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Designing Mobile Applications As Old Money Information Media With Prototyping

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Abstract

Old money holds significant historical and cultural value in Indonesia's economic growth. However, access to information about old money remains difficult due to limited documentation and less integrated digital systems. This research aims to design and develop a mobile application that provides information on Indonesian old money and archives while integrating an image recognition-based scanning feature to identify money and display historical details. The method used includes a literature study to collect data on old money history and prototyping the initial application design. The system design applies the UML approach, the interface design is developed using Figma, and the initial development is based on Flutter and Firebase. The research outcome is a prototype application that enables users to access old money information, view archives by year of issue and nominal, and use a scanning feature to recognize images on the back of the money automatically. This application is expected to facilitate public access to historical information about old money in Indonesia while increasing awareness and interest in preserving cultural identity in numismatics.

Keywords: *Old Money, Mobile Application, Interface Design, Prototyping*

1. INTRODUCTION

ARSANA (Arsip Rupiah Nasional) is a digital solution designed to facilitate access to numismatic information in Indonesia. The app contains information on the history of old currency in Indonesia and is equipped with scanning features based on image recognition technology to identify old currency automatically. The app also features interactive augmented reality (AR)-based features to enhance the user experience of learning about currency history through three-dimensional models.

The background to the development of this application stems from the limited access to information on old currency in Indonesia. One of the main factors causing this is the lack of comprehensive documentation and the lack of an integrated digital system. In fact, old money has a historical and cultural value that is important in understanding the economic development and monetary policy of a country. However, the public still faces difficulties in obtaining information on the history, design, and circulation period of old money from both online and printed sources.

In developing digital systems, systematic design is needed to ensure the applications created can run optimally. Information system design is an important part of technology development to improve efficiency in data presentation and management [1]. Various platforms have begun to adopt interactive technology to increase the accessibility of historical information more broadly and interestingly for the public [2]. In this context, mobile applications can be a solution in presenting historical information about old money more effectively through digital features that allow users to access numismatic

documentation more interactively. Moreover, implementing a well-structured information system in mobile applications has been shown to enhance accessibility and optimize data management, making it easier for users to interact with historical content digitally [3]. Additionally, research on mobile-based information systems has demonstrated that integrating digital features such as real-time data retrieval and interactive interfaces can significantly improve user engagement and system usability [4].

Image recognition technology allows users to identify ancient coins simply by taking a picture using a smartphone camera. This technology has been applied in various fields, including visual-based object identification. A study showed that advanced object detection techniques, such as Contrastive Language-Image Pre-training (CLIP), can identify and classify specific features of coins using images and text descriptions. With this technology, users do not need to search for information manually. Still, they can obtain complete data regarding the year of issue, design, and money history by scanning the image [5].

In addition to the image recognition feature, the app also adopts augmented reality (AR) technology to provide an interactive learning experience. With this technology, users can explore three-dimensional (3D) digital models of old money displayed in real time in their physical environment. These visualizations are enriched with interactive animations and additional information, allowing users to gain deep insights into the history and evolution of old money designs.

This AR-based approach provides a more immersive and explorative learning alternative to conventional methods based only on text and static images. Thus, this technology not only functions as a visual aid but also as an educational medium that can enrich the user experience by helping them understand the history of old money more deeply.

In addition, user interface (UI) design and user experience (UX) play an important role in the success of educational mobile applications [6] mentioned that interactive design can increase user engagement in educational applications, making it easier to understand the material presented. A similar approach is applied in sign language learning applications, where intuitive UI/UX design increases user engagement and learning effectiveness. Therefore, in developing an old money recognition application, user-friendly and interactive UI/UX design should be one of the key aspects to optimize user experience.

In the development of this application, the Unified Modeling Language (UML) is used as a system modelling method to describe the structure and interaction in the application. UML is widely used in software engineering because of its ability to model business processes and the flow of interactions between users and system. Applying UML allows application design to be more structured and easily understood by the development team and related stakeholders. Previous research shows that applying UML in mobile system design can improve efficiency in documenting technical specifications and application workflows [7].

After idea formulation and system development are completed, the next stage is prototype testing to evaluate the usability of the developed application. System Usability Scale (SUS) is used as an evaluation method to measure users' level of satisfaction and ease of use of the application. SUS is a standard method in usability testing, which consists of 10 Likert scale-based questions to assess user experience with a system or application [8]. This method has been widely used in information system evaluation to assess aspects of functionality and user comfort in interacting with digital applications [9].

The SUS method allows developers to get quantitative feedback regarding the effectiveness of UI/UX design, ease of navigation, and interactivity aspects of the application. This test is conducted by giving users specific tasks when using the application, and then they are asked to fill out an SUS questionnaire to measure the level of satisfaction and ease of use of the system. Previous research shows that SUS is effective in identifying usability constraints and providing recommendations to improve the overall user experience [10].

2. LITERATURE REVIEW

2.1. Digital Technology

The development of digital technology has brought fundamental changes in various aspects of human life. Its ability to process, store and disseminate information quickly has increased efficiency in

various fields, including communication and education [11]. Digitalization also allows people to access information more easily and flexibly without being limited by time and space.

