Android Implementation of Traditional Indonesia Fashion Application

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Abstract: Indonesia has been gifted with a wide range of diverse cultures from Sabang to Merauke, making Indonesia one of the biggest country with multi ethnic groups, races and cultures. Meanwhile, a lack of information that can be accessed by the students causing a big issue that needs to be addressed. The information of Indonesian traditional clothing is very limited, which has been represented as a characteristic of tribe and culture in each region and also used in the traditional ceremony. Therefore, this study aims to develop an Android-based educational game of traditional Indonesian clothing. The method used in this study was Research and Development approach. The results of this study showed that developing an educational game "Introduction to Traditional Clothing in Indonesia" on the Android platform,that provided information to users about any traditional musical instruments in Indonesia, helped students to recognize the particular culture through its traditional clothing as it could give an insight to them. From the results of testing carried out with the black box method, it could be concluded that this application enabled to function well and provide the beneficial information to user about the traditional clothing.

Keywords: Indonesian traditional clothing, android-based application, research and development, education, students and culture

INTRODUCTION

Indonesia has been well-known as the largest archipelagic countries with a wide range of diversity of ethnic groups, races and cultures across Sabang to Merauke. From 34 provinces consisted, every place has its own characteristics and cultures namely, traditional dance, clothing, food, language, song and even weapons indicating the uniqueness of the region (Mogea and Salaki 2019). The Indonesian government should take a firm action to preserve the culture in the era of globalization where the Indonesian youth tends to be more interested in foreign cultures. The rapid development of science and technology, people are increasingly following new technological developments and often people forget the cultures that exist in their own countries (Parlika et al. 2018). In other words, the era of globalization brings an easiness of information dissemination where it creates a golden opportunity for education industry to help persevering the Indonesian culture. Through technological advancement has resulted in numerous improvements in learning techniques (Miaz et al. 2019).

According to Wahyuni et al. (2022), mobile technologies enabled to increase the involvement of teachers and students in improving their knowledge, competencies and skills required in the technological society. He also added that the attractive and interactive learning activity led to fun and enjoyable learning experience. The advantage of having technology in learning activity is to help students to perform self-learning approach where they easily look for information without the teachers' presence. Meanwhile, Mardatila et al. (2021) stated that in the era of revolution 4.0, the improvement of human resources quality would be focused on the student-centered with technology-based learning process, where this kind of approach would encourage students to look for as much subject matter possible via the internet to learn. Therefore, it is necessary to develop an android-based attractive learning application to encourage students to learn about Indonesian culture in which learning media that is easily accessible using their smartphone.

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However, the advancement of technology causes the concern of Indonesian youth upon their culture has been faded away since they tend to be more interested in west culture (Agustina 2015). Especially, the knowledge of Indonesian clothing where people are increasingly unfamiliar with traditional clothes in Indonesia. This such big issues have attracted many researchers to preserve the Indonesian culture by developing an application android-based. Waworundeng et al. (2019) implemented of the legu salai dance learning application, which was built based on Android where this application focused on introducing the legu salai dance as a leaning tool of traditional dance. The future development of the application was to combine the traditional costume. Nugroho (2020) introduced indonesian traditional clothes to the Museum used as objects to provide information to the public using the augmented reality 360 interactive application on custom clothing using a marker based tracking method. Ihsan et al. (2020) developed a useful media to introduce acehnese traditional clothing using augmented reality technology using hybrid tracking method. (Agustina 2015) created an application an education android based app to encourage students to learn indonesian traditional customes from all over Indonesia through a puzzle game. Mogea & Salaki (2019) developed an application to provide information about the culture of North Sulawesi. Sama & Liong (2021) designed an attractive teaching and learning application using android-based augmented reality to introduce Indonesian traditional clothing in the form of 3D objects with the multimedia development life cycle method which was expected to help facilitate students in learning various kinds of traditional clothes in Indonesia. A covid-19 pandemic had attracted Socrates et al. (2022) to design android-based supporting mobile learning media on circular motion material for high school students to learn about Minangkabau culture. However, to the best of our knowledge the android-based Indonesian traditional clothing that focuses on Javanese traditional custom has not been reportedly in the previous studies.

