IMPLEMENTATION ACTIONSCRIPT 3 IN MAKING MULTIPLATFORM APPLICATIONS TO RECOGNIZE PREPARATION FOR EARTHQUAKES

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ABSTRACT

Indonesia is an archipelagic country which is geographically located at the confluence of four tectonic plates, namely the Indo-Australian, Eurasian, Pacific and Philippine plates. Thus, causing Indonesia to have a volcanic belt in the form of volcanic mountains. Indonesia is one of the countries that has the highest level of seismicity in the world. The purpose of this research is to apply ActionScript 3 in the manufacture of multi-platform applications to identify preparations for earthquakes that can add insight to users in dealing with earthquake disasters, as a learning aid for children aged 8 to 12 years. This application was created using Adobe Flash Professional CS 6, ActionScript 3 as a programming language and Adobe Audition CS 6. It is hoped that with this application, users will be able to recognize earthquake learning. From the results of the study, it can be concluded that this multiplatform application to recognize preparation for earthquakes has been successfully created which consists of 5 menus on the main menu, namely, about earthquakes, before, during, after earthquakes and quizzes.

Keywords: ActionScript, Adobe Flash Professional CS6, Application, Multiplatform

INTRODUCTION

Indonesia is an archipelagic country which is geographically located at the confluence of four tectonic plates, namely the Indo-Australian, Eurasian and Pacific plates. In the southern part of Indonesia, there is a volcanic belt in the form of volcanic mountains. This condition causes Indonesia to be very vulnerable to disasters such as volcanic eruptions, earthquakes, tsunamis, floods and landslides. Even the United States Geological Survey (USGS) says that Indonesia is one of the countries that has the highest level of seismicity in the world (Sipahutar, 2013).

Events that occurred in Indonesia, especially the earthquake, brought trauma to anyone who experienced it, from children, women and the elderly. We do not know when and where an earthquake will strike, so no one has time to prepare.

The lack of public knowledge regarding earthquakes has added to the general concern and extraordinary panic when an earthquake occurs. This becomes an obstacle to understanding how to save yourself in an earthquake situation. It is necessary to have an understanding of earthquakes starting as early as possible. This can be started by providing Disaster Education as did Japan, as it is known that Japan is a country located along the fissure of the Pacific ring of fire , so that many earthquakes are experienced. Disaster Education can be started through the world of education as explained in the RI Law number 20 of 2003 article 1 paragraph 1 that education is a basic and planned effort to create a learning atmosphere and learning process so that students actively develop their potential in having religious spiritual strength. self-control, personality, intelligence, noble character, and skills needed by himself, society, nation and state.

In this study, the author makes an application to introduce knowledge and how to respond to earthquake disasters from an early age (8 to 12 years). Because of the importance of this knowledge to provide increased awareness about the dangers of earthquakes.

Considering the current condition of Indonesia, earthquakes have been hit very often (in the last 15 years), for example in 2004 in the Aceh region with a magnitude of 9.1 on the Richter Scale and then in 2006 in the Yogyakarta area with a magnitude of 5.9 on the Richter Scale which took many casualties. According to Sri Haryuni (2018), schools or Madrasas must be prepared to face disasters, because students spend more time in class doing learning and according to the National Disaster Management Agency (BNPB, 2012) schools in Indonesia have a risk of 75% from moderate to high. high in the event of a disaster.

For this reason, the author is interested in developing applications that contain earthquake material and quizzes that are expected to add insight to users in dealing with earthquake disasters. This application is a multi-platform type or can be run on Windows and Android which is expected to make it easier for users to access it.

This multiplatform application was created using Adobe Flash Professional CS 6 and supported by the ActionScript 3 programming language. Adobe Flash Professional CS 6 was chosen because it can combine multimedia elements such as text, sound, animation, images and video into one, so that it can produce interactive applications.

ActionScript 3 was chosen because this programming language can produce applications that run on Windows and Android in one build process. In addition, there is also Adobe Audition CS 6 which is used to record, edit sound in digital form as a support for the application created.

LITERATURE REVIEW

1. Multiplatform

Multiplatform is a *software* or application that can be used on different operating systems. That is, if we have *software* or applications that can be used on different operating systems (*Android* , *iOS* , *Blackberry* and *Windows Phone*). An application that can be used on all *platforms* namely, *PhoneGap* . *PhoneGap* is a free and *open source mobile framework* . Where the *PhoneGap application can be used on several Smartphone* operating systems including, *iOS, Android, Blackberry, Windows Phone* and *Tizen* . The advantages of *PhoneGap are that it can save time in making applications for several Smartphone* operating systems with only one coding (Wahana Computer, 2014).

