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Designing Mobile Application Guiding Information Art Gallery

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A B S T R A C T S

Art Gallery is a building or space intended for the exhibition of works of art, which are generally in the form of paintings or other fine arts. This research aims to provide information guides about paintings and other fine arts in the Art Gallery. This study applied a qualitative descriptive method. This study is based on the results of tests using the interview method and filling out questionnaires for people who play a role in the arts. This research is an application of information guide services in the form of audio that can be used to access art in the Art Gallery to make it easier for Art Gallery visitors to receive information related to paintings or fine arts in the Art Gallery. This application can also be used as a tool to guide the location of the local Art Gallery. The use of mobile applications on smartphones is expected to be the first source of information in viewing and searching for the Art Gallery you want to visit and directly impacting increasing visits to each Art Gallery.

A R T I C L E I N F O

1. INTRODUCTION

The art gallery's problem is how to promote it and communication, which is delivering information. Innovations are created to help use time effectively and efficiently; in this case, we take advantage of technology to create an art gallery innovation. An art gallery is a place or forum for fine arts activities, especially in painting and sculpture and generally for other art types. Art Galleries can be owned by individuals, foundations or associations, or communities. Developed countries display artists' work and are equipped with a book store (selling books) so that visitors can truly enjoy their work. The works of art displayed and stored in the Art Gallery can be in 2-dimensional or 3-dimensional forms. Apart from functioning as a place to exhibit fine artworks, Art Gallery also cares for, maintains, appreciates, and develops these artworks (Mantulangi, *et al.*, 2017). The mobile applications development industry has been developing at a rapid pace. The various operating systems available in the market are diverse, and this proves to be a hindrance to application developers while developing a single application for all the operating systems. Hybrid platform mobile applications help in cost-cutting and saving time and provide components for easier development of applications that provide a native feel to the user. This paper aims to help developers make the right choice to build an application and give vital information about hybrid platform mobile application approaches and their advantages and disadvantages (Khandeparkar, *et al.*, 2015).

Similar research has been studied regarding mobile applications that provide information guidance services that incorporate an interactive interaction (Li & Liew, 2015). Another study also examined Augmented Reality (AR) technology in smart glasses, which is integrated using an affinity diagram in a museum (Tom Dieck, *et al.*, 2016). Other studies use mobile applications other than information guides and manage health conditions in older people (Matthew-Maich, *et al.*, 2016). Another study is the design of an Android-based information system. This research uses the waterfall method. This waterfall method is considered effective and can provide convenience for its users (Lucitasari & Khannan, 2019). Other studies include Comparing Spatial and Augmented Reality for Guiding Assembling Procedures with Task Validation. This study focuses on checking validation using Augmented Reality (AR) technology on a digital paper or manual (Alves, *et al.*, 2019). Another study entitled Marketing Efforts Related to Social Media Channels and Mobile Application Usage in Tourism explained that social media and electronic communication could accelerate tourism companies using benchmarking and road mapping (Gulbahar & Yildirim, 2015).

However, from various studies that previous researchers have conducted, there has been no research on mobile applications that discusses the design of information guides in audio based on mobile applications and can be accessed by android and ios devices. This research aims to provide a mobile application design that will guide paintings or other fine arts in an Art Gallery. The research method used in this research was the descriptive analysis method with a qualitative approach.

Meanwhile, in the application development process, using the waterfall system development method.

2. METHOD

This research design used a descriptive analysis method with a qualitative approach and focused on the object studied. We observed the Art Gallery see the characteristics and distribute information related to visitors' things in the Art Gallery. In system development, this study used the Waterfall method. The waterfall method is a classic model with a systematic and sequential approach in making software. This study's resulting design is structured more neatly, starting from the requirements stage, then the design stage, the implementation stage, the verification stage, and the maintenance stage (Matthew-Maich, *et al.,* 2016). This method's stages must be completed one by one and must not jump to the next stage. The following is an overview of the waterfall method used in this study (see Figure 1).

Based on the method in Figure 1, the stages carried out in application development are as follows:

The requirements stage needs analysis and data collection and function definition, and system specifications are carried out. At this stage, functional and non-functional requirements are determined using the JAVA programming language software with a database that supports data storage, namely phpMyAdmin. Moreover, the tools used in this application's development are Xamarin to be accessed by Android and iOS. The design stage is making a design. Making this system design is like making a conceptual database design, system design. Besides, researchers also made UML designs to use case diagrams and activity diagrams to make it easier for visitors to understand the application's process flow.

