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Research Article

Prototype of Web-Based Application as Information Media for SLB and Therapy Services in Malang Raya

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ABSTRACT

The study aims to investigate the development and impact of a web-based application that seeks to centralize and streamline access to information about special education schools (SLB) and treatment facilities in the Malang Raya area. The rapid progress of information and communication technology (ICT) presents a huge chance to improve the delivery of services and the spread of information in the domains of education and healthcare, specifically for children with special needs. This research utilizes many data collection techniques, such as observations, interviews, and document analyses, to identify the precise requirements and difficulties encountered by parents and caregivers when seeking pertinent information. The program employs digital technology to centralize fragmented data, providing a user-friendly interface that enhances the effectiveness of data retrieval and facilitates streamlined decision-making for parents. The program offers several important features, such as interactive maps, comprehensive service descriptions, and a community forum. These features work together to promote stronger community support and improve communication between service providers and users. The study finds that the application effectively helps to decrease the digital gap, empowering parents and caregivers by offering timely and accurate information that promotes the optimal development of children with special needs. This research highlights the significant impact that ICT may have in developing educational and therapeutic environments that are more inclusive and responsive.

Keywords: Special Education, Web-based Application, Information Accessibility, Therapy Services, Digital Inclusion

1) INTRODUCTION:

The development of information and communication technology (ICT) has had a significant impact on various aspects of life, including in education and healthcare. In education, ICT has revolutionised the way teaching and learning is done by providing various online learning platforms, e-learning, and digital resources that enable wider and more flexible access to education, so that students can learn anywhere and anytime. In addition, ICT also facilitates global collaboration, connecting students and educators from different parts of the world to share knowledge and experiences [1]. In the area of healthcare, ICT has improved the efficiency and accessibility of services through telemedicine, electronic medical records, and health applications that allow for remote diagnosis, monitoring, and health consultations. This not only eases access to health services, especially in remote areas, but also helps in more effective management of patient data, supports more informed medical decisions, and speeds up the treatment process. The integration of ICT in education and healthcare demonstrates how these technologies can empower individuals and communities, creating an environment that is more inclusive and responsive to the needs of the times [2].

The need for quick and precise access to information is becoming increasingly crucial, especially in the context of education and therapy services for children with special needs [3]. Parents and caregivers are often faced with great challenges in finding centralised, reliable and appropriate information on their child's specific needs, especially regarding special schools and therapy services. This obstacle is often caused by the lack of integrated and easily accessible resources, leading to delays in obtaining timely and appropriate services. Therefore, there is a need for innovative solutions that can overcome the limited access to information, such as digital platforms that facilitate the

search and provision of information in a comprehensive, interactive and responsive manner to user needs. Thus, parents and caregivers can more easily identify the right choices and make informed decisions to support their children's optimal development.

Web-based applications offer an effective solution by providing a unified platform that can integrate various important sources of information [4]. The application is designed to provide complete and up-to-date data on special schools and therapy services available. By utilising digital technology, information that was previously scattered and hard to reach can be accessed easily and quickly, making it easier for users to make informed decisions [5]. The user-friendly interface allows users from different backgrounds to access information easily, increasing inclusivity in the use of technology.

This research is important for several reasons. Firstly, this research is important because it provides a solution to the information access challenges faced by parents and carers of children with special needs. The web-based application developed can bring together information about special schools and therapy services that was previously scattered, making it more accessible [6]. This allows parents to make more informed decisions based on accurate and up-to-date information. With better access, children can receive education and therapy that suits their needs, increasing their chances of optimal development. Ultimately, this will contribute to an improved quality of life for children with special needs.