According to (Kristanto, et al, 2015), *multiplatform* is an application that can be run by any operating system. *Multiplatform* on information technology is a system that can *support* various types of other communication *devices , not only PCs (personal computers)* or laptops that are used, but can be used on *cellphones* with *Android* or *Apple operating systems* .

Multiplatform application can only be done once but is targeted for some or all of the existing *platforms* . This *multiplatform* application in some cases is also known as a *hybrid application* , which is a combination of two different things (Dr. Eng., Herman Tolle, ST., MT, et.al, 2017).

2. Earthquake

An earthquake is a vibration that originates from the bowels of the earth. Earthquake vibrations are undulating vibrations that occur in the earth's crust. Some earthquake waves are weak and some are very strong. Earthquakes are a terrible disaster. Earthquakes can cause damage to buildings, collapse of buildings, fires, landslides and tsunamis. Earthquake victims are usually affected by building collapse, buried by landslides, fires and tsunamis, not because of earthquake vibrations. Earthquakes can be divided into several types, namely, earthquakes due to the fall of celestial bodies to earth, earthquakes due to

collapse, earthquakes due to the movement of tectonic plates and earthquakes due to volcanic activity. The causes of earthquakes in Indonesia in general are due to the movement of tectonic plates and volcanic activity (Sri Handayaningsih, 2018).

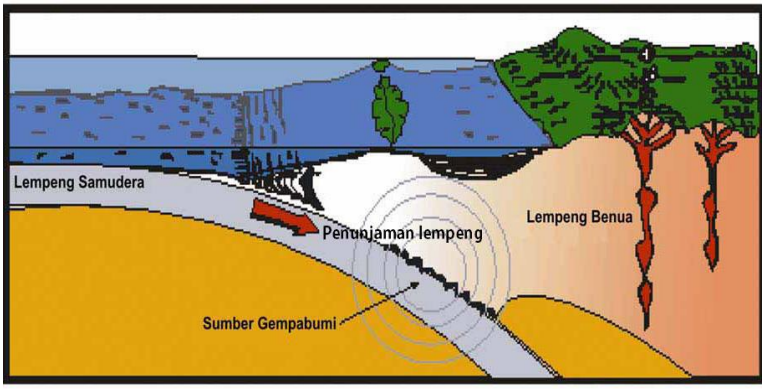

Figure 1. The Subduction of One Plate to Another Causes an Earthquake
Source: www.rangkabar.com

3. Education

In Law No. 20 of 2003 Article 1 paragraph 1 explains that education is a basic and planned effort to create a learning atmosphere and learning process so that students actively develop their potential in having religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by himself, society, nation and state.

In Law No. 2 of 1989, Article 13 paragraph 1 explains that basic education is held to develop attitudes and abilities as well as provide knowledge and skills to live in society and prepare students who meet the requirements for secondary education.

Early childhood education (PAUD) is a very valuable period for child development because this period is full of important and unique events that lay the foundation for human life. It can be concluded based on the following reasons: (1) Early age is a fundamental phase for children's development and learning; (2) Learning and development is a continuous process; (3) future demands for superior generations will be increasingly *competitive* ; and (4) *other non-educational* demands (changes in patterns and attitudes of life and family structure (Development Team for Education Science FIP-UPI, 2007).

METHODS

1. Research methods

The data collection techniques that the author uses to collect data and facts in writing this final project are as follows:

a. Library Research (*Library Research*)
   The research was conducted by collecting research supporting references through several sources such as books, relevant websites, related journals related to the title of the research such as earthquakes, *Adobe Flash Professional CS 6* , *ActionScript 3* , *Adobe Audition CS 6* .

b. (*Field Research*)
   Research conducted by direct observation to the research location through the following steps:
   1) Observation (*Observation*)
      The author makes direct observations to the place of the object of discussion to be obtained, namely through the most important parts in taking the necessary

data. The author's data collection was carried out at SD Negeri No. 105270 Pujimulio is located at Jl. Compost Km 12 Educational Gang.

