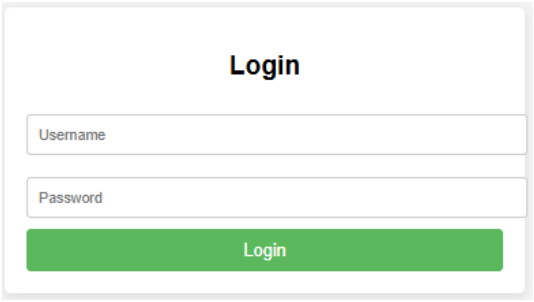

Figure 5b. Login Form

To use the application, three types of access rights are granted: admin, parents, and cadres. Admins can manage all aspects of the application. Parents have the ability to input their children's data, while posyandu cadres can manage weighing data.

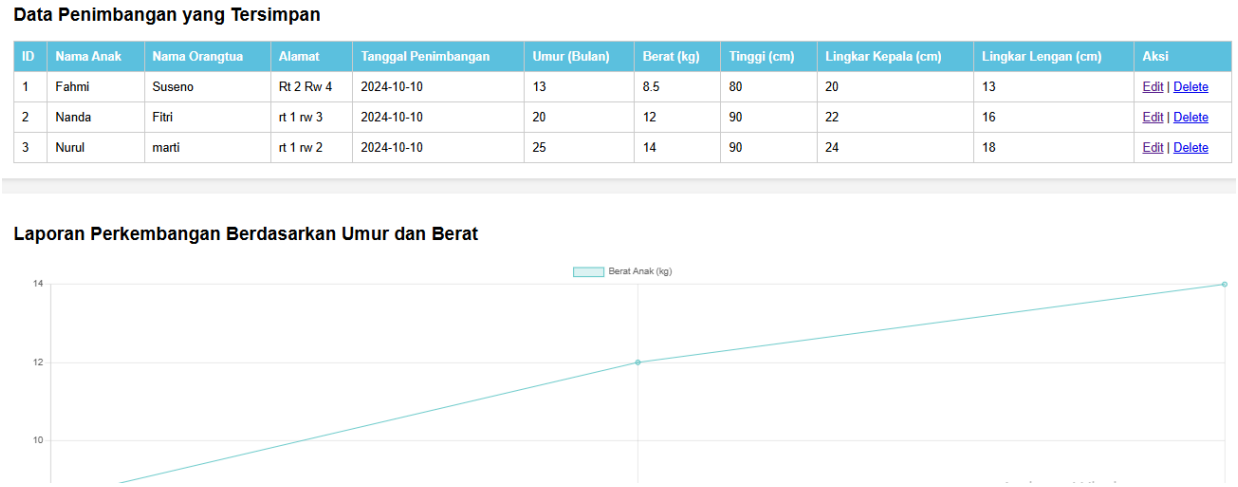

Figure 6. Weighing result data

The results of the posyandu activities, which include weighing, measuring height, and assessing arm and head circumference, will be input by the posyandu cadres. The overall results will be presented in graphical form as a report. In the weighing data table, there are options for editing and deleting entries, which can be used to correct any errors in data input.

CONCLUSION

The Posyandu in Karangkemojing Village plays a crucial role in monitoring child growth and development, as well as preventing malnutrition issues like stunting. However, the manual data recording process hinders both the accuracy and efficiency of data processing. To address this challenge, we propose the development of a website-based information system. This system will enable Posyandu cadres to manage data in real time and facilitate discussions among users. With the implementation of this system, village midwives and other stakeholders will have access to more accurate data, allowing for quicker and more precise interventions for children facing malnutrition. It is hoped that

this application will enhance the quality of health services at the village level and serve as a model for other regions in monitoring child growth and development.

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