Secondly, this research plays an important role in community empowerment through the use of technology. The app designed with a user-friendly interface allows users from various backgrounds, including those less familiar with digital technology to access information easily [7]. This helps reduce the digital divide and ensures that all people regardless of background, can utilise technology to support their children's education and therapy. In addition, the app empowers parents and carers to be more proactive in managing their children's needs. Thus, this research not only develops technology but also expands access and opportunities for more people. Thirdly, this research has a long-term impact in building a supportive community around children with special needs. Interactive features such as the discussion forum allow parents and carers to share their experiences and get support from the wider community [8]. In addition, the therapy service scheduling feature makes it easier to plan and organise therapy sessions, improving efficiency and timeliness in service delivery. Direct interaction with service providers through the app strengthens collaboration between parents, caregivers and professionals, ensuring more coherent and comprehensive care. Therefore, this research not only creates a technological tool but also builds a support ecosystem that can improve the well-being of children with special needs and their families.

This research contributes by presenting an innovative solution through the development of a web-based application that brings together information about special schools (SLB) and therapy services, facilitating access for parents and carers of children with special needs. The application is designed to present complete, up-to-date and easily accessible data, so that users can make more informed and quicker decisions regarding children's education and therapy. In addition, it encourages inclusivity by providing a user-friendly interface, which can be used by users from various backgrounds including those less familiar with digital technology. With interactive features such as discussion forums and therapy scheduling, the app not only provides information but also builds a supportive and collaborative community. This research also reduces the digital divide by empowering parents to be more active in managing their children's needs. Overall, the contributions of this research include improving the quality of life of children with special needs and their families through better access to information and stronger community support. This is expected to create a long-term positive impact for special education and therapy services.

2) METHODS AND METHODOLOGY:

To develop a prototype of a web-based application as a medium for SLB information and therapy services in Malang Raya, this research uses several data collection techniques to obtain comprehensive and in-depth information. The techniques used include:

2.1. Data Collection Technique

a. Observation

The researcher conducted direct observation in several special schools in the Greater Malang area. This involved observing the daily activities at the special schools, the facilities available, and the interactions between students, teachers and school staff. In addition, researchers also observed how information related to therapy services was delivered to parents and caregivers. The data collected through this observation provides a real picture of the field conditions and the needs that must be fulfilled by the developed application.

b. Interview

Interviews were conducted with various stakeholders, including principals, teachers, therapists, and parents of students in special schools in Malang Raya. These interviews aimed to gain in-depth insights into the information needs, challenges faced in accessing therapy services, as well as their expectations of the application to be developed. This method provided qualitative data that was very useful in formulating the specifications of the application to truly fit the needs of the users.

c. Documentation

Researchers also collected data from various written and electronic documents related to special schools and therapy services in Malang Raya. Documents analysed included school profiles, student data, available therapy services and policies related to inclusive education. This data helped in understanding the operational context of SLBs and the services they offer, which was then used to design relevant and useful application features.

d. Literature Review

The literature review involved searching and reviewing relevant digital literature, including books, scientific articles and journals related to inclusive education, information technology in education and web-based application development [9]. In addition, researchers also reviewed similar case studies and previous research to gain insights into best practices and recent innovations. The information obtained from this library research was used as a theoretical foundation in the development of the application and ensured that the methodology used was in line with academic and industry standards.

2.2. System Development Method

The system development method used in this research is the Waterfall method, which is a linear sequential model in which each phase of software development is carried out sequentially and systematically [10] [11]. This method was chosen because it allows structured and well-documented development stages. The following are the stages of the Waterfall method in Figure 1.

