

THE DESIGN OF A LIBRARY ASSISTANT REPOSITORY SYSTEM

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Abstract

An a Libraries aim to provide services to users, currently libraries must build a system design so that services to users continue to increase according to the times and technology, especially in reference services. Reference service is one that plays an important role in library services, this is where the information retrieval system includes providing assistance to users to find information and providing guidance to find and use reference collections. The Library is a library where most of its visitors are generations who are proficient in technology, so service innovation is needed that is able to provide something to meet their needs and culture. The purpose of this research is to provide an innovative design that can be applied when providing services to users. This research includes literature study research. The result of this research is the design of a reference service system that can be implemented in the library. This repository reference system can be used independently by visitors to the library in the process of searching for information, thereby simplifying and speeding up the information search process, also this innovation will simplify the librarian's task of carrying out reference services and streamline time and energy.

Keywords: Reference, System, Technology

INTRODUCTION

Information technology is the implementation or management of computer-based information systems that help humans create, store or disseminate information. In the service process in the library, all access can be made easier if we take advantage of technological advances. According to the Library Law in chapter 1, article 1 states that a library is an institution that collects printed and recorded knowledge, manages it in a special way to meet the intellectual needs of its users through various ways of knowledge interaction. (*Undang-Undang No. 43 Tahun 2007 Tentang Perpustakaan*, n.d.) Based on the explanation above, it can be concluded that a library is a place where a collection of printed knowledge includes books, journals, newspapers and magazines, while what is recorded is microfilm, audio, CD, DVD and so on which is managed professionally and then used by users as a source of information needs. what they want.

Library collections are all information in the form of written works provided by the library taking into account the information needs of the academic community, so that when searching for the information needed they can easily find it. The library collection consists of many library materials including printed books, textbooks and material books which are usually borrowed by students from the library. This book is defined as a source of information that is classified based on numbers and certain fields of science. Books are something that must be present when students do any written work as an academic activity, because these books provide legality to the writing that we put in a scientific work. (Prajawinanti, 2019)

The function of libraries as centers of knowledge means that libraries and librarians must open their eyes to synergize with changes in the information climate of the digital era such as now in creating the latest technology, to facilitate services with access to a wider range so that knowledge can continue to develop. Libraries aim to provide services to users, increase their love of reading, and broaden their horizons and knowledge to make the nation's life more intelligent. The presence of a library is a manifestation of the state's commitment to intelligentizing the nation's life and building a quality generation. (Rahmawati, 2012) Therefore, an information system that is able to support the objectives of this library is very necessary. Library development is carried out, among other things, by increasing the quantity and quality of resources, library management and services. (Ngantini, 2018)

Most of the reference services in universities today are still done manually, because initially this reference service was only done conventionally, namely face to face between the user and the librarian. Of course, this method is less efficient for library users, especially for disabled users who want to find specific information, because it takes up a lot of time and makes the librarian's job difficult.

Reference services in the library run according to four functions, namely supervision, information, guidance and instruction functions. Users can come directly to the 2nd floor of the library to read the reference collection and final assignment collection, ask the librarian face to face, carry out search consultations or ask the librarian for guidance directly. Every active lecture day, almost 300 users use the services on the 2nd floor, especially the final assignment service, 30 users use the reference service and 20 users use the serial service.

This reference service makes librarians spend more energy, librarians have to deal with users in general as well as users with disabilities, especially blind students, where almost 300 users use the reference service. Of course, this would be greatly helped if there was an information system designed to make it easier for reference services to serve and present reference collections to disabled users so that the desired information is achieved.

Library Repository

In the current digital era, libraries are required to adopt technology to increase accessibility and efficiency of information management. The design of the Library Access repository system is a crucial solution in providing easy and efficient access to library collections.

In the ever-growing information era, libraries are faced with the challenge of storing, managing and providing efficient access to their collections. The design of the repository system emerged as a strategic solution to meet the information needs, especially for students with disabilities, providing a strong foundation for increasing the efficiency and accessibility of information in libraries.

A repository system plan refers to the design and implementation of a system for managing and organizing a digital repository. Liao et al. proposed a graph convolutional network-based repository recommendation system (GCNRec) that uses open source community information and avoids manual assessment metrics (Liao et al., 2023). Then Iqbal and Bahrani focused on developing a new repository architecture using the big data model and Open Archive (OAI) for online publications. (Taufiq, n.d.)