2.2. Mobile Applications

Mobile applications are software designed to run on smartphones, allowing quick and flexible access to various services and information. The use of mobile applications is increasing along with the development of digital technology that facilitates accessibility and increases user efficiency in various fields [12]. The main advantages of mobile applications lie in portability, ease of access, and a better user experience. This application allows users to obtain information in real-time, thereby increasing efficiency and expanding the range of access without space and time restrictions [13].

Mobile applications also play a crucial role in education, enhancing students' learning experiences through interactive and flexible platforms. The development of Android-based learning media has been shown to improve students' motivation and academic performance, especially in physics, chemistry, and language studies [14]. Additionally, mobile learning allows students to study anytime and anywhere, making it an effective tool for modern education [15].

2.3. Image Recognition

Image recognition technology is a branch of computer vision that enables systems to recognise and classify objects based on visual features. It converts image data into machine-interpretable information using image processing, feature extraction, and artificial intelligence-based classification techniques [16]. Various studies have explored the application of deep learning in image recognition, demonstrating that convolutional neural networks (CNN) significantly improve accuracy in object classification and identification [17]. Additionally, advancements in pre-trained models, such as ResNet and MobileNet, have optimized recognition performance while reducing computational requirements, making them suitable for mobile applications [18].

2.4. System Modeling

System modeling serves to describe the structure and workflow of a system before it is implemented. One of the most commonly used methods in system modeling is the Unified Modeling Language (UML), which allows developers to design systems in a more structured and efficient manner [7]. UML provides various diagram types that facilitate a clear representation of system architecture, interaction, and behavior, helping to ensure consistency throughout the development process. Studies have shown that implementing UML improves software quality by reducing ambiguities in requirements and enhancing communication among stakeholders [19]. With good modeling, the risk of errors in implementation can be reduced, and system management becomes more optimal.

2.5. UI/UX Design

User interface (UI) design and user experience (UX) play an important role in ensuring that applications are easy to use and engaging for users. A well-designed UI can improve navigation, while an optimal UX can increase user comfort and engagement in the application. With a responsive and intuitive design-based approach, the user experience can be significantly improved. Research suggests integrating user-centered design principles and testing can enhance mobile application usability, enabling more seamless interaction between users and digital platforms. Additionally, adaptive UI design ensures that applications remain accessible across various screen sizes and user contexts, improving the overall usability of mobile systems [13].

2.6. Augmented Reality

Augmented Reality (AR) is a technology that combines virtual elements with real environments in real time, allowing users to view the real world with additional digital elements such as images, text, or animations displayed through devices such as smartphones, tablets, or AR glasses [20]. Along with its development, AR has been used in various fields, including education, health, and the manufacturing

industry. AR in education helps improve understanding of three-dimensional concepts in geometry subjects. AR is used in medical training, such as surgical simulations, to improve doctors' skills before performing real procedures. In the manufacturing industry, AR assists workers in assembling products by displaying instructions directly on the device used [21]. In addition, shows that the development of AR applications in museums can improve the visitor experience by presenting interactive and detailed artifact information through 3D models, thereby reducing the risk of damage to historical objects because users do not need to touch them directly. This study confirms that implementing AR can provide a more immersive user experience and support various fields significantly [22].

2.7. Prototyping

Prototyping is a method in system development that aims to produce an initial model of an application to evaluate functionality and user needs before final implementation is carried out. This method allows developers to understand system requirements better and identify potential problems from an early stage, thus reducing the risk of errors in further development. Prototyping is also used as a communication tool between developers and users so that the system built can match expectations and actual needs [23]. In information system development, prototyping facilitates iterative improvements, ensuring that the final product aligns with user needs and usability standards [24].

2.8. System Usability Testing

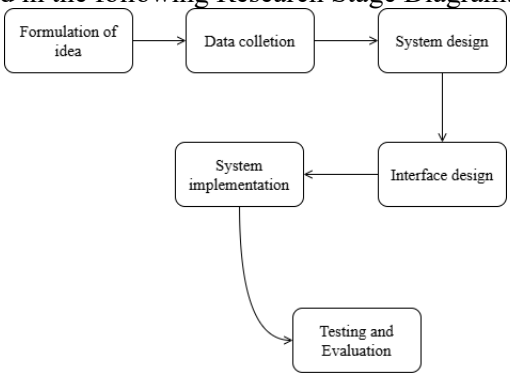
The System Usability Scale (SUS) is a standardized method for evaluating the usability of a system or application based on user experience. It uses a questionnaire with 10 Likert scale-based statements to assess aspects such as ease of use, system efficiency, and comfort in navigation. This method has been widely used because it is simple and fast and can be applied to various types of systems, including mobile applications and web-based information systems [25].

The main advantage of SUS is its ability to provide a quantitative assessment of usability, allowing developers to identify potential improvements in system design. Previous studies have shown that SUS is effective in measuring user experience and is often used as a basis in decision-making to improve interface design and application functionality [26].

3. METHODOLOGY

3.1 Research Stages

This research was conducted in stages, including formulating ideas, collecting data, designing systems, developing user interfaces, and testing and evaluating the main features of the application. The overall research flow is visualized in the following Research Stage Diagram.