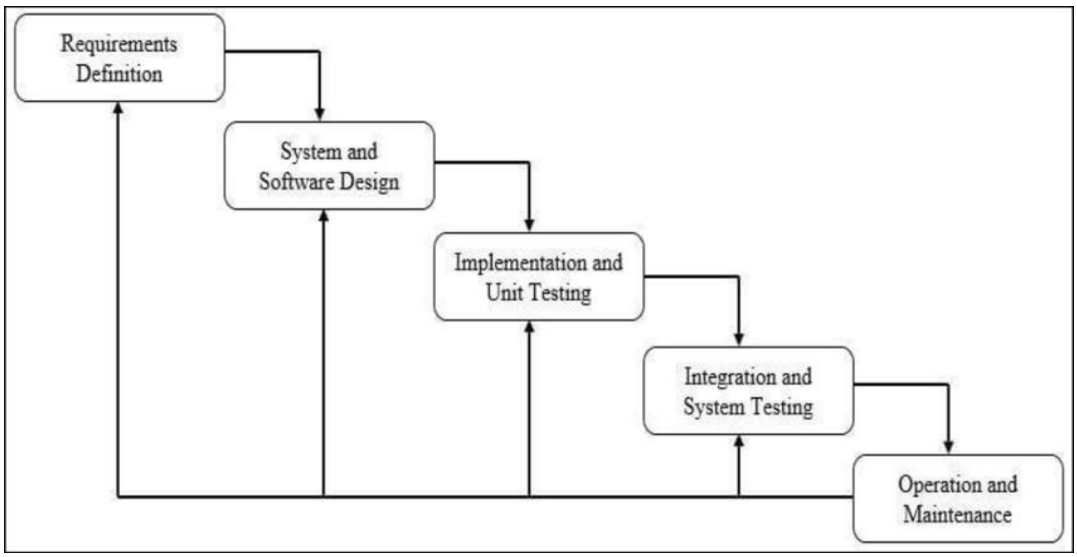

Figure 1. Stages of the Waterfall Method

a. Software Requirements Analysis

The first stage in the Waterfall method is software requirements analysis. At this stage, researchers conducted in-depth information gathering about user needs through observation, interviews, and document analysis. The aim is to identify features that must be present in the application, such as SLB location maps, therapy service scheduling, and discussion forums. The result of this stage is a clear software requirement specification, which forms the basis for the entire application development process.

b. Design

After the software requirements are well-defined, the next stage is system design. This design includes designing the software architecture, data structure, user interface, and database model. At this stage, the development team creates

an application blueprint that includes interface sketches, workflow diagrams, and other technical specifications. The user interface design focused on ease of navigation and accessibility, ensuring that the app could be used easily by parents, carers and therapy service providers.

c. Programme Code Generation

The programming phase is where the design that has been created is translated into a programming language. Development is carried out using appropriate programming languages, such as HTML, CSS, and JavaScript for the user interface, as well as PHP and MySQL for database management. The programme code is written with the aim of implementing all the features that have been designed in the design stage, as well as ensuring that the application functions according to the specified specifications.

d. Testing

After the programme code has been created, the next stage is application testing. Testing is done to ensure that the application functions properly and is free from errors (bugs). These tests include functionality tests, performance tests, and compatibility tests with various devices and browsers. The app trials also involve actual users to get feedback on the usage experience and to identify areas that need improvement before the app is launched.

e. Implementation and Maintenance

The last stage in the Waterfall method is implementation and maintenance. After the application was successfully tested and refined, it was then implemented in several special schools and therapy centres in Malang Raya. At this stage, training and technical support are provided to users to ensure that the application can be used effectively. Maintenance is done on an ongoing basis to fix any bugs that may appear, as well as to make updates and adjustments based on user feedback and technological developments.

3) RESULTS:

The results of the user needs analysis stage showed in-depth findings based on interviews and surveys conducted with parents, caregivers, and therapy service providers. From the interviews, it was found that most parents and caregivers found it difficult to find centralised and reliable information about special schools and therapy services available in their area. Many of them complained that the information available on the internet was often incomplete, not up-to-date or scattered across multiple sources that were difficult to access. Some parents also stated that they had to spend a lot of time and energy contacting multiple sources just to get basic information, such as the location of schools or the schedule of available therapies.

In addition, the interviews also revealed that parents and caregivers are eager for a platform that can provide information in a quick and easy-to-understand manner. They mentioned that they need an app that can be accessed anytime and anywhere, especially since their time is very limited given their responsibilities in caring for children with special needs. One parent expressed that, "We don't always have time to look for information in many places, so an app that can give us everything we need in one platform would be very helpful." This shows that there is an urgent need for a solution that can simplify the information search process and support quick and informed decision-making.