2) Structured and unstructured interviews
   Interview is a process to hold a question and answer or direct conversation with related parties related to the problem under study. Structured Interviews are interviews conducted by preparing questions that have been prepared in written form to informants related to earthquake information. Unstructured Interview is an interview conducted by asking directly to the informant without any writing prepared. The author conducted an interview with Mrs. Nur Annisa Putri, S.Pd as a teacher at SD Negeri No. 105270 Pujimulio to get an explanation of the problems related to the author's research.
3) Questionnaire
   Questionnaire is the process of making a list of questions for related parties to obtain the data needed in making an application regarding preparation for an earthquake. Questionnaires were conducted on 20 students at SD Negeri No. 105270 Pujimulio is located at Jl. Compost Km 12 Educational Gang.
4) Laboratory Research
   Laboratory research is research conducted by using a laboratory room at the Panca Budi Development University to produce the output of this research.

2. Research Stages

The stages or methods that the author uses to obtain data according to the needs of this research can be seen in the following *flowchart form*:

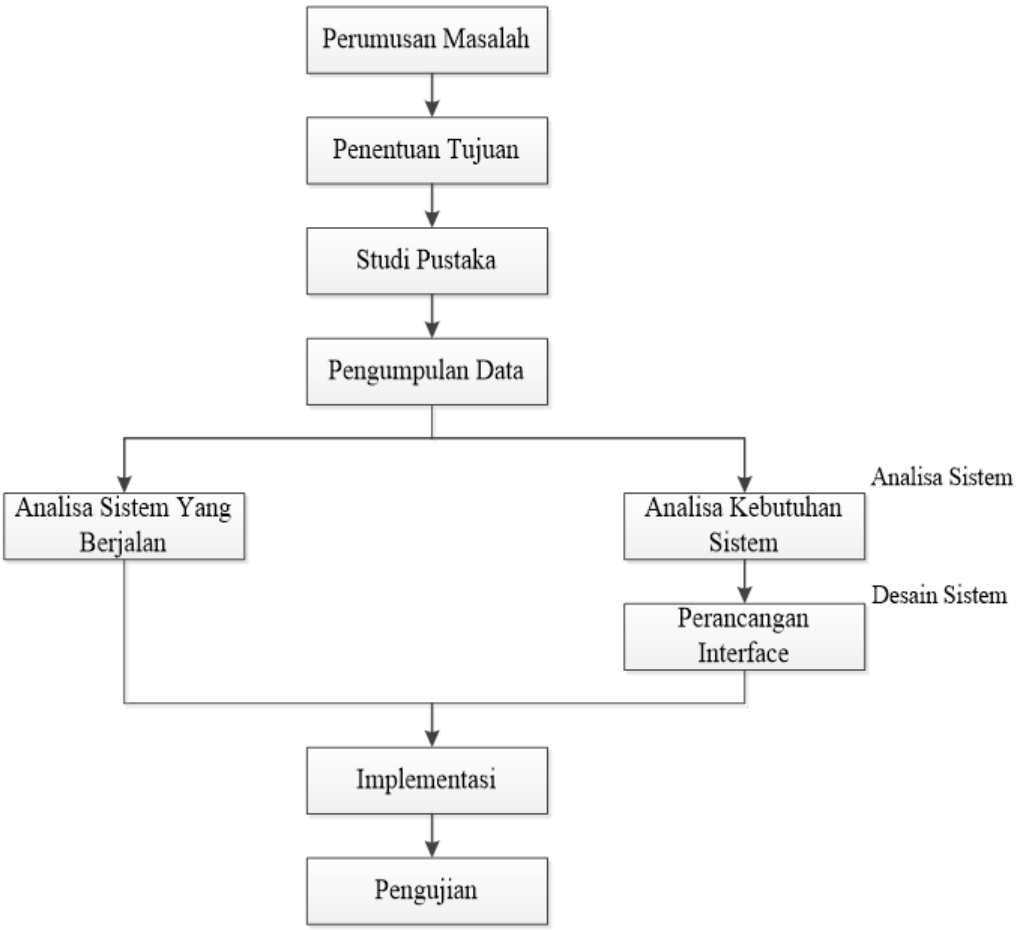

Figure 2. Research Stage

Explanation of Research Stages:

a. Formulation of the problem
   Formulation of the problem is very necessary because it is a step taken to formulate existing problems based on the problems to be studied.
b. Goal Setting
   Determination of goals is an activity carried out to solve the problem solving described in the formulation of the problem that can be achieved in an effort to answer all the problems that are being faced or researched.
c. Literature review
   Literature study aims to obtain theories/literature and scientific books as well as references that support in solving existing problems.
d. Data collection
   Data collection is used to collect data and facts through observation, interviews and questionnaires according to the needs to be studied.
e. Running System Analysis
   System analysis is carried out to identify and evaluate various kinds of problems in the research so that improvements can be proposed.
f. System Requirements Analysis
   System requirements analysis is very necessary in supporting the performance to be produced by knowing the scope of information, the functions needed, especially in making applications according to the research problem raised.
g. Interface Design
   Interface design *is* a design that is carried out to provide an overview of the application that will be displayed in a simple way to the user.
h. Implementation
   Implementation is the application of the results of existing application designs to achieve a desired goal.
i. Test
   Testing is the process of testing the program code and ensuring that all application functions are made to work properly and look for errors that may occur in the application.

RESULTS AND DISCUSSION

Research Results

In the application about preparing for an earthquake, there are several main buttons that are used, namely, material about earthquakes, during and after an earthquake and quizzes. From the buttons that have been described, there are display sections that have different functions on the buttons. The functions of the different buttons will be explained and can be seen in the following figure:

1) Loading Display Design

The loading display design is used as the display that appears first when the user opens or runs the application. Display *loading* serves as a process of waiting to the next page.

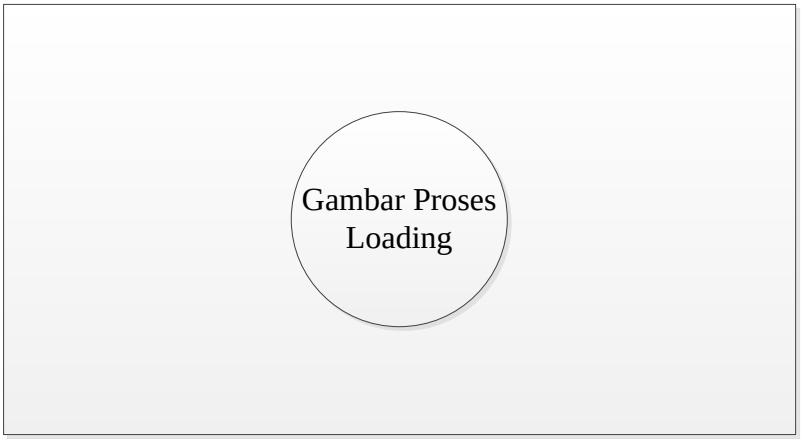

Figure 3. *Loading* Display Design

2) Intro Display Design

The design of the *intro* view is the display that appears after the *loading screen* . The *intro view* serves as an introduction to information about the application made to continue to the next page.

Figure 4. Intro Display Design

3) Main Menu Display Design

Menu display design serves to move or connect to other displays with the aim that users can press one of the buttons they want. Where the main *menu display* has title text, animated images and 6 buttons.

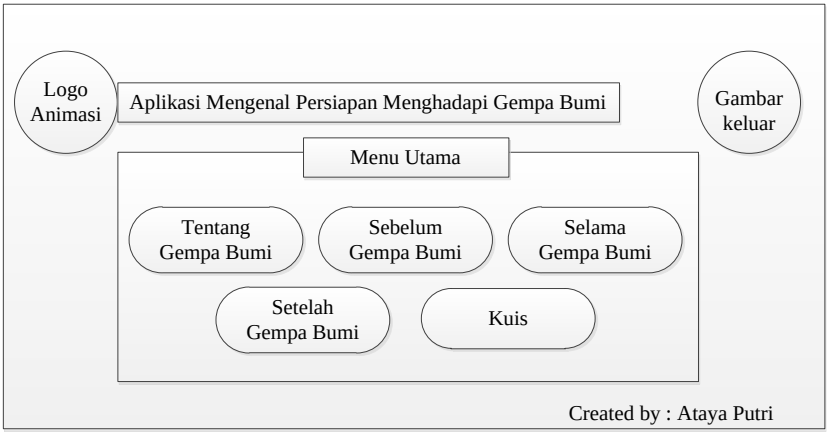

Figure 5. Main *Menu* Display Design

4) Display Design About Earthquake

The display design about earthquakes serves to provide information about the theoretical earthquake where there are several buttons that are used with the aim of the user being able to press one of the desired buttons. The view about earthquakes has an animated logo, title text and 7 buttons.