The library repository system was developed to increase the efficiency and convenience of library management. This system uses technologies such as the C# language, the Asp.Net Core MVC web application framework, SQL Server database, and microservices architecture (Zheng & Fan, 2023). The traditional manual operation of libraries is time-consuming and troublesome, so a web service-based library management system is proposed. It provides an easy-to-use interface for users to browse and filter available entries, and allows easy retrieval and uploading of material (M et al., 2023). The repository system plays an important role in forming the basis for managing library collections. According to P Venkata Rao in 2007, this system allows libraries to store various types of materials, including books, articles and other digital resources, in a structured way and can be accessed electronically. This system integration optimizes information management, makes searching easier, and increases operational efficiency.

The repository system has the main function of storing and managing information. In the context of library assistants, basic theory includes the roles and responsibilities of library assistants, as well as the concept of information storage management with an emphasis on data security and information integrity. This concept is the basis for developing an effective repository system.

RESEARCH METHOD

Research on a repository system in the form of a voice library in a library is a library study type of research. Library study or literature study is a research method carried out by collecting, analyzing and evaluating sources of information that are relevant and related to the topic being raised. The main aim of using the literature study research method is to provide a broader and deeper explanation and development of the research being studied and identify gaps in knowledge that can be used as a basis for further research.

The research stages of a literature study are usually carried out with the following steps: 1) identifying the research topic to be researched; 2) search for sources of information relevant to the research topic; 3) read and evaluate the sources of information found; 4) compiling a synthesis of the information obtained; and 5) presenting the synthesis results in a systematic and structured manner (Creswell, 2014).

RESULT AND DISCUSSION

System design is a stage in the system development process that involves planning and determining the structure of the system to be built, including system architecture, required components, and interactions between components in the system. The system design is the result of the system requirements analysis stage and the system design stage.

System design includes several important steps such as system architecture planning, selecting the technology to be used, selecting the vendor to be used, and preparing system design documents. System design can also include developing a system prototype that is used to test and evaluate system features. (Kendal, K. E & Kendall, 2011) System design has an important role in the system development process because the system design determines the

direction and strategy of system development, so the system design must be prepared carefully to ensure the system being built can run well according to user needs .

System design is an important stage in developing a system because the system design determines the direction and strategy of system development, so the system design must be prepared carefully to ensure that the system being built can run well according to user needs. (Whitten, J.L; Bentley, L.D; & Dittaman , 2010)

The system design process begins with a system requirements analysis, namely collecting information about the needs of users and stakeholders regarding the system to be built. After that, system architecture planning is carried out, namely determining the structure of the system to be built. After that, system architecture planning is carried out, namely determining the structure of the system to be built, such as the type and number of servers used. Next, the technology to be used is selected, such as programming languages and frameworks that suit the needs of the system being built. Apart from that, the vendor is also selected to be used to obtain the hardware or software needed to build the system. Finally, a system design document is created containing the technical and functional specifications to be built (Syam, 2016)

In the system design process, a deep understanding of the system requirements and the technology to be used is required. Therefore, the system development team needs to have adequate knowledge and experience in system development.

Repository System

The design of the library assistant repository system in the library is designed to make it easier for disabled students, especially blind students, to find the references they need easily and quickly. The special repository system for people with disabilities is a system designed to facilitate access and use of library collections for people with disabilities or people with disabilities. This system is part of the library's efforts to increase accessibility and inclusion for all users, including those who have special needs (Urbana-Champaign, 2021).

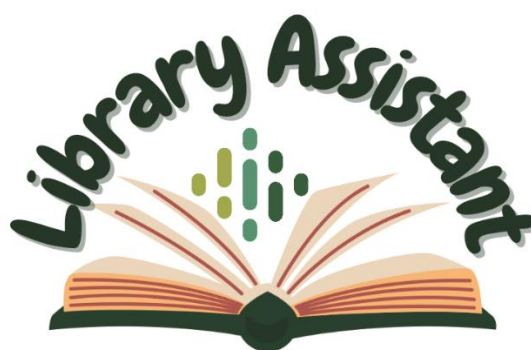


Figure 1. Repository Library Assistant system

The library assistant design is a digital system that aims to assist library users in searching and borrowing books automatically. This system was developed using Artificial Intelligence (AI) and Natural Language Processing (NLP) technology which can respond to user requests via voice or text.