On the other hand, interviews with therapy service providers revealed different challenges. Many of them admitted that they often find it difficult to reach out and communicate with parents due to the lack of effective information channels. Some therapists mentioned that they wished they could have a platform where they could easily update information about their services, such as schedule changes or availability of therapy sessions, and directly reach parents who need the service. One therapist stated, "Sometimes information about our services does not reach parents in time, and this can impact the effectiveness of the therapy we offer." This highlights the importance of apps that can facilitate better communication between service providers and end users.

The interviews also revealed that parents and caregivers appreciate having interactive features that allow them to connect with others who have similar experiences. Some parents mentioned that they often felt isolated and had difficulty finding communities that could provide emotional support as well as practical information. Features such as discussion forums were considered very useful, where they could share their experiences, give advice, and get moral support from a wider community. One parent said, "Sharing experiences with other parents facing similar challenges gives us strength, and we can learn from their experiences."

Overall, the interviews showed that users' main needs were for quick, accurate and integrated access to information, as well as features that support communication and community support. Parents, carers and therapy providers all agreed that the app should be able to bring together scattered information and provide effective communication channels. These findings formed a strong basis for the design and development of the app, ensuring

that any features included were in line with users' needs and preferences. The research also underlines the importance of a user-centred approach in the development of technologies that aim to support vulnerable or special-needs groups.

4) DISCUSSIONS:

In addition to the results of the analysis stage, the results of this research are also in the form of an implementation stage. The implementation stage is the final stage in describing the system, where the system is prepared to be ready for operation. This implementation is important to ensure that the system can be run in accordance with the plan, so that the data entry process to the presentation of information can be carried out in accordance with predetermined procedures. The main purpose of this stage is to facilitate the implementation of the system, ensure that all components function properly, and support effective system operations.

a. Main Menu

Figure 2. Main Menu

The main menu view is the initial view of a web-based application designed to facilitate the process of managing information related to special schools (SLB) and therapy services in Malang Raya. There are two icons that direct users to two main categories: "SLB Information" and "Therapy Service Information." SLB Information explains that this feature provides data on the location, profile, education programmes, and facilities available at SLBs in Malang Raya. Therapy Service Information offers detailed information on the therapy services offered, including the type of therapy, schedule, and profile of the therapist providing the service.

b. Service Type

Figure 3. SLB Information

This figure shows the web view of the "SLB Information" page in the prototype web-based application developed to provide information on special schools in Malang Raya. On the left, there is an interactive map showing the locations of special schools, allowing users to easily see the geographical position of each school. Users can click on various points on the map, which represent different special schools, to get more information. On the right, there is a clickable list of SLB names, which will take users to a page containing more details about each school, including its profile and available facilities. At the bottom of the page, three large icons provide quick access to important information, namely the physical location, school profile, and facilities offered by the SLB.

