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Designing a Mobile Application Prototype for Accessing and Publishing Student Journals using Figma

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Abstract

The development of digital technology has driven significant changes in academic information management, including student journal publications. This study aims to design a mobile application prototype as a medium for accessing and publishing journals within the Faculty of Science and Technology at the State Islamic University of North Sumatra. The method used is the prototyping model, which emphasizes an iterative process between designers and users. The research stages include needs identification, initial design creation, evaluation, and design refinement using Figma as an interface design tool. The results of this research are a prototype application that displays key features such as journal uploading, searching, and downloading of student scientific papers. Initial evaluations show that this design is easy to understand, has clear navigation, and meets user needs. This prototype is expected to be the basis for the development of a more integrated student journal repository system in the future.

Keywords: *Application Design; Prototyping; Figma; Mobile App*

1. Introduction

The rapid development of information technology in today's digital era has had a significant impact on various aspects of life, including higher education [1]. Digital transformation has encouraged universities to adapt to the use of technology in academic activities, especially in the management and of student scientific publications [2]. The use of mobile-based devices is now a trend because it provides easy access to information anywhere and anytime. This condition opens up great opportunities for the development of applications that can support academic activities effectively and efficiently [3].

Several previous studies have highlighted the importance of providing a digital-based system for scientific publication management [4]. For example, institutional repository platforms and e-journal systems that are widely implemented in major universities have facilitated the process of storing, searching, and publishing scientific papers online. However, most of these systems are still web-oriented and have not been widely adapted into mobile applications that focus on student needs [5]. On the other hand, user interface (UI) and user experience (UX) design are important aspects in building applications that are not only functional but also easy to use and visually appealing [6].

The Faculty of Science and Technology at the State Islamic University of North Sumatra (UINSU) is one of the faculties with a large number of students and has various departments such as Information Technology, Information Systems, Biology, and Physics. Students from these various departments are active in producing scientific works, including research journals, project reports, and other scientific publications. However, many students still find it difficult to access campus journals and share their research results in a practical manner. Generally, they have to search through various external sites such as Google Scholar or national journal portals, which sometimes takes longer. This has created a need for a system that can centralize student journal access in one easy-to-use application.

In this study, the design process was carried out using Figma, a web-based design platform used to create application interfaces (UI) and visualize user experiences (UX) [7]. Figma enables real-time collaboration, interactive prototyping, and design testing before the actual implementation stage [8]. The use of Figma is considered relevant because it supports a user- centered design approach, so that the design results can be tailored to the needs and convenience of the application users, in this case students and the campus [9].

The purpose of this study is to design a mobile application prototype that functions as a medium for providing, uploading, and downloading student journals within the Faculty of Science and Technology at UIN North Sumatra. This design is expected to be the first step in developing a more integrated, efficient, and accessible mobile-based journal repository system for the entire academic community.

Through the design of this prototype, it is hoped that the results of this research can provide a real picture of how a mobile application can be designed with a good UI/UX approach for academic needs [10]. In addition, the results of this design are expected to be a reference for the campus in developing a digital student scientific publication system and encouraging a culture of literacy and openness to scientific work within the university environment.

2. Research Method

This research uses a qualitative method with prototype-based UI/UX design. This method was chosen because the focus of the research is not on the full implementation of the system, but on the process of designing and visualizing the application interface. This method emphasizes understanding user needs, developing display designs, and creating interactive simulations using Figma to illustrate the flow of application usage.

2.1. Research Stages

The prototype design process in this research follows the general stages of interface design development, which consists of several main steps, namely:

1. Needs analysis Needs analysis was conducted to understand the needs of students and lecturers regarding access to and publication of campus journals.
2. Design Design includes the development of menu structure, navigation flow, and content hierarchy so that users can easily understand the function of each feature.
3. Wireframe creation This is a rough draft of the interface that serves as the basis for visual design.
4. Visual design This includes selecting colors, icons, typography, and simulating interactions between pages to resemble the actual application.
5. Figma prototype creation The prototype is created as a final result in the form of an application simulation that can be tested directly.