Picture 1. Research Stages Diagram

The first stage in this research is the formulation of ideas (Formulation of Idea), which aims to identify problems and opportunities in the development of digital-based educational applications that focus on the history of old money. At this stage, an analysis of the limitations of conventional methods in numismatic preservation is carried out, as well as an exploration of how technological innovation can

provide more interactive and adaptive solutions. The results of this stage are in the form of an initial application concept, which includes the design of main features such as searching for old money based on nominal or year of issuance, an artificial intelligence-based image recognition system, and visualization of old money objects in 3D model format using AR technology.

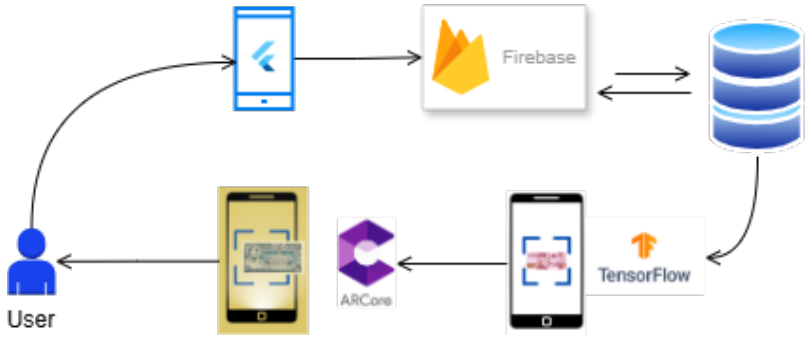
After the formulation of ideas is completed, the research enters the data collection stage (Data Collection), which consists of collecting old money datasets and scientific references that support system development. The datasets collected include images of old money from various periods, with main attributes such as nominal, year of issuance, visual design, and other physical characteristics. Data is obtained from validated sources, including digital archives, museum collections, and numismatic communities that specialize in currency history. In addition, at this stage a literature review was conducted to explore the method of extracting visual features from old money images, the application of artificial intelligence models in object classification systems, and the integration of augmented reality in digital technology-based education.

The next stage is system design, which focuses on building a system architecture to ensure that the application's workflow and functionality are designed systematically. This system design uses the Unified Modeling Language (UML) to model the structure and interactions between components in the system. UML is used because of its ability to provide detailed visualization of the application structure, data flow, and relationships between objects in the system. The UML diagrams developed in this study include Use Case Diagrams, which describe user interactions with application features, Activity Diagrams, which visualize the process of searching and scanning old money, and Sequence Diagrams, which show how data is processed in the system based on input provided by the user.

In order to ensure an optimal user experience, this study also includes a user interface design stage, which focuses on UI/UX design based on user-centered design (UCD) principles. This design was carried out using Figma, taking into account a clear information hierarchy and a display structure that facilitates user navigation. The interface design was developed by considering readability, visual clarity, and effectiveness in presenting historical information on old money.

3.2 Conceptual Design Diagram of The Application

The concept design of this application was developed with a mobile-based approach that integrates image recognition technology and augmented reality (AR) to enrich the user experience in learning numismatic history. The Flutter framework was chosen as the main platform in developing this application, considering its ability to build natively compiled applications for various operating systems with a single code base (Flutter.dev). This advantage allows the development of more responsive, adaptive, and cross-device compatible interfaces, thereby increasing the flexibility of system implementation on a large scale.



Picture 2. Application Concept

On the backend side, this application utilizes Firebase as a cloud computing-based information storage and management system. Firebase is used as a real-time database that stores various information related to old money, including historical details, year of issue, and physical characteristics of each currency denomination. The existence of this database system plays a role in supporting the search and

scanning features of old money through the user's device camera, enabling an automatic identification process with efficient data synchronization between devices.

The object identification process is carried out by implementing TensorFlow Lite, a machine learning model optimized for mobile devices and embedded systems. This technology allows the application to recognize patterns and characteristics of old money based on a pre-trained dataset. When a user scans an image, the system will perform feature extraction, match the results with the available database, and then display relevant information automatically. This device-based processing provides advantages in computational efficiency, reduces dependence on cloud-based systems, and increases response speed in visual analysis.

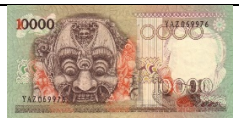
In addition to the image recognition feature, this application also adopts ARCore technology to provide an interactive learning experience based on augmented reality. With this technology, users can explore three-dimensional (3D) digital models of old money, which are displayed in real-time in their physical environment. This visualization is enriched with interactive animations and additional information, allowing users to gain in-depth insights into the history and evolution of old money designs. This AR-based approach provides a more immersive and exploratory learning alternative, beyond conventional methods that are only based on text and static images.

By integrating Flutter for UI/UX development, Firebase for database management, TensorFlow Lite for artificial intelligence processing, and ARCore for interactive experiences, this application is designed as an innovative solution in the efforts of cultural preservation and digital transformation in the field of numismatics. Through this approach, this application is expected to function as a more interesting and informative educational media, as well as a platform that supports the digitalization of old money collections, so that information on the history of Indonesian currency can be accessed by more people with a more interactive approach.

