


UI/UX design of a digital library using figma (case study: high school)

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ARTICLE INFO	ABSTRACT
<p>Article history:</p> <p>Received Oct 1, 2024 Revised Oct 15, 2024 Accepted Oct 30, 2024</p> <hr/> <p>Keywords:</p> <p>Digital Library; Figma; UI; UX.</p>	<p>This research focuses on the development of UI/UX design for a web-based digital library specifically designed for high school students, using the Figma application as the primary tool. Digital libraries are essential for providing quick and easy access to educational resources; however, many platforms still lack user-friendly interfaces and can be difficult to navigate, which may limit students' access to learning materials. By adopting a simpler, more responsive, and intuitive UI/UX design approach, students are expected to better utilize digital libraries, thereby enhancing their motivation to learn. Figma enables a more collaborative and efficient design process, allowing designs to be tested and refined according to user needs. Through this research, the digital library is expected to become a more engaging and accessible learning resource, while contributing to improved interface design innovation in the digital education sphere.</p> <p><i>This is an open access article under the CC BY-NC license.</i></p> 

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1. INTRODUCTION

In the current digital era, libraries are no longer limited to physical buildings but have evolved into digital libraries that provide quick and efficient access to various learning resources. Especially for high school students, digital libraries offer the convenience of accessing information at any time and place. However, the development of digital libraries faces significant challenges in creating a user interface (UI) and user experience (UX) that are intuitive, engaging, and responsive. A complex or suboptimal UI and UX can hinder users from fully utilizing the features offered by digital libraries. Therefore, this research focuses on developing an effective UI/UX design for digital libraries, aiming not only to facilitate access to information but also to enhance student engagement in using digital libraries as learning resources.

The implementation of an e-library system in high schools enables libraries to be more efficient in book searches, loan and return management, and access to e-book collections. This highlights the importance of digital libraries in meeting users' needs for flexible and location-independent information. Furthermore, the use of Figma in UI/UX development provides a collaborative tool that allows real-time design adjustments based on user feedback. (Wahyuni, Sari, Zen, & Praja Kelana, 2023). Figma's collaboration features help create a responsive interface, which is relevant in the context of digital libraries to ensure an improved user experience. (R. E. Putri et al., 2022; Wijaya Putri et al., 2024)

UI, as an element that bridges user interaction with the system, encompasses various aspects such as color, typography, and intuitive icons that facilitate user interaction. (Haryuda et al., 2021; Utan Sufandi et al., 2022) In addition, good UX design ensures an efficient and seamless user experience in achieving goals, which can enhance user satisfaction through easy navigation,

quick access, and feature accessibility within the application (Razi et al., 2018) User Interface design must be tailored to the needs of users, considering that each user has different levels of requirements. (Wahyuni, Sari, Zen, Kelana, et al., 2023)

In the development of this digital library application, Figma was chosen as the primary tool for designing the UI/UX. As a web-based platform, Figma enables real-time team collaboration through interactive prototyping and reusable components, allowing designs to be created, tested, and refined before full development takes place. (Kurniawan & Budi, 2022)

The cloud-based Figma platform supports access and collaboration across devices, making it an ideal choice for design projects involving multiple stakeholders (Cahya et al., 2024; R. Putri et al., 2023) Furthermore, digital libraries not only reduce dependence on printed materials but also enhance the accessibility and efficiency of long-term maintenance of digital collections. (Sulistiani et al., 2022; Wahyuni, Sari, Zen, & Praja Kelana, 2023)

Several studies that discuss the use of Figma include: The Use of Figma Application in Building Interactive UI/UX for the Informatics Engineering Program at STMIK Tasikmalaya (Pramudita et al., 2021), Designing a User Interface and User Experience for the Piring Makanku Application Using Figma for Teens (Ferdinand et al., 2021), UI/UX Design of the MY CIC Academic Information Services Application Using Figma (Agus Muhyidin et al., 2020), UI/UX Design of the Research and Community Service Management Application Using Figma (Kurniawan & Budi, 2022), UI/UX Design for the Energy Laboratory Website Using Figma (Tazkiyah Sella & Arifin Aridhanyati, 2022), and UI/UX Design for Semarang Virtual Tourism Using Figma (Al-Faruq et al., 2022).

