DESIGNING VIRTUAL REALITY GAME FOR LEARNING AL-QURAN

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Abstract

This study aims to design a new horror game by utilizing virtual reality technology. This game was developed as an entertainment medium and also a learning medium where in addition to being able to play games, users can also learn to memorize verses of the Qur'an. In data collection, this research uses a qualitative descriptive method, then in the application design process, we used Adobe XD to make the initial design of the game. After getting an idea related to the game that will be made, Unity Software will be used for the virtual reality design stage. The result of this research is that with the presence of this game application, users are offered a new experience because players can feel that deepening spiritual conditions can also be achieved through games. The conclusion is that the "Tadhakar" game application using VR technology can be a new concept for those who are interested.

Keywords: Design, Developing, Horror games, Games, Prototype, Virtual reality.

1. Introduction

The development of human history is marked by the development of the media used to convey and express ideas. One of the most recent steps in this development is the use of virtual reality [1]. Virtual reality is a program created by a computer with the help of certain tools, which can display three-dimensional images so that they look very real. Where users are made as if they are directly physically involved in the environment [2]. Along with the development of technology, nowadays many are vying to create and try the technology. Virtual reality can be used in many ways, such as simulation, interactive learning, promotion, and games [3].

VR development is currently going very rapidly, especially in the game platform where almost every game developer is competing to create their own VR games, and every technology related to this field also continues to strive to create compatible technology. The games developed are also very varied, ranging from simulation games to sports, and interactive learning. Several previous studies have also developed VR games. For example, the development of android-based virtual reality games using Unity as a medium to support the introduction of English [4], and virtual reality-based explorer educational games [5], then the development of virtual reality-based gamelan gender puppet games [6], then there is also the development of game applications. Virtual simulation of tingklik and Bali flute based on android [7]. The development of these games has its own goals and purposes, but the most important thing is that each development has its novelty value.

Based on the existing literature, this study aims to design a game with the theme of the horror genre with the title "Tadhakar", tadhakar is Arabic which means "to remember", which has a new concept that players will not fight enemies by running and hitting, but players are required to read the holy verses of the Qur'an to be able to defeat the existing enemy. The method used in data collection is descriptive qualitative, then the design method will use Adobe XD and Unity. It is hoped that this game can become a new concept in the game world, especially in virtual reality games.

2. Research Method

In the process of collecting data, researchers used descriptive qualitative methods, where researchers searched for literature related to the chosen theme through the internet, literature studies, and related documents [8]. Then in the design method, the researcher uses two software applications to assist the development process, namely Adobe XD and Unity. The research flow begins with collecting the required data, after having sufficient data, the next step is to enter the game prototype design stage using Adobe XD and Unity to create a picture of the desired game design. Please note that the development of this game will only reach the design stage and not until implementation. But further development is very possible to do.

3. Results and Discussion

The game application "Tadhakar" is a game with a PC platform. In this game, players will not be given a sequence of activities that must be done first, because this game is a game that has a storyline. This game application will have four menus, namely Play game, settings, credit, and exit. This game can only be played by a single player, whereas the user can only play alone.

3.1. Use case diagram

The following is a use case diagram to illustrate the functionality of the application (See Fig.1).
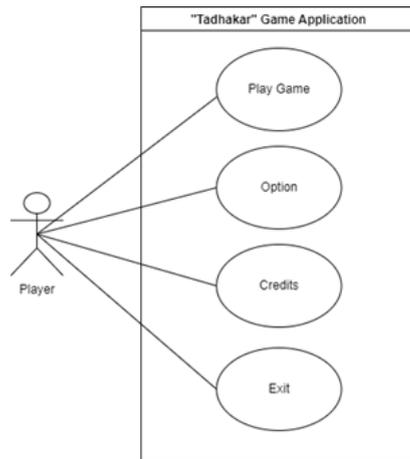

Fig. 1. Use case diagram.