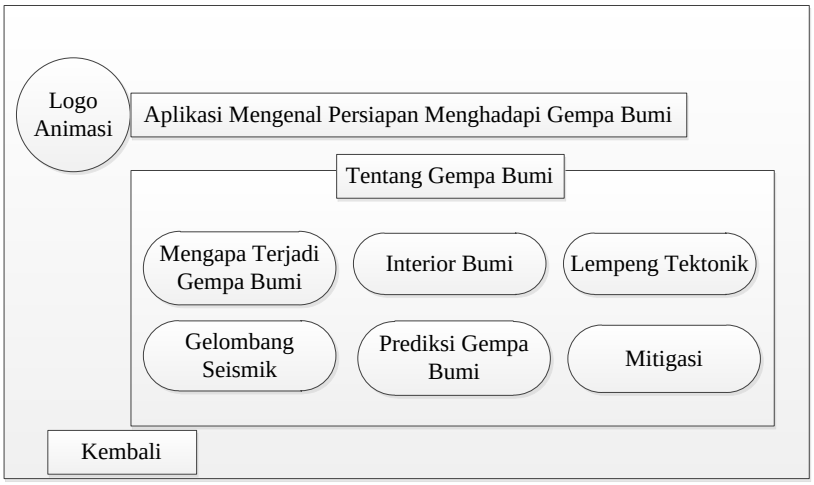

Figure 6. Display Design About Earthquakes

DISCUSSION

From the *multiplatform application* to get to know preparations for this earthquake, the initial display is the loading screen, then the intro view. After that go to the main menu display in which there are other menus and the overall appearance of this application, can be seen in the image below:

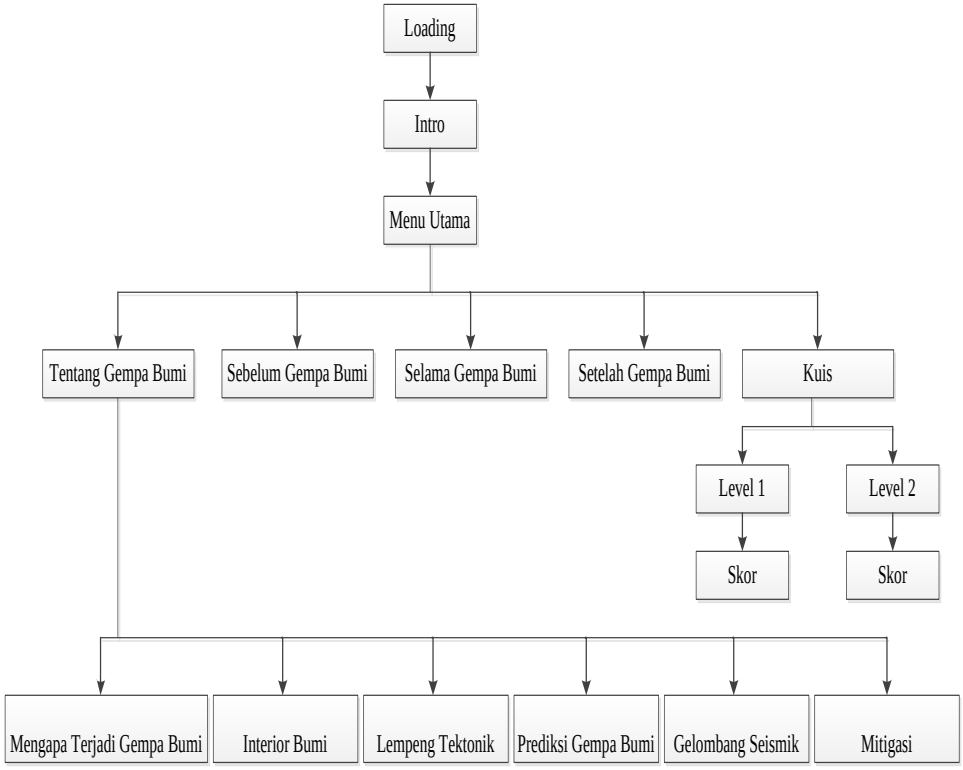

Figure 7. Application Navigation Architecture Design

CONCLUSION

Based on the results of applying actionscript 3 in making *multi -platform* applications to get to know preparations for earthquakes, then some conclusions can be drawn as follows :

a. This application is equipped with images, sounds, animations and text so that users who use this application become more interested in learning while playing and getting to know something new.
b. Users can easily learn anywhere by using this application, because this application is multi- *platform based, which can be run on desktop* and mobile operating systems .
c. This application provides many lessons, such as introducing early preparedness to save yourself in the event of an earthquake.

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