Some articles discussing UI/UX design for digital libraries that can serve as references for digital library development by researchers include: UI/UX Design for Digital Library Application (Bagaskara & Voutama, 2023), UI/UX Design for Web-Based Digital Library Application with a Design Thinking Approach (Risya et al., 2024), Digital Library Mobile Application UI/UX Design at Sam Ratulangi University Using the User-Centered Design Method (Siwu Britney H. M. et al., 2024), Prototype (UI/UX Design) of a Digital Library Application with Figma (R. E. Putri et al., 2024) Redesign of Telkom University Open Library Website UI/UX Based on Influence Personality Type Using the Design Thinking Method (Puspitaningrum et al., 2023), Redesign of UI/UX for Digilib Website at Universitas Sriwijaya Using the Double Diamond Method (Auliya Rahman & Rosa Indah, 2024), UI/UX Design for Library Systems with a Design Thinking Approach (Ifsyaus Salam et al., 2024). And Implementation of the Design Thinking Method in the User Interface Design of an Online Course Application (Athallah Puteri et al., 2022)

To ensure easy access across various devices, an intuitive and responsive UI/UX design is crucial for a high school digital library, especially as it will be developed as a responsive website. A simple interface and interactive visual layout will make it easier for students with varying levels of technological experience to search for and access subject e-books. An effective design will make the digital library more appealing and has the potential to enhance students' interest in learning.

2. RESEARCH METHOD

The method used in this research is the prototype method. (Novitasari, 2020; Yusuf & Sari, 2023) By applying the prototype method, the school, especially students and library administrators, can gain a clear understanding of the digital library system that will be developed. It is expected that with the prototype designed using the Figma design tool, all parties involved in the digital library can provide suggestions and feedback, particularly regarding the system workflow. This aims to ensure that the system development in the future can be tailored to the needs of the school. The following are the stages of the prototype method carried out by the researcher:

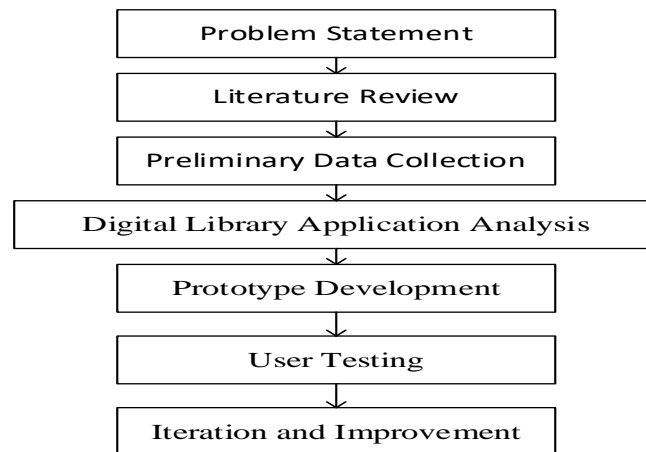


Figure 1. Research stages

The explanation of the research procedures for this study is as follows: a) Problem Formulation: 1) Identify the background and research problems. 2) Establish the research objectives. 3) Formulate research questions and hypotheses; b) Literature Review: 1) Conduct a literature study on UI/UX design, digital libraries, and education at the high school level. 2) Identify current trends and relevant design principles; c) Initial Data Collection: 1) Gather initial data on potential user profiles, such as preferences, needs, and technological skills of high school students. 2) Conduct surveys, interviews, or other relevant data collection methods; d) Analysis of Existing Digital Library Applications: 1) Analyze the user interface of existing digital library applications. 2) Assess the strengths and weaknesses of the existing user interface; e) Prototype Development: 1) Use Figma to design the initial prototype of the UI/UX. 2) Consider relevant design principles and feedback from the analysis of existing digital library applications; f) User Testing: 1) Conduct initial user testing of the prototype to gather early feedback from high school students. 2) Record responses and necessary changes to the prototype; g) Iteration and Improvement: 1) Use feedback from the initial user testing to iterate and improve the UI/UX design. 2) Design the next version of the prototype.

3. RESULTS AND DISCUSSIONS

The following is the UI/UX design display of the Digital Library using Figma.