Implementation stage, at this stage, the programming or coding process is carried out. At this stage, it is done by coding an information guide application based on a mobile application using Xamarin and the Java programming language. Verification Stage, after coding, the next stage is the system testing stage. System testing is carried out using the black box testing method so that errors in the application can be detected and corrected immediately.

The maintenance stage, maintaining the means to maintain and review the system that is already running. System maintenance is carried out every two weeks in the form of the application of new technology.
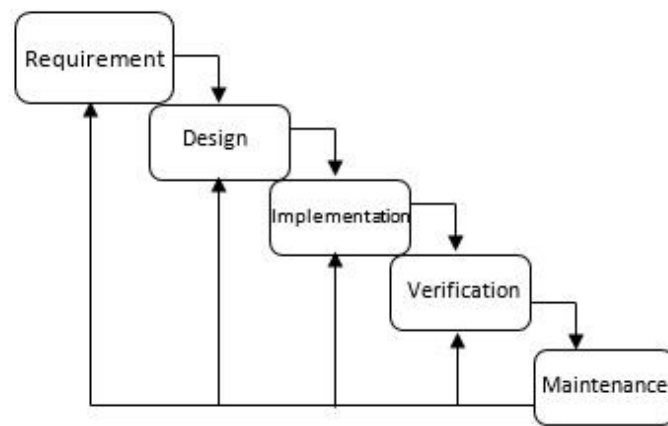
Fig. 1. Waterfall Method

3. RESULTS AND DISCUSSION

3.1. Use Case Diagram

Use Case Diagram is a diagram that describes an activity that shows the system as a whole carried out by actors and systems. This use case diagram aims to facilitate the process of activities in the development process. This system is carried out by two actors, namely the admin and the public, as recipients of the information. This use case diagram shows the duties of actors and their roles in a system that has been developed (Lucitasari & Khannan, 2019).

As seen from the use case diagram, it is shown how this actor and design work. Visitors here are fully responsible for receiving the information they want regarding the fine arts in an Art Gallery. Because this information system is limited in its management and only accessed by people who visit an Art Gallery, it is managed directly by the Art Gallery's admin. The admin is in charge of providing information and updating information. The information we present here is in the form of audio. This form of information can make it easier for visitors to the Art Gallery to receive information related to art without reading the writing in question and focusing on its art, as shown in Figure 2
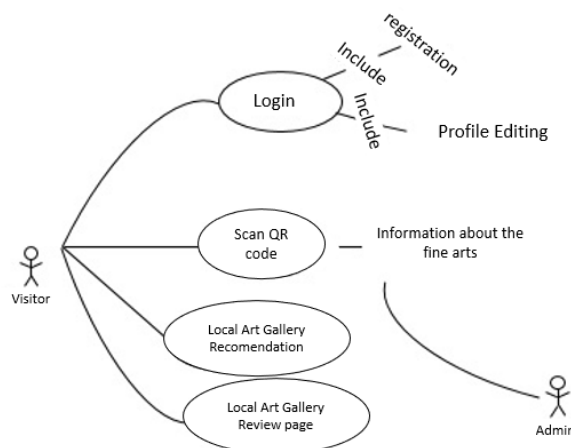

Fig. 2. Use Case Diagram

Visitors only need to scan the QR code provided in an Art Gallery, then information related to the Art Gallery will appear in the form of a voice note. This form of information will be effective in disseminating information and receiving it.

Besides, this form of audio information aims to reduce the production of information in the form of paper (Lucitasari & Khannan, 2019; Tiwari, 2016). Sources of data in this study consisted of visitors and tourists, and admins in testing this application. The subjects of the study for testing were randomly assigned (Yakanita, *et al.,* 2013). This design focuses on enhancing the innovation and personalization

aspects of the Art Gallery through a mobile application. The development of technology today has made many contributions in various fields. These fields include advertising, entertainment, and also education. In education, technology is used in the form of E-books, AR books (Yudiantika, *et al.,* 2013).

3.2. User Interface Design

3.2.1. Login View

In Figure 3, the login menu is shown, a user username and password form will be displayed to log into the application. Visitors must be entered by the username and password that has been registered in this application.
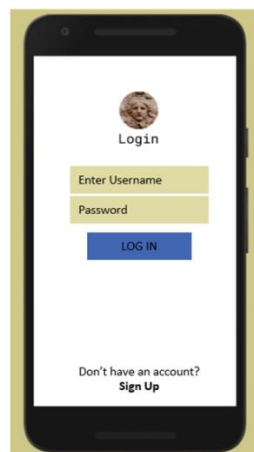

Fig. 3. Login Page Display

3.2.2. Home Page Views

After logging into the application, in Figure 4, the user will be directed to the main page. This main page displays a