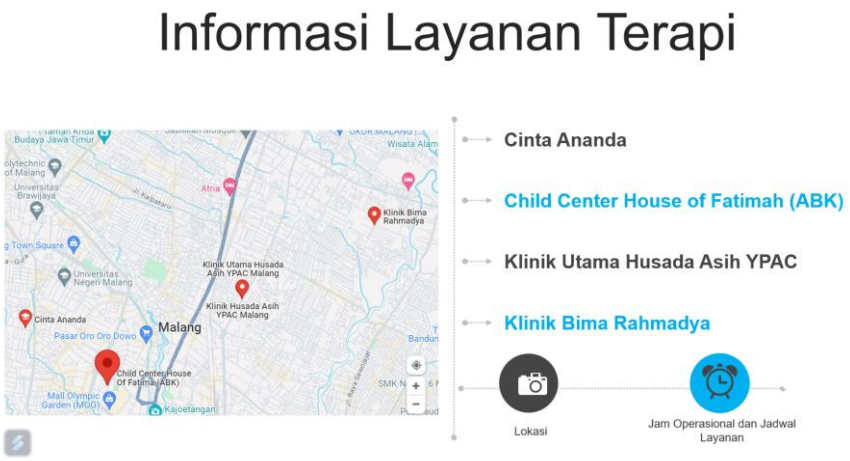

Figure 4. Therapy Information

In addition, for therapy services, the left side of the screen displays an interactive map showing the location of the various therapy facilities available in the area, with icons marking important locations such as "Child Centre House of Fatimah (ABK)" and "Klinik Utama Husada Asih YPAC". Users can click on these icons to get more information about the therapy facilities. On the right side, there is a panel that displays the names of the therapy facilities that have been selected or are available, such as "Child Centre House of Fatimah (ABK)" as the top choice, followed by the names of other facilities such as "Klinik Utama Husada Asih YPAC" and "Klinik Bima Rahmadya". Each facility name is accompanied by an icon that provides quick access to additional information, such as the hours of operation and schedule of therapy services offered

c. Therapy Service Schedule

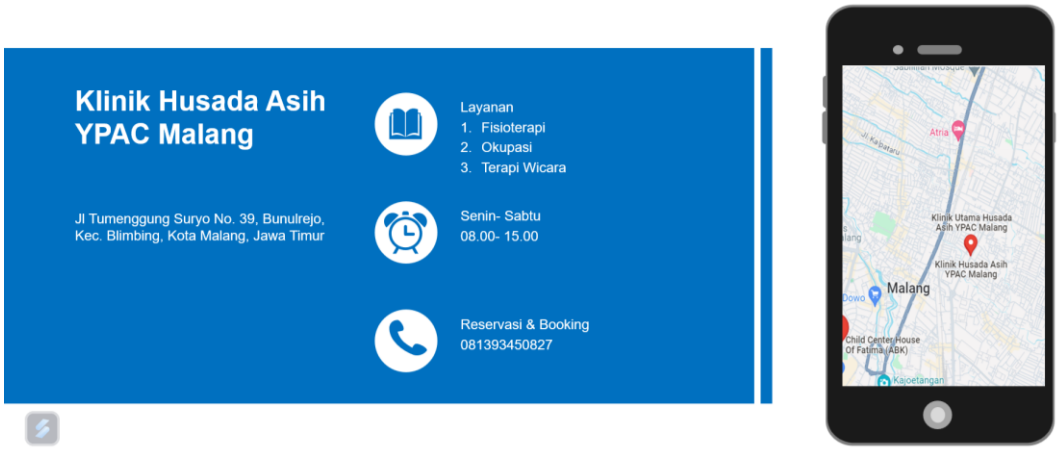

Figure 4. Detail of Therapy Information

The following is a display of information related to therapy clinic services that displays the name of the clinic along with its address to make it easier for users to identify the location and details of the clinic. The services of the clinic are listed including physiotherapy, occupational and speech therapy, so that users can find out the types of services available. The clinic's operating hours are also listed, providing important information on when services can be accessed. In addition, there is information for reservations and bookings with a phone number listed, making it easier for users to contact the clinic and make an appointment.

5) CONCLUSION:

Conclusion this research:

a. Information Integration and Accessibility: With this application, parents and caregivers can easily access integrated and reliable information about SLB and therapy services available in their area. The information search process that used to take time and resources is now more efficient with the help of the internet.

b. Efficiency in Data Management: The application accelerates and eases the process of managing data related to therapy services, including session schedules and availability, which is now computerised and easily updated by the service provider. This ensures that the information presented is always up-to-date and reliable.

c. Better Communication between Providers and Users: The app facilitates more effective communication between service providers and users. With an online accessible platform, important information can be immediately conveyed to parents in need, increasing the effectiveness of the services provided.

d. Community Support Through Interactive Features: The app presents interactive features such as discussion forums that allow users to interact, share experiences and get support from the wider community. This feature is especially valuable for parents who often feel isolated in the face of the challenges of caring for children with special needs.

e. User Needs Based Development: The entire app development process is based on user needs research, ensuring that every aspect of the app is relevant and useful to its target users. This user-centred approach strengthens the implementation and adoption of technology in support of specific needs in the community.

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