- a) Main Page, The main page is the first display that appears when the digital library prototype is opened. This page provides options for login, both for admins and for students or library members.



Figure 2. Main page

- b) Admin Login, admin login is intended for library administrators to access the digital library.



Figure 3. Admin login

- c Admin Home, the following page will be displayed after the library administrator successfully logs into the digital library prototype

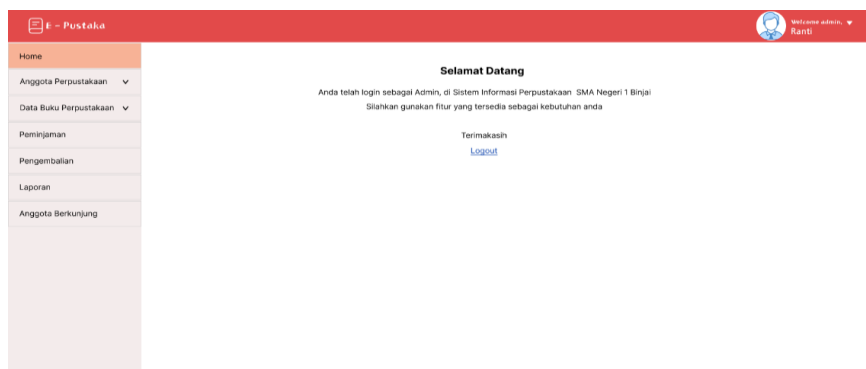


Figure 4. Home admin

- d Library Members, in the library members menu, there are two submenus: the add member menu and the member list menu. For the add member menu, admin can input data for new members into the system, while in the member list menu, admin can view a list of all registered members. Below is an image displaying both of these submenus.

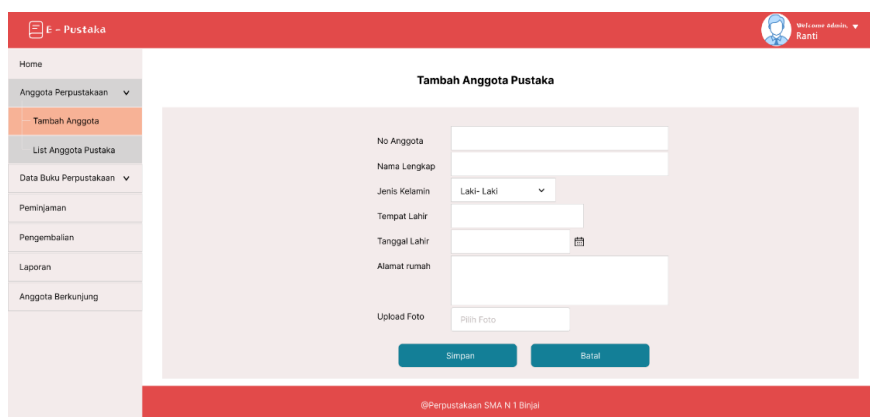


Figure 5. Add member

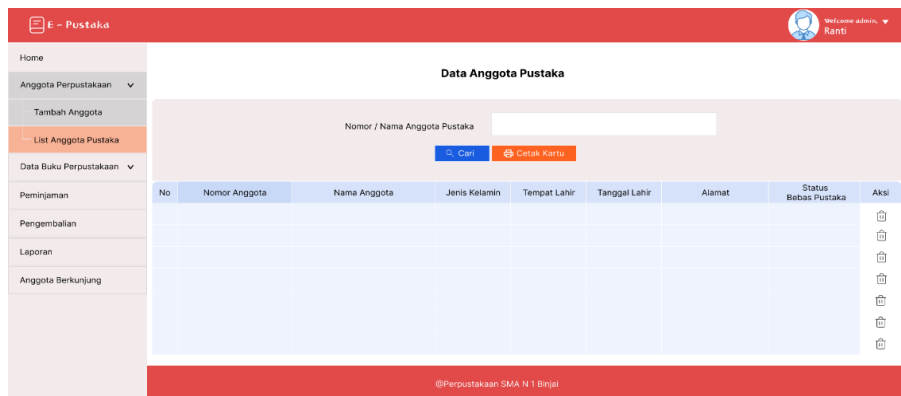


Figure 6. Library member list

- e Library Book Data, in the library book data menu, there are two submenus: input book data and book data list. The input book data menu is used by the library admin to enter information about new books into the system. Meanwhile, in the book data list submenu, operators or admins can view all book data that has been previously entered. This page is also equipped with a search feature that facilitates operators in finding specific book data. Below is an image displaying both of these submenus.