4. RESULT AND DISCUSSION

4.1 Data Set

Table 1. Data Set Application

Front Side	Backside	Nominal	Description – Front Side	Description – Backside	Production Year	Year of Recall
		Rp100	Badak Jawa	Badak Jawa di habitat	1997	1998
		Rp1000	Pangeran Diponegoro	Orang yang sedang membajak sawah	1975	1998
		Rp5000	Penjala Ikan	Kapal Nelayan	1975	1990
		Rp10000	Relief Ramayana di Borobudur	Batara Kala, Candi Jago	1975	1980
		Rp1000	Soetomo	Sultan Hasanudin	1980	1992

		Rp5000	Orang yang Sedang Mengasah Intan	Dewi Sartika	1980	1992
		Rp10000	Pemain Gamelan, Jawa	Candi Prambanan	1979	1992
		Rp1000	Sisingamangaraja XII	Keraton Yogyakarta	1987	1995
		Rp5000	Teuku Umar	Menara Masjid Kudus	1986	1995
		Rp10000	Kartini dan Candi Prambanan	Wisudawati dan Bendera RI	1985	1995
		Rp1000	Danau Toba	Lompat Batu Nias	1992	2006
		Rp5000	Sasando Rote	Danau Kelimutu	1992	2006
		Rp10000	Hamengkubuwono IX	Candi Borobudur	1992	2000
		Rp20000	Burung Cenderawasih	Bunga Cengkeh		2000

Table 1 explain an example of some of the datasets I created. The datasets in this study were compiled from the official archives of Bank Indonesia as well as Wikipedia, with the aim of providing comprehensive information about old Indonesian money. The data collected includes face value, year of issue, circulation period, as well as visual design elements that represent historical and cultural aspects. Classification is based on the era of issue, with each old currency featuring a national figure, cultural icon, or geographical symbol, such as Prince Diponegoro on the Rp1,000 denomination (1975) and Borobudur Temple on the Rp10,000 denomination (1992), reflecting historical values in Indonesian numismatics.

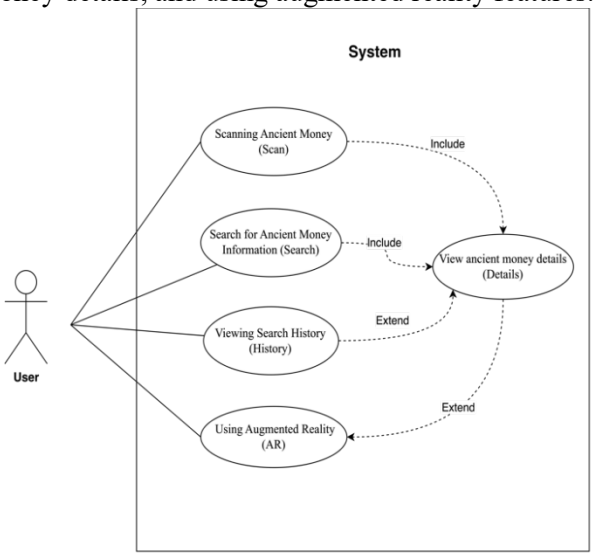
The validity of this dataset is strengthened by primary sources from Bank Indonesia, which provides official data related to the circulation period and circulation regulations. In contrast, Wikipedia provides additional contextual narratives regarding the design philosophy and historical relevance. With the integration of data from these two sources, the developed in-app old currency recognition system can provide accurate, systematic, and historically-oriented information, thereby supporting the preservation of numismatic knowledge in a more interactive and modern manner.

4.2 System Design

This section describes the system design using various UML diagrams and UI/UX designs used in the development of the digitization and historical heritage of old money applications. This system design includes several main aspects:

4.2.1 Use Case Diagram

Use Case Diagram describes the interaction between the user and the system. This diagram shows how users can access the main features, such as scanning old money, searching for information, viewing search history, viewing money details, and using augmented reality features.

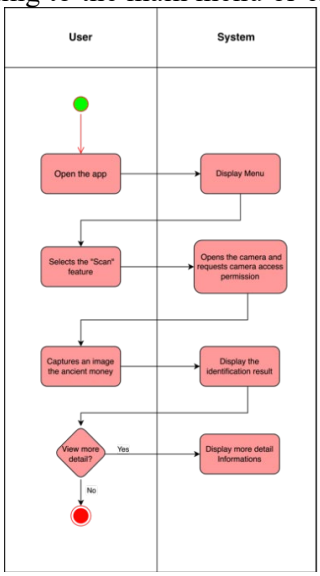


Picture 3. Use Case Diagram

4.2.2 Activity Diagram

a. Scan Features

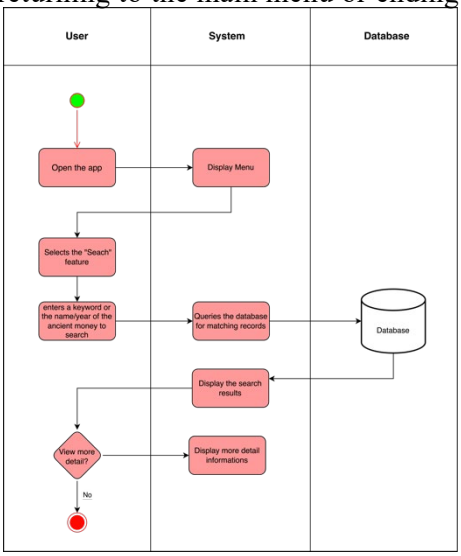
This activity diagram shows the flow of searching for old money in the system. The user opens the app, selects the search feature, and enters a keyword. The system searches for suitable data in the database and displays the results. If required, the user can view more detailed information before returning to the main menu or ending the search.