Based on the picture above, users can interact with four menus, namely Play game, options, credits, and exit. On the play game menu, users will be able to immediately start playing existing games, then on the options menu, users will be taken to the settings menu where users can adjust game conditions at will, starting from the size of the game sound, graphics, sensitivity and more. On the credits menu, later there will be the names of the people involved in the game development process, and on the last menu is the exit menu so that players can close the game.

3.2. Game design using Unity

Using the Unity software, several design stages were carried out, starting from creating virtual objects and then coding them, until they could be visualized in virtual form (Fig. 2).
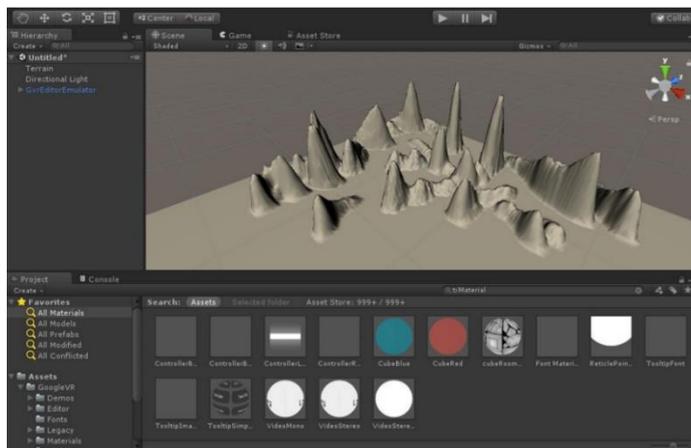
Fig. 2. Game design using Unity.

In Fig. 2, the basic design of the game to be made is carried out, such as importing virtual reality software development kits and designing using existing 3D objects as needed. After the import and design stages are complete, the next step is coding each object with scripts so that the object works according to its purpose [9] (Fig. 3).
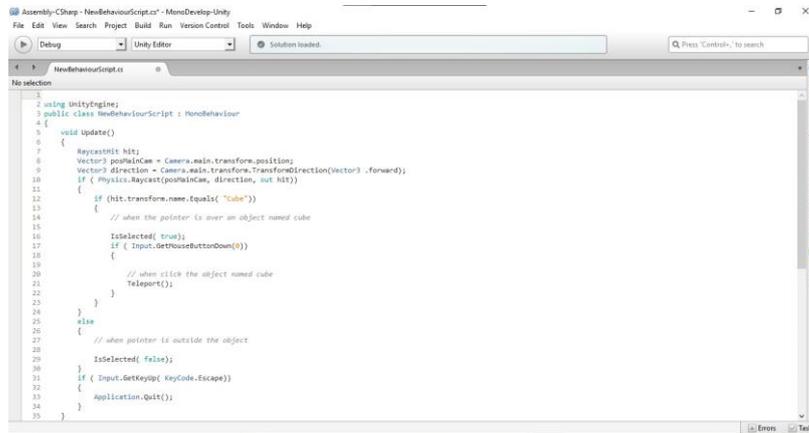

Fig. 3. Scripts on objects.

The given script is intended so that objects can be used both on Cardboard and GearVR [10]. Several points are included in the script, namely the position of the main camera which changes according to the position of the pointer, then there is a script where the object will change colour when the pointer is above the object. After giving the script to the existing object, the next step is to visualize the design results in the form of a Cardboard (Fig. 4).
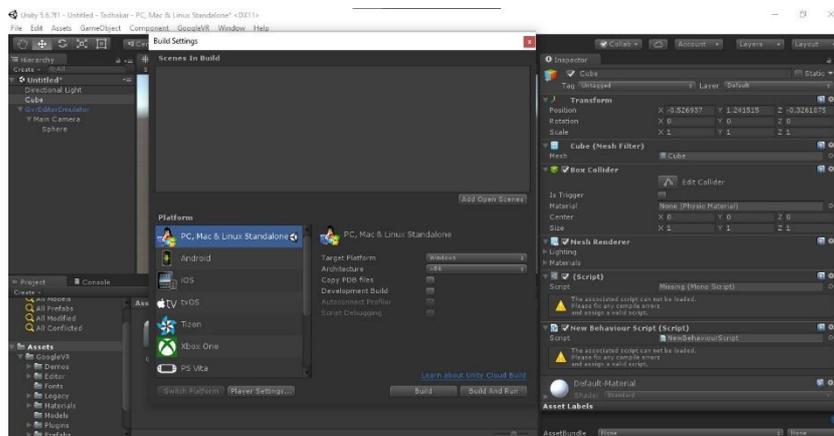