Scan QR code display. Visitors can access information related to the art gallery by scanning the QR code on this home page.
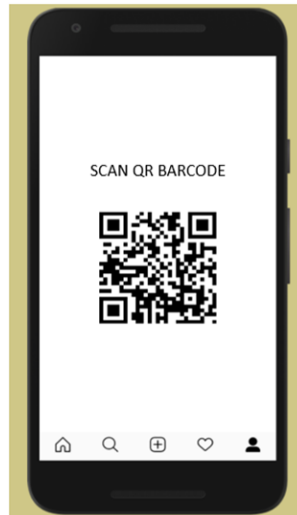
Fig. 4. Home Page Display

3.2.3. Feeds Page View

This page in Figure 5 displays a timeline of users who have used this application as well. The display provided is more or less like Instagram content, and users can also upload photos from visiting the Art Gallery.
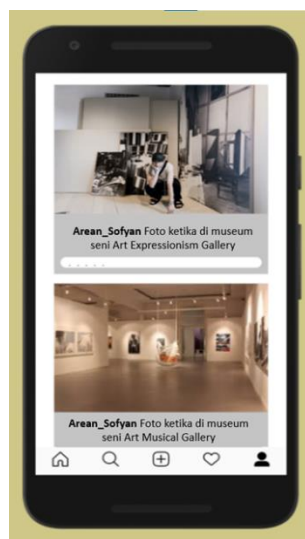

Fig. 5. Feeds Page Display

3.2.4. Profile Page Views

On this profile page, it is designed like Instagram to have a display of username, followers, following, and message menu. Besides, this profile page displays an "experiences" menu to notify the art gallery that the user has visited. Users can also see their photo uploads' results (see Figure 6). Studies have shown that profile views aim to provide important information about the identity and other general information (Kramer & Reynolds, 2018).

Fig. 6. Profile Page Display

3.2.5. Recommendations Page Views

Visitors can also access the "Local Art Gallery Recommendations" page to see and explore more than one Art Gallery venue. The aim is to provide visitors with recommendations and experiences on various types of Art Galleries. This page contains recommendations for places based on ratings from visitors and the completeness of the artwork in the art gallery (Figure 7).
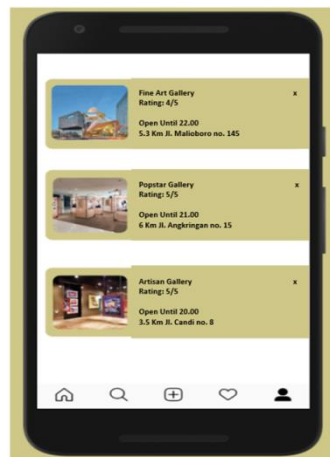

Fig. 7. Recommendations Page Display

3.2.6. Review Page Views

Art can be expanded by providing art gallery-based learning through application development. The general public can access all information related to galleries and art learning through mobile applications (Suess, 2018). We also provide a "Review Art Gallery" page where on that page we allow visitors who have visited an Art Gallery to experiment with their experiences while visiting. The assessments provided are starting from the completeness of information, the comfort of the place, the staff's friendliness, and the fine arts' completeness in the Art Gallery (Soegoto & Luckyardi, 2018; Komala, *et al.,* 2021; Dewiyanti, *et al.,* 2021). Visitors can give a star rating ranging from 1 to 5 stars.

Visitors can also comment in the comments column that has been provided. With such a scoring system, it is hoped to help developers improve the application and the local Art Gallery (see Figure 8).
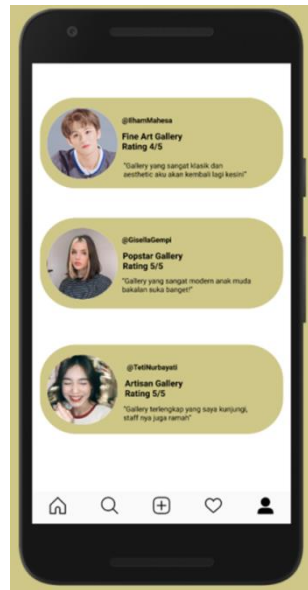

Fig. 8. Review Page Display

4. CONCLUSION

The use of technology in modern times is needed to provide innovations. The Art Gallery Information Guide Application Mobile design is an information model in audio to be applied directly to the Art Gallery manager. The features provided by this system are very effective and can meet the needs of visitors or tourists who try to visit the Art Gallery educational tourist spot. The design of this Mobile Application is intended for areas with an Art Gallery place because, in this information system, the area's role is maximized as system data.

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