Picture 4. Activity Diagram of "Scan" Features

b. Search Features

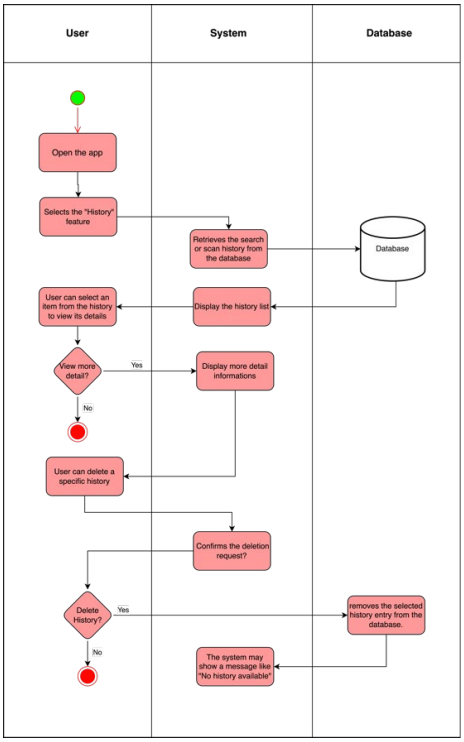
This activity diagram shows the flow of the old money search feature in the system. The user opens the app, selects the search feature, and enters keywords. The system searches for suitable data in the database and displays the results. If required, the user can view more detailed information before returning to the main menu or ending the search.



Picture 5. Activity Diagram of "Search" Features

c. History Features

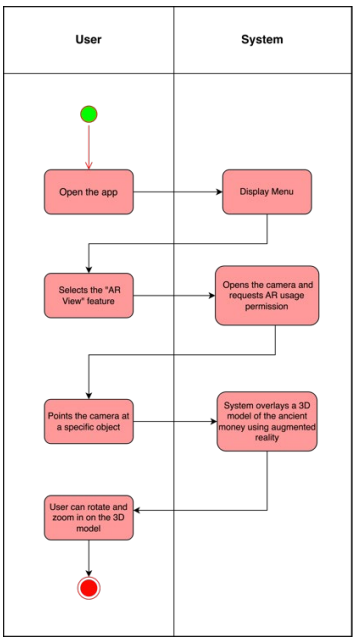
This activity diagram shows the flow of using the search history feature in the system. The user opens the app, selects the “History” feature, and the system retrieves and displays the history list from the database. The user can view the details of a particular history or choose to delete it. If the deletion is confirmed, the system will delete the entry from the database and update the view.



Picture 6. Activity Diagram of “History” Features

d. Augmented Reality Features

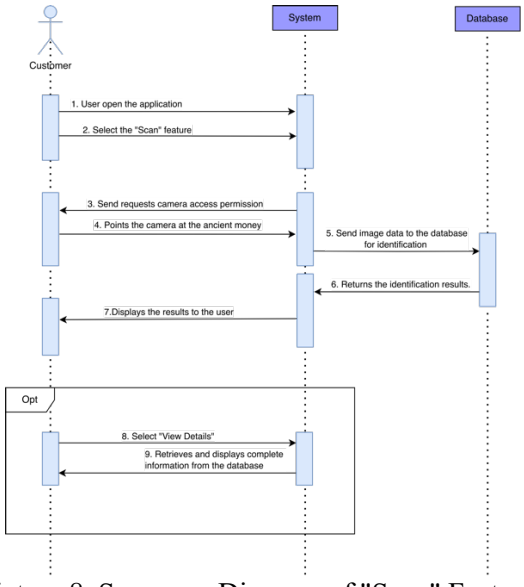
This activity diagram shows the flow of using the AR display feature in the system. The user opens the app, selects the "Augmented Reality" feature, then the system activates the camera and requests permission to use AR. After the camera is pointed at a specific object, the system displays a 3D model of old money using augmented reality. The user can zoom in and rotate the model to see the details.



Picture 7. Activity Diagram of "Augmented Reality" Features

4.2.3 Sequence Diagram

a. Scan Features

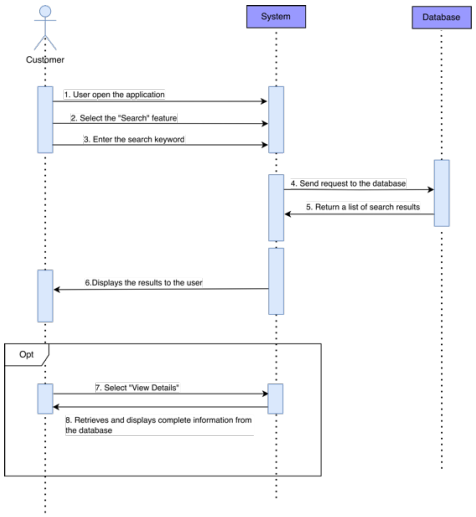


Picture 8. Sequence Diagram of "Scan" Features

This sequence diagram explains the process of user interaction with the system in scanning old money. The process begins with the user opening the application and selecting the scanning feature. The system then requests access to the camera before the user points it at the old currency to be identified. Once the image is captured, the system sends the visual data to the database for analysis.