The design of the Vitur Library Assistant system consists of several stages, namely:

1. Data collection: This system collects data about the books in the library, including information such as title, author, and shelf number.
2. Database formation: The data that has been collected is then processed and stored in a database. This database will later be used to process user requests.
3. Integration with AI and NLP technology to understand user requests. This way, users can communicate with the system using everyday language, such as "I want to look for books about Indonesian history."
4. Book search: After understanding the user's request, the system will search for books that match that request in the library, the system will provide information about the book and provide options for borrowing.
5. Borrowing books: if the user wants to borrow a book, the system will process the request and create a loan letter that the user can print.



Figure 2. Use Case Diagram

The diagram above explains that before the repository system is run, the librarian first carries out the process of inputting related data which will later be needed by the system to carry out its duties.

1. Input Audiobook Information: librarians can enter Audiobook information into the Library Assistant repository such as Audiobook title, author, category and description
2. Upload Audiobook: librarians can upload Audiobook files into the Library Assistant repository.
3. Delete Audiobooks: librarians can delete audiobooks that are not needed or are no longer used.
4. Manage Repository: librarians can manage the Library Assistant repository such as adding, changing and deleting Audiobook information.
5. Update Audiobook: librarians can update Audiobook information such as audiobook title, author, category and description.
6. Search Audiobook: librarians can search for audiobooks based on title, author, or category in the Library Assistant repository.

In the Use Case diagram above, each feature represents an interaction that must be carried out by a librarian to input audiobook data into the Library Assistant repository. With this case diagram, librarians can understand the tasks that must be carried out to manage the audiobook repository and ensure that all information related to audiobooks has been entered correctly and completely.

Reference Search System

Library Assistant is a system designed to help students with disabilities find and access references easily and effectively. One of the main features of Library Assistant is the reference search feature, here are some uses of the Library Assistant feature for students with disabilities:

1. Find References Easily

In Library Assistant, students with disabilities can easily search for references by title or category. This feature allows students with disabilities to find the references they need more quickly and efficiently without having to browse one by one.

2. Provide Audiobooks Additionally,

Library Assistant also provides audiobooks for certain references which are available in audio format. This is very helpful for disabled students who have difficulty reading references due to physical limitations. With this feature, disabled students can easily listen to audio references so they can more easily understand the material.

3. Integration with Assistive Technology

Library Assistant is also designed to integrate with assistive technology such as screen readers or voice recorders. With this feature, students with disabilities can more easily use Library Assistant with the help of assistive technology commonly used in daily activities.

4. Monitoring Reference Use

The Library Assistant system is also equipped with a feature for monitoring reference use by students with disabilities. This feature allows system managers to track the use of references by students with disabilities and find out which references are most frequently searched for. In this way, system managers can find out what types of references are most needed and ensure that the reference collection provided meets the needs of students with disabilities.

Overall, the reference search feature in Library Assistant really helps students with disabilities in accessing references easily and effectively. With this feature, students with disabilities can find the references they need more quickly.

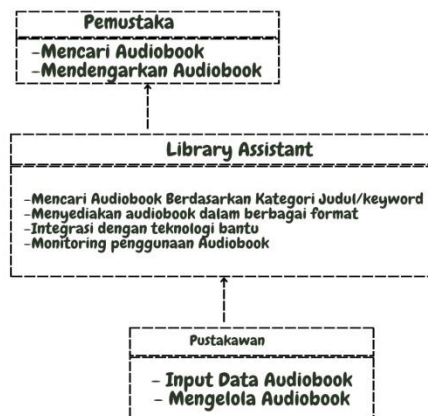


Figure 3. Reference Search Use Case Diagram

1. Disabled students: the main users of the system who can search for audiobooks and listen to available audiobooks.
2. Library Assistant: a system that provides audiobooks and integrates with assistive technology and monitors audiobook usage.