Fig. 4. Build and Run game design.

After the object is given a script, then a build and run will be carried out in Unity, this aims to provide a visualization of the design that has been made, whether it is appropriate or not. There are several running options provided, namely PC, Mac, Linux, Android, IOS, tvOS, Xbox, PSV, PlayStation and Facebook. After the

design is built and run, a VR visualization of the design that has been created will appear (Fig. 5).
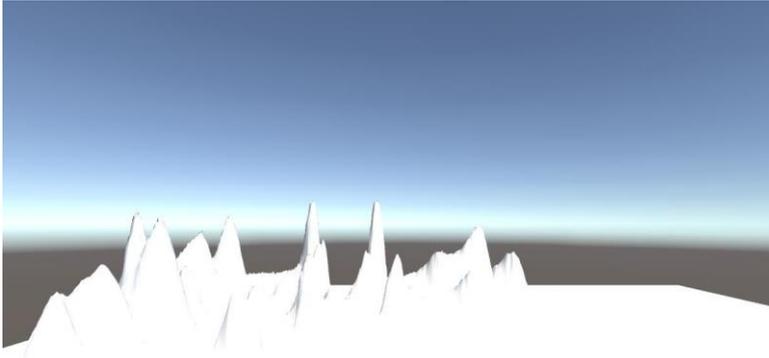
Fig. 5. Design visualization.

3.3. Game design using Adobe XD

In the design using Adobe XD, a description of the game in question has been made, how it is visualized, and how the UI/UX is (Fig. 6).

Fig. 6. Main menu design.

On the main menu, users will be presented with a dark and mystical appearance, which is in line with the genre of the game. In the main menu, users can perform several interactions, namely directly starting the game, or entering the options menu to set the game as desired (Fig. 7).

In the options menu, users can set the game according to what they want or adjust it to their respective devices. In the settings, several things can be set by the player, starting from the controller if the player uses a joystick, mouse, and keyboard if the player uses a mouse and keyboard, then there are audio and video settings. As shown in the picture above, in the video settings the player can set window mode, monitor, aspect ratio, resolution, vertical sync, anti-aliasing, a colour-blind mode for those who are colour blind, and motion blur. Next, there is a credit menu that will contain the names of the people involved in making the game (Fig. 8).

Fig. 7. Option menu.

Fig. 8. Credit menu.

In the credit menu, players can see the names of people involved in making the game, this is useful for promotional tools and so that players can express their appreciation to the developers if they like the game or can also submit criticism and suggestions regarding the shortcomings that exist in the game for future improvements. In this game, there will be several scenes with different themes ranging from morgues, hallways, and empty rooms (See Figs. 9-11).

Fig. 9. Scene 1 of the gameplay.

Fig. 10. Scene 2 of the gameplay.

Fig. 11. Scene 3 of the gameplay.

4. Conclusion

This game application is a new concept offered in the virtual game world, this game is a game application that can be played on the PC platform. This game application uses virtual reality technology so that users can feel a very real playing experience. The distinguishing feature offered by this game lies in its gameplay where players do not fight the enemy by hitting or running but by reciting the holy verses of the Qur'an. This feature was created to help players who are specifically Muslim, to get to know their language better, and also because games like this are still very rarely made. It is hoped that the design of this game can be a reference for other learning games.

Acknowledgement

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