The database then returns the identification results processed by the system and displayed to the user. If the user wishes to obtain more information about the money, they can select the detail view option, which allows the system to retrieve and present complete information from the database regarding the history and characteristics of the identified money.

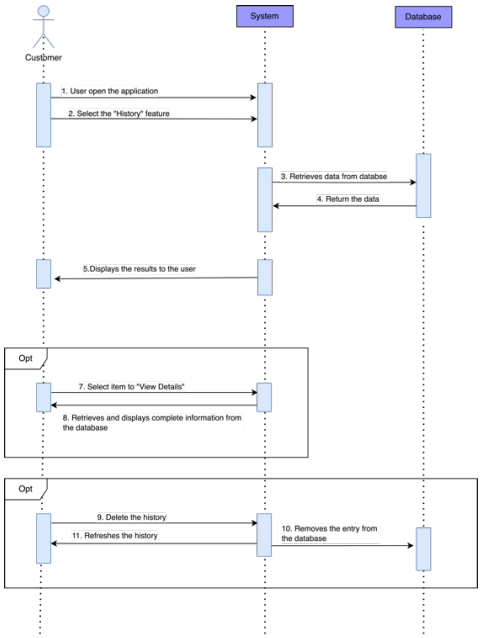
b. Search Features



Picture 9. Sequence Diagram of "Search" Features

This sequence diagram explains the process of user interaction with the system in searching for old money information. The process begins with the user opening the application and selecting the search feature. The user then enters keywords related to the money they want to search for. The system sends a request to the database to obtain results that match the keywords. The database then returns a list of search results that are processed by the system and displayed to the user. If the user wants to get more information about the money, they can select the detail view option, which allows the system to retrieve and present complete information from the database regarding the history and characteristics of the money being searched.

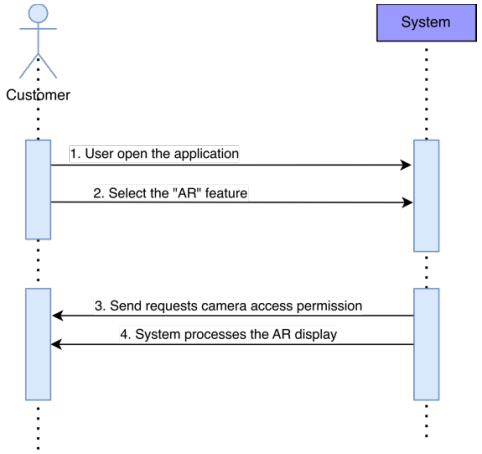
c. History Features



Picture 10. Sequence Diagram of "History" Features

This sequence diagram explains the process of user interaction with the system in managing the search history of old money.The process begins with the user opening the application and selecting the history feature. The system then retrieves the data from the database and displays it to the user. If the user wishes to get more information about an entry in the history, they can select the detail view option, which allows the system to retrieve and present complete information from the database about the history and characteristics of the selected currency. In addition, users also have the option to clear the search history. When this option is selected, the system will delete corresponding entry from the database, ensuring that the search history is updated according to the user's request.

d. Augmented Reality Features

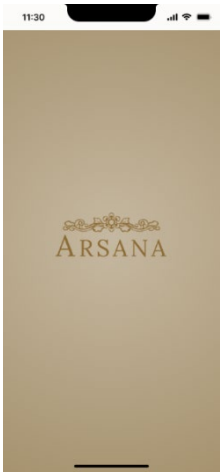


Picture 11. Sequence Diagram of "Augmented Reality" Features

This sequence diagram explains the process of user interaction with the system in using the augmented reality (AR) feature to display old money in the form of a three-dimensional model. The process begins with the user opening the application and selecting the AR feature. The system then requests camera access permission in order to process the augmented reality display. Once permission is granted, the system displays the old currency model in virtual form, allowing the user to interact with the visualization according to the features available in the application.

4.2.4 Interface Design

a. Splash Screen



Picture 12. Splash Screen on The Application

When the user opens the application, the first display that appears is the logo of the application that says "Arsana". Arsana is an abbreviation of the Indonesian National Archives, with a brown

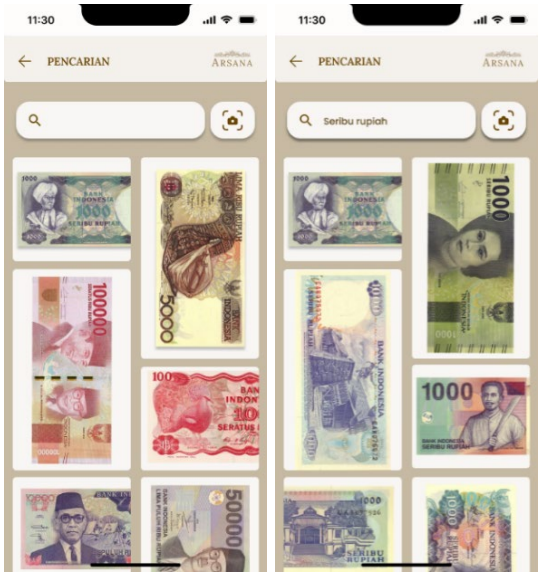
gradient background and the addition of traditional ornamental carvings in the logo creates a classic impression that reflects the historical and cultural values in Indonesia.