3. Librarian: audiobook manager who can input audiobook data and manage available audiobooks.

This use case diagram shows that the Library Assistant system consists of several important features, such as searching for audiobooks, providing audiobooks in various formats, integration with assistive technology, and monitoring audiobook usage. Meanwhile, librarians play a role in managing available audiobooks and inputting audiobook data into the system. With this use case diagram, it is hoped that the system can work effectively and provide maximum benefits for students with disabilities.

Library Assistant Repository System Design

The Library Assistant library system design includes system architecture, key functions, and user interface. The system architecture is designed to support efficient storage and management of information. The system's key functions are designed to support library assistant tasks, such as searching, borrowing, and returning books. The user interface is designed to make it easier for library assistants to interact with the system (Liao et al., 2023). In analyzing the design of a repository system, it is necessary to pay attention to the extent to which theoretical concepts are applied. The system design should reflect information management principles and meet the needs of library assistants. Specifically, integration with existing library management systems and data security are important criteria in the evaluation.

CONCLUSION

Library Assistant in the form of audiobooks is an effective solution to help blind (disabled) students access references and literature needed in their learning process. By using voice technology and text recognition technology, students with disabilities can easily search, access and download reading materials without needing help from others. The features in Library Assistant such as text and voice search, checking book availability, and downloading audiobooks allow students with disabilities to access references and literature without obstacles. Apart from that, this feature also helps librarians in the process of managing and maintaining reading material collections. However, please remember that the use of this technology must be done wisely and always pay attention to the copyright of each work. In addition, voice quality improvements and text recognition must also continue to be improved to provide a better experience for users.

SUGGESTION

In this research, further development still needs to be carried out by researchers who will research or want to develop similar ideas, so that they can be implemented and used more optimally.

THANK YOU-NOTE

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REFERENCES

- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed method approaches*. Sage Publication.
- Kendal, K. E & Kendall, J. E. (2011). *Systems Analysis and Design*. Pearson Prentice Hall.
- Liao, Z., Cao, S., Li, B., Liu, S., Zhang, Y., & Yu, S. (2023). Graph Convolutional Network-Based

- Repository Recommendation System. Computer Modeling in Engineering & Sciences*, 137(1), 175–196. <https://doi.org/10.32604/cmcs.2023.027287>
- M, S., A, T. N., M, K., & T, S. (2023). *Library Management System. International Journal of Innovative Research in Engineering*, 422–426. <https://doi.org/10.59256/ijire.2023040212>
- Ngantini. (2018). Pelayanan Prima: Upaya Pustakawan dalam Meningkatkan Kualitas Pelayanan. *Buletin Perpustakaan Universitas Islam Indonesia*, 1(1), 59.
- Prajawinanti, A. (2019). Pemanfaatan Buku Oleh Mahasiswa Sebagai Penunjang Aktivitas Akademik di Era Generasi Milenial. In *Pustaka Karya*.
- Rahmawati, L. (2012). peran Pustakawan Perguruan Tinggi Dalam Era Informasi dan Digitalisasi. *Jurnal Ta'lim*.
- Syam, Abdi Mubarak. (2016). Koleksi Audio-Visual Sebagai Alat Promosi Budaya: Studi Kasus Perpustakaan Korean Culture Center. *JIPI (Jurnal Ilmu Perpustakaan & Informasi)*, 1 (1), 1-11.
- Taufiq, I. (n.d.). *Repository System Based on Open Archives Initiative (OAI) for Open Library System*. 2019. <https://doi.org/10.11648/J.SE.20190702.13>
- Undang-undang No. 43 Tahun 2007 tentang Perpustakaan*. (n.d.).
- Urbana-Champaign, U. of I. at. (2021). *Library Resources for Patrons with Disabilities*. <https://guides.library.illinois.edu/disabilityservices/libraryresources>
- Whitten, J.L.; Bentley, L.D.; & Dittaman, K. . (2010). *Systems analysis and design methods*. Irwin/McGraw-Hill.
- Zheng, Z., & Fan, F. (2023). Design and research of *library* space reservation system based on microservice architecture. In L. Wang & X. Liu (Eds.), *International Conference on Intelligent Systems, Communications, and Computer Networks (ISCCN 2023)* (p. 66). SPIE. <https://doi.org/10.1117/12.2679742>