2.2. Research Subject and Location

This research was conducted at the Faculty of Science and Technology, State Islamic University of North Sumatra (UINSU). The research subjects included students and lecturers from several departments, such as Computer Science, Information Systems, Mathematics, Biology, and Physics. They were the main sources in the user requirement analysis process, as they were the ones who directly interacted with the campus's scientific works. Observations and light interviews were conducted to explore how students currently access journals and the obstacles they often face.

2.3. Research Tools and Materials

The main tool used in this research was Figma. Figma served as a medium for designing the mobile application interface. In addition, supporting devices such as laptops, browsers, and internet connections were also used for design collaboration. Visual references such as design systems and UI kits were also utilized to enhance the appearance of the application interface. Data collection was carried out through documentation, observation, and literature studies of similar applications such as Google Scholar and Garuda.

2.4. System Requirements Analysis

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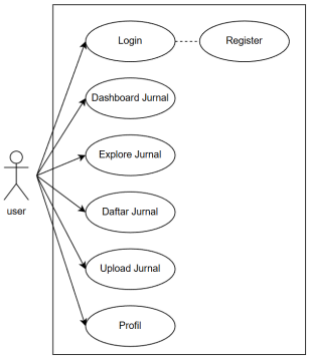

Fig. 1: Use Case Diagram

2.5. System Requirements Analysis

The development method used in this study is the prototyping model. This model was chosen because it is in line with the research objectives, which focus on the design of the application's appearance and workflow, rather than on the full implementation of the software. In the context of this study, prototyping is used as an approach that allows researchers to create initial designs, present ideas in a tangible form, and then make improvements based on feedback from potential users.

The prototyping method is iterative, meaning that the development process is repeated until the design is considered appropriate. This makes this method effective in user interface design activities because each stage can be evaluated immediately before proceeding to the next stage. In addition, this model also provides an opportunity for users to participate in the design development, so that the final result is more in line with their needs. In this study, the design process was carried out in several stages, namely:

1. Identification of user needs, which is the process of gathering information about the needs of students and lecturers at the Faculty of Science and Technology, State Islamic University of North Sumatra, regarding the campus journal provider system. Information was

obtained through simple observations and informal discussions about the obstacles encountered when searching for or uploading journals.

2. Creation of an initial prototype. This design was created using Figma software, which serves to illustrate the basic structure of the application display. The initial design was arranged in the form of a wireframe to visualize the position of menus, buttons, and the flow of movement between pages. At this stage, the main focus was still on layout and usage flow, not yet on aesthetics or color.
3. Evaluation and feedback. The initial prototype was then shown to a number of respondents, namely final-year students and several supervising lecturers . The aim was to obtain input on the appearance, ease of navigation, and completeness of features. The feedback obtained became the basis for refining the design.
4. Design refinement: At this stage, the evaluated design was refined to produce a more complete prototype version. Adjustments were made to both the visual appearance, such as color and icon selection, and the user interaction flow. The result was an interactive prototype that could be run in Figma to simulate the application usage process.
5. Design Validation, where the final prototype is shown to users again to ensure that the design meets their needs and is easy to use. This validation also serves to assess whether the design is capable of supporting the main objective of the application, which is to make it easier for students to access and upload journals practically via mobile devices.

3. Result and Analysis

3.1. Design Result

This research produced a mobile application prototype designed using Figma software. The application is temporarily named "E-Journal Campus," which functions as a medium for students to easily upload, download, and search for journals via mobile devices. The entire design was based on user needs obtained from the results of analysis and observation of academic activities at the Faculty of Science and Technology, State Islamic University of North Sumatra.