b. Main Menu

Picture 13. Menu Display

In the interface menu section, users are presented with a selection of features available in the application. The top section contains a search column using keywords, next to it is a button with a camera icon to scan the image of money so that the search is faster. Below it is a section that displays the money that is most often searched for by other users, then below it is the Augmented Reality feature to make the image of money 3D.

c. Search Page



Picture 14. Display of Search Feature

This is the result of the interface design from the search page. Users will type the keyword for the money they want to find then the system will display images related to the keyword.

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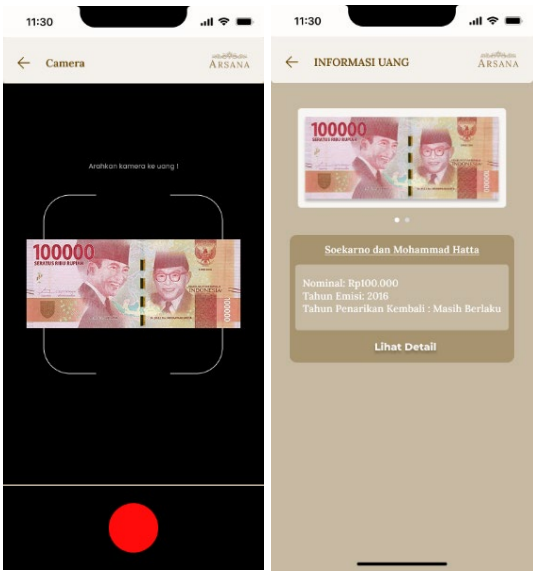
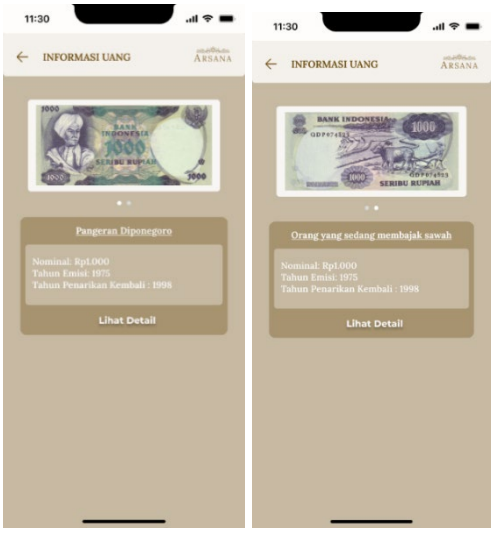
d. Scan Page



Picture 15. Display of The Image Scanning Feature

This is an overview of the image scanning feature. Users point the camera at the money they want to find, after which the system will display information from the image.

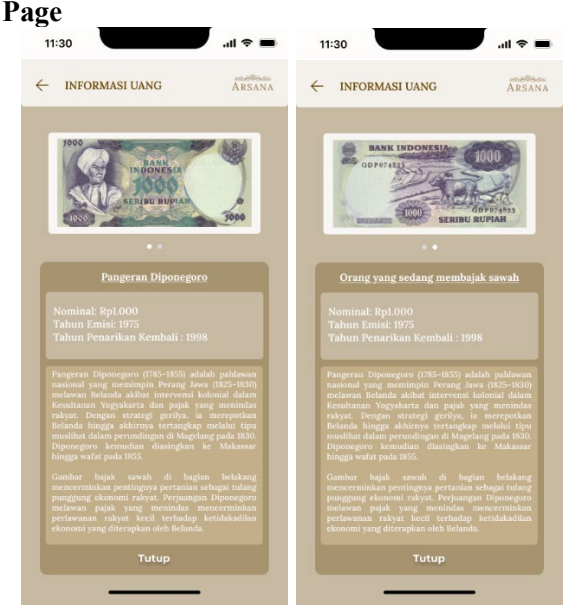
e. Information Page



Picture 16. Display of The Money Information Page

This is the interface for displaying money information. The first view on this page is a picture on the front of the money but the user can swipe to view the back of the money. The information displayed on this page is in the form of nominal, year of publication and year of withdrawal of the money.

f. Detail Information Page



Picture 17. Display of The Money Information Page Detail

This is the same interface as the money information, this appears when the "Lihat Detail" button is pressed. This section contains historical information on the image of the front and back of the money they selected.

4.2.5 Illustration of Augmented Reality

Picture 18. Illustration When User Trying Augmented Reality Feature

This is the interface when the user selects the Augmented Reality feature. Users will point the camera at the money they want to find, then the application will display the 3D shape of the image of money that is directed.