This research work comes from the issue above where Indonesian culture needs to preserve especially the media which provides the information for those who want to learn more about Indonesian traditional clothing. The android-based application is perceived as one of the best way to encourage people enthusiasm to learn Indonesian traditional clothing. The method used in this work is based on Research and Development methods. The results of this study were developed an educational game "Introduction to Traditional Clothing in Indonesia" on the android platform as well as providing the information to users about any traditional musical instruments in Indonesia. Educational games are expected to help in the introduction of existing cultures and can be used as a way to provide insight to children.

METHOD

The method used in this study is the Research and Development (Reasearch and Development) method where this kind of method has been used to produce a software product and test the software feasibility built. According to Sugiyono (2013), Research and Development method is a method used to produce a particular product and test the effectiveness of the product. The researcher built the application using the V-Model method where this model is an extension of the waterfall model. Based on Balaji and Murugaiyan (2012), V-model is modified of waterfall model and it counted on the verification from the previous steps before proceeding forward. Afterwards, the analysis of developed software was carried out based on the collated information. This information is used as guidance to find out what kind of feature will be installed in the android-based educational game application. Meanwhile, the specification analysis is done to outline what system must have in order to run. This kind of analysis is aimed to get the user know the suitable system to be implemented.

System development life cycle

The android-based educational game uses system development life cycle (SDLC) method, which is adopted by Irawan et al. (2022) as can be seen in Figure 1. There are steps involved in the SDLC method used, as follows:
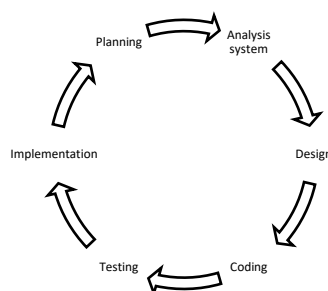

Fig.1. System development life cycle

a. Planning

This stage is used to plan a system creation of android-based educational game

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b. System analysis

The system analysis stage is performed to look for the requirement of system, in which the V-model is used in this development of android-based game application. The V-model involved two analyses as follows:
- Requirements analysis
  Requirements analysis is the process of gathering information about user requirements for software which will be developed. This information will later be used as a reference to find out what features will be available on Android-Based Educational Games.

- Specification analysis

The specification analysis describes what the system must have in order to run. Specifications analysis aims to find out what kind of system is suitable to be implemented, what hardware and software are needed and which the users who will use this system are.

c. Design

In game development, the building an educational game is carried out by a developer to determine the genre or type of game, how to play, level of difficulty or game level. The next development process is the software development design process. Software system design created later will be used as a reference for developers in writing code. The software system design is a must according to the characteristics of the software to be made and able to simplify and clarify the developer in the process software creation. This study uses the system design model Unified Model Language (UML) due to the model it is most suitable for developing object-oriented systems. In this research, the UML used is adapted from the work of Damayanti, Akbar, and Sulistiani (2020).

d. Coding

The UML used is beneficial to create a coding for this application. In this stage, the design arrangement is implemented to create the android-based educational game

e. Testing

The feasibility of the game is tested through a block-box testing in order to meet standard quality of the educational game.

f. Implementation

This stage entails the direction of how the user can play this android-based educational game

RESULT

Design

The design of the software system created will later be used as a reference for developers in writing code. The design of this software system must match the characteristics of the software to be purchased and be able to simplify and clarify the developer in the process of making the software. This study uses the Unified Model Language (UML) model system design because this model is most suitable for developing object-oriented systems. Here is the step of UML as follows:

Diagram case

This diagram shows the interaction between user and application. The functional system of android-based educational game is depicted using diagram case as seen in Figure 2. The figure 2 reveals the user interface between the user and application.
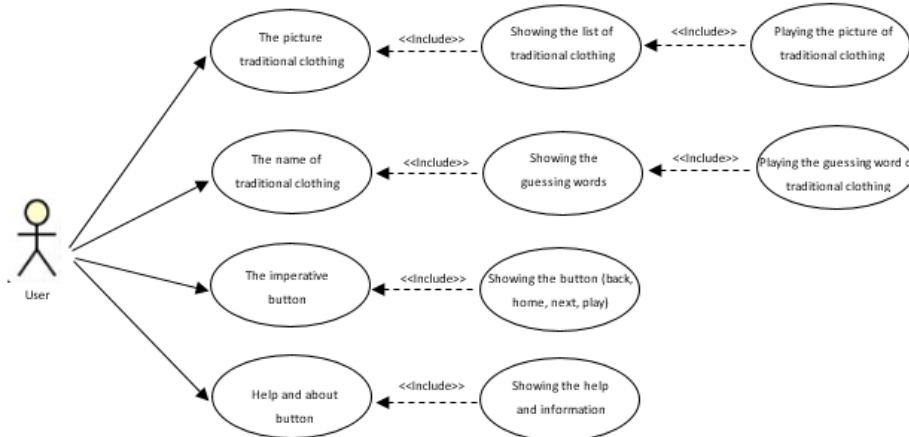
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Fig.2. Use case diagram

Interface design

Interface design   is very important in software development, especially in developing game applications. The user interface is a bridge of interaction between the user and the system, besides that the design of the characters and characters in the game must also be planned properly and attractively. So that users will feel comfortable and interested in playing games. The interface design must also be able to describe the value or story that will be conveyed in the form of a game to the user.   The designed essays are then translated into code through events to implement the logic of the program. This implementation process is carried out on the development software. The product made is an android app that contains local culture-based interactive English reading learning game for primary school students. This app can be accessed on smartphone or tab that operated in android operating system (OS), as a result, students enable to learn independently in anywhere and anytime. Figure 3 illustrates the application game interface installed in android OS-based smartphone or tab

Fig. 3 Javanese Traditional Clothing

Software test

    Testing of the application is done to determine whether the application has met the standard quality or not and it enables to find out the function of application is aligned to the goal. The method of test used is a black box testing method as can be seen in Table 1 and Table 2. Based on the table 1 and 2 below, the application has been in accordance with the standard quality where any tab intended has functioned well.

Table 1. Test result of the button of game application

Action/data Input	What to expect	Observation	Conclusion
Pressing the *Guess the Picture* Button	Move to Guess the Scene Picture	The choice of action is as expected.	Succeed

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Pressing the *Guess the Word* Button	Move to *Guess the Word* Scene	The choice of action is as expected.	Succeed
Pressing the Traditional clothing list	move to the traditional Clothing list *scene*	The choice of action is as expected.	Succeed
Pressing the Back button	return to the main menu *scene*	The choice of action is as expected.	Succeed

Table 2. Test of answer result of game

Action/input data	What to expect	Observation	Conclusion
Pressing the answer choice button	If the answer is correct the score increases,	The choice of action is as expected.	Succeed
Pressing the *Back* button on Android	*Appears Popup Pause* and *Game* pause	The choice of action is as expected.	Succeed

This Indonesian traditional clothing game application has been developed in accordance with the guidelines of the System Development Life Cycle. All of the stages of game application had been gone through the needs and specification analysis, design and implementation. Afterwards, the verification analysis was performed using white-box and black-box method. Meanwhile, the validation process was carried out using stress and instability test and the acceptance test used was expert review and playability test method.

CONCLUSION

Based on the implementation and results of the tests that have been carried out, it can be concluded that this application runs well according to its function. This application is designed and run on android-based smartphone as educational games and it is intended to improve knowledge of students or generally Indonesian people about Traditional clothing. This application is perceived as fun activity as well as the way of learning since it contains useful media to introduce Indonesian traditional clothing. Some variety of games activity in the games can be implemented to create more interactive application. The future work of research can include the more historical information of each traditional clothing that exists in Indonesia.

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