The design was carried out in accordance with user-centered design principles, where the interface was made simple, informative, and easy to understand. Neutral colors were used to make it comfortable to look at, while icons and navigation were arranged consistently on each page to minimize user confusion. The design results consist of several main displays that illustrate the flow of application usage, including:

1. Home Page (Splash Screen), displaying the application logo and campus identity.

Fig. 2: Home Page

2. Login Page, provides a login and registration form for students.

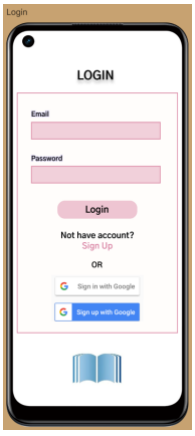

Fig. 3: Login Page

3. Homepage, providing selected journals and journal categories based on majors at the UINSU Faculty of Science and Technology.

Fig. 4: Dashboard Page

4. Journal Search Page, displays the journal search page, and displays the best journal categories, new releases, and types of international journals.

Fig. 5: Journal Search Page

5. Journal Upload Page, displaying the form for students to fill in the journal they wish to upload.

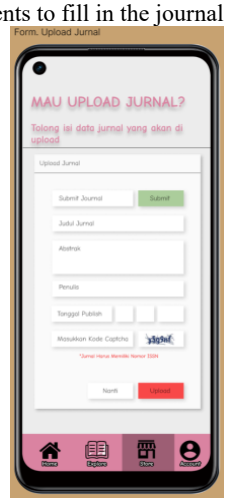

Fig. 6: Journal Upload Page

6. Profile Page, containing user data and uploaded journal history.

Fig. 7: Profile Page

Each page is linked with interactive links in Figma so that users can try out the navigation flow as if it were a functioning application. These displays are then used as material for evaluating the clarity of the flow and visual comfort.

3.2. Discussion

The design of this prototype shows that the prototyping method is effective for producing application interface designs quickly and in a focused manner. Through iterative stages, researchers can obtain direct feedback from users without having to wait for the system to be fully built. This is important because design errors or functional incompatibilities can be identified early on, before the actual software development stage.

Based on the results of a simple trial with several respondents, the application interface was considered easy to understand, with clear navigation between pages. Respondents stated that the search and journal upload features were the most needed, because students often had difficulty finding internal campus journals. With this design, academic activities can be carried out more efficiently without having to switch to many external platforms such as Google Scholar or other national portals.

From a visual design perspective, the use of Figma has proven to facilitate collaboration and rapid design development. Figma's component and auto-layout features accelerate the layout process and ensure design consistency across pages. In addition, the interactive prototyping capability makes it easy to demonstrate the application flow to potential users and the university as stakeholders.

The results of this design also show that the integration of a simple display and main functions can create a good user experience. Visual elements such as icons, colors, and menu layouts have been arranged to give a professional impression while still being in line with the character of students. From the validation results, most respondents stated that this application has the potential to be a practical solution for journal management at the faculty level.

Thus, it can be concluded that the prototype design using Figma successfully illustrates the concept of a functional and user-friendly mobile application. The prototype does not yet cover the technical aspects of programming, but it can be used as a basis for further development if the university plans to realize the system in the form of an actual Android application.

Detailed submission guidelines can be found on the journal web pages. All authors are responsible for understanding these guidelines before submitting their manuscript.

4. Conclusion

Based on the design results, this study produced a mobile application prototype designed to make it easier for students to access and publish scientific journals digitally. The prototype was developed using Figma software, which allows for interface design and interactive simulation without going through the programming stage. From the design process that followed the prototyping model approach, a simple, easy-to-use interface design was obtained, which clearly illustrates the flow of application usage. The evaluation results show that users can quickly understand the application navigation and consider the visual appearance to be quite attractive and in line with academic needs in the Faculty of Science and Technology at the State Islamic University of North Sumatra.

Through this research, it can be concluded that the prototype-based design process can be an effective first step in developing academic mobile applications. The iterative stages in the prototyping model help researchers improve the design based on real feedback from users, so that the final result is more relevant and in line with its intended use.

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