4.2.6 Prototype Design

This application prototype was designed using a user-centered design approach to ensure an optimal user experience in accessing numismatic information. The navigation structure shown in the figure demonstrates the functional linkages between pages, emphasizing a systematic hierarchical design to make it easier for users to browse old money data. The implementation of key features, such as category-based search, artificial intelligence image scanning, and object visualization in digital format, have been integrated to improve interaction efficiency.

Link Prototype: https://www.figma.com/proto/a0GaSlg1X2FwfxUuNWbfuF/ARSANA?node-id=9-2&p=f&t=i885eXMabFhRLV3E-1&scaling=scale-down&content-scaling=fixed&page-id=0%3A1&starting-point-node-id=1%3A2

2622-8130 Jurnal Sifo Mikroskil (JSM) - Volume 26, No 2, Oktober 2025
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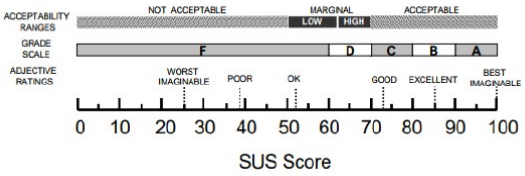
Picture 19. Prototype Application

4.3 SUS Score



Picture 20. Range of SUS Score

Table 2. Result from the calculation with the SUS formula

Calculated Score										Total	Score
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		(Qty x 2.5)
2	4	4	4	5	3	3	4	3	4	36	90
3	3	3	3	5	3	3	3	3	3	32	80
4	4	4	4	4	4	4	4	4	2	38	95
4	4	4	4	4	3	4	0	4	2	33	83
3	3	3	4	4	4	1	4	2	4	32	80
3	3	4	2	3	3	3	3	3	3	30	75
3	1	3	4	3	4	3	3	3	3	30	75
3	3	3	4	3	3	3	3	3	3	31	78
3	3	3	2	3	4	3	3	4	1	29	73
4	2	3	3	3	3	3	3	3	2	29	73
3	3	4	3	5	2	3	3	3	2	31	78
4	2	3	2	4	3	3	2	3	3	29	73
4	2	4	4	4	4	4	4	4	4	38	95
3	3	3	3	3	3	3	3	3	2	29	73
3	3	3	3	3	4	3	3	3	2	30	75
2	2	3	2	3	3	2	3	3	1	24	60
4	4	4	2	4	4	3	4	3	3	35	88
4	4	4	4	3	3	3	4	3	3	35	88
4	1	4	3	3	3	3	4	4	2	31	78
3	4	4	4	5	3	3	4	4	4	38	95
3	3	3	3	3	4	4	4	3	2	32	80
3	4	4	4	4	4	4	4	4	4	39	98
4	4	4	4	4	4	4	4	4	4	40	100
4	3	3	4	4	2	3	3	2	3	31	78
3	3	4	2	3	2	2	1	4	1	25	63
3	3	3	4	3	3	3	3	3	2	30	75
3	4	4	3	4	4	4	4	4	3	37	93
4	3	3	4	3	4	3	3	3	2	32	80
3	2	3	3	3	2	3	3	3	2	27	68
4	3	4	4	4	3	3	4	4	2	35	88
Averange											81

Based on the test results conducted by 30 respondents, the calculation was obtained on the System Usability Scale (SUS) score of 80. Referring to the standard System Usability Scale (SUS) score range,

this value is included in the "Excellent" category, which indicates that the system has a very good level of usability and can be well received by users. In the feasibility scale, this score also falls into the "Acceptable" category, which means that the application.

The calculation is done by accumulating the results of 10 statements filled in by respondents using a Likert scale. The score of each statement is converted based on the System Usability Scale (SUS) calculation rules, then summed up and multiplied by 2.5 to match the 0-100 scale. With a score of 80, this application shows that the aspects of effectiveness, efficiency, and user satisfaction have been well met, and the navigation and interface design applied have optimally supported the user experience.

5. CONCLUSION

From the research, this study produced a mobile-based application design designed to present information about ancient Indonesian currencies more interactively. The development of this application went through various systematic stages, starting from the formulation of the initial concept, data acquisition, system modeling with the Unified Modeling Language (UML) approach, user interface design oriented to user experience (UI/UX) to the usability evaluation stage using the System Usability Scale (SUS) method. The dataset applied in the system was obtained from the official archives of Bank Indonesia as well as Wikipedia, which includes various important information about ancient currencies, such as face value, year of emission, and circulation period, as well as visual elements that reflect historical and cultural values.

The results of the usability evaluation involving 30 respondents showed that the application obtained an SUS score of 80, which is classified as excellent. This score indicates that the system developed has a high level of usability, with intuitive navigation and features that are able to support the user experience optimally. Thus, this application has the potential to be an effective educational medium in introducing and documenting the history of Indonesia's ancient currencies more systematically and innovatively so as to contribute to the preservation of numismatic heritage through the utilization of digital technology.

6. SUGGESTION

This research has examined and implemented the prototype method in developing technology-based systems. For future research, further exploration of the effectiveness of this approach in various software development contexts should be conducted. In addition, optimizing interface and user experience (UI/UX) aspects can be a major concern in increasing engagement and ease of interaction for end users.

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2622-8130
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