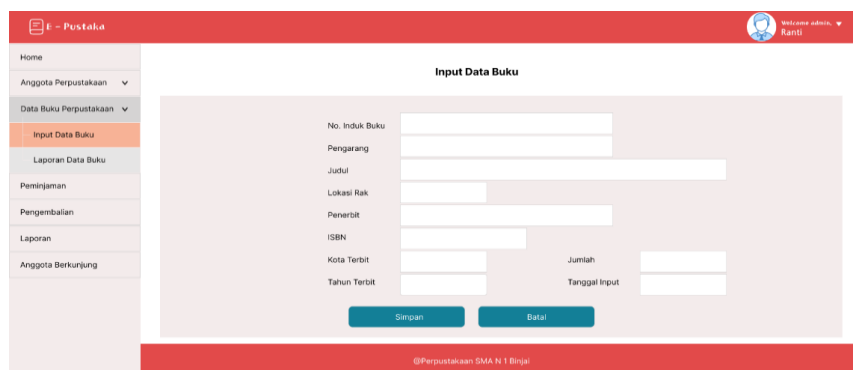


Figure 7. Input book data

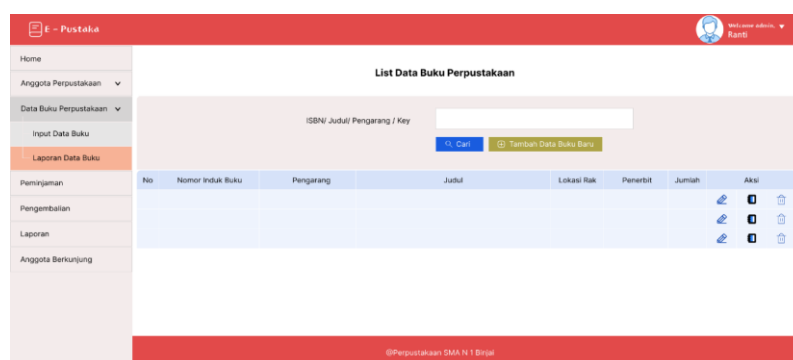


Figure 8. Library book data list

- f Book Loan, the following is the library book loan page. On this page, the operator or library admin must first enter the member number of the person wishing to borrow a book. After the member number appears, the loan process can proceed by entering the barcode code of the book to be borrowed. The image below shows the display of the book loan page.

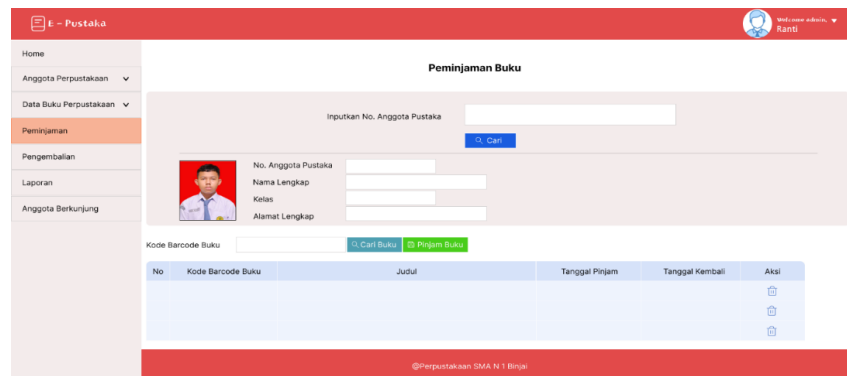


Figure 9. Book loan

- g Book Return, the following is the page for returning books at the library. On this page, the operator or library admin must first input the member number of the person returning the book. Once the member number appears, the book return can be processed by entering the barcode code of the book to be returned. The display of the book return page can be seen in the image below.



Figure 10. Book return

- h Book Loan Report, on this page, the operator or library admin can view information about book borrowers by entering the ISBN number, title, author, or keywords of the book. Once the data is entered, related information about the book will be displayed.

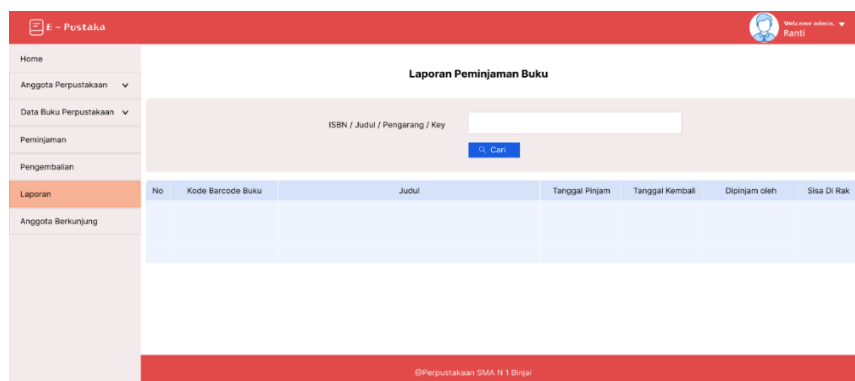


Figure 11. book loan report

- i Library Visitor List, this page serves to display the list of visitors who have accessed the school's digital library system.

No	No. Anggota	Nama Anggota	Jurusan	Kelas	HP	Tanggal Berkunjung	Jam Berkunjung

Figure 12. Library visitor list

- j Student / Library Member Login, This page is designed for students or library members to access the school's digital library services.

Figure 13. Student / library member login

- k Student / Library Member Home, This page is the main page that will appear after library members or students successfully log into the digital library system. On this page, students are required to enter their Student Identification Number (NIS) so that the system can record their visits to the digital library.

Figure 14. Student / library member home

- l Loan, This loan page is intended for library members or school students to view the history of book loans they have made, including books that are currently borrowed and those that have been returned.



Figure 15. Loan

m Ebook, on this page, students can search for eBooks by entering the title or keywords of the desired eBook. The display of the eBook menu can be seen in the image below.

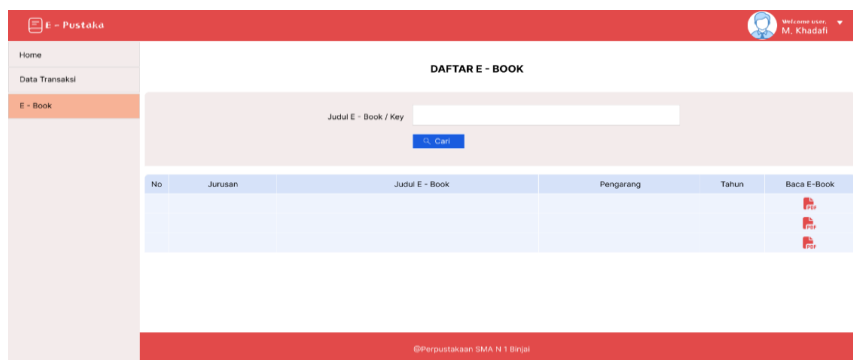


Figure 16. Ebook

n Design Flow of the Digital Library Prototype, the image below illustrates the overall design flow of the digital library prototype, which includes interactions between the library admin or operator and the students or library members.



Figure 17. Design flow of the digital library prototype

4. CONCLUSION

This study demonstrates that a well-designed UI/UX in a digital library application plays a vital role in facilitating information access and enhancing user experience, especially for high school students, such as those at SMA Negeri 1 Binjai, the focus of this research. By using Figma as a design tool, team collaboration and design refinements can be carried out in real-time, allowing for quick adjustments to meet user needs, enabling researchers to develop a web-based digital library. As a result, the digital library becomes easily accessible anytime and anywhere without physical constraints. The application of UI/UX tailored to the needs of SMA Negeri 1 Binjai allows for the creation of a simple and interactive website design, encouraging students to be more actively

engaged with the digital library. This not only increases reading interest but also provides flexible access to learning materials without requiring a physical library visit. Furthermore, the digital library reduces reliance on printed materials and supports a more sustainable management of information collections. With a user-centered UI/UX design, the digital library becomes a relevant educational support tool.

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