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Maimoon Palace in 3D with V-ray 3DSMax

Muhammad Ilyassah[a], Muhammad Siddik Hasibuan[b*]

[a]Study program Computer Engineering Politeknik LP3I Medan, Indonesia
[b]Study program Computer Engineering Politeknik LP3I Medan, Indonesia
mhdsiddikhasibuan@gmail.com

Abstract

Today, animation has becoming common views for the general public, namely 3D animation. This proves that animation is not just for children consumption, but also for all people. To create fun atmosphere in learning, yet people make a 3D animation with a brief historical idea of the historical monuments in Medan, which is Maimun Palace. A 3D animation is created in four stages namely; Design stage, Post Design, manufacture, and post-manufacture. In the creating this animation, it will be created useful storyboards as a guide within the scenes of animation. To create these animations, it will be used software 3DS MAX with plugin supporting plugins for modeling, texturing, animation, and rendering. The results of rendering will be formed of merged frames and video which will be combined with audio then. Audio recordings were obtained from sound and music. After the video and audio completed, they will proceed to the final process that is merging. Merging scenes of this video will be done using Adobe Premiere software. The results of this animated video are around 3-5 minutes with MP4 format. Software 3DS MAX in animation making have good quality, the features make easy to use and the results of real quality rendering with V-Ray plugin can make the animator like cameras that explore the angel of the room.

Key-word: - Animasi 3D, V-Ray, Scene, Storyboard

1. Introduction

The development of animation today is growing very rapidly with advances information of technology and computers. Even today there are many widescreen movies using animation in some scenes of the movie. The use of animation can be implemented for difficult scenes that unable work and needs risk and costly. It aims to provide a realistic effect and of course to cut the cost of film production. Animated films are now already a lot, whether it is 2D animation and 3D animation. Animation development from year to year makes animated films like The Penguins of Madagascar, Big Hero 6, Zootopia, The Secret World of Arriety and others - more able to be aligned with films that are not included animation. Proving that an animation film is not only the consumption of children, but also for all people can enjoy it. To create animated films that educate and provide knowledge about the history, here I want to tell about the history of the Palace Deli, it is Maimun Palace.

Maimun Palace is a palace of Deli Sultanate built by Sultan Mahmud Al-Rashid in August 26, 1888 and is one of Medan icons, North Sumatra located on the street Brigadier General Katamso (Source Wikipedia). Maimun Palace is also sometimes referred to Princess Palace Green. The palace is dominated by yellow color symbolizes the greatness of the Malay kingdom. Maimun Palace has an attractive design with a combination of elements - elements of Malay culture with a style typical of Islam, Spain, India and Italy. From this background, the author got the idea themed animation titled Travel Maimun Palace in 3D With V-Ray. Rendering is the process of building the image of a model (or models that can collectively be called a scene file), via a computer program. V-Ray is one of the Render-Engine artificial or 3rd party software manufacturers outsiders, outside producers 3d software itself means, in this case 3dsmax. Rendering an animation using Vray can make you frustrated when waiting for rendering in a very long time. The material high gloss, reflection and displacement

of silent images that you use can make the total time animation rendering you out-run. The purpose of using Vray in this research is to create our 3D image model objects more visible become more real (estate). Because Vray allows us to adjust the lighting and material on the model of image (Hendratman, 2012).

Multimedia, in terms of language, consists of two words, namely multi and media. Multi means many or more than one. While the media is the plural of medium, also interpreted as a suggestion, container, or tools. Literally, the term itself can be interpreted as a multimedia data transmission and manipulation of all forms of information, either in the form of words, pictures, video, music, numbers, or handwriting where in the world of computer, the information is processed in the form of digital data (Jarot & Ananda, 2009).

Multimedia is a combination of computer and video, or multimedia is well known as a combination of three elements: sounds, images, and text on the other hand, multimedia is a combination of at least two media input or output of the data, in which the media can be either audio, animation, video, text, graphics, and images, or multimedia is a tool that creates a dynamic and interactive presentation that combine text, graphics, animation, audio, and pictures, videos. Multimedia is also defined as a combination of text, sound art, images, animation and video delivered to your computer or manipulated digitally and can be delivered and / or controlled interactively. There are three types of multimedia proposed by (Munir, 2004), namely:

1. Interactive Multimedia

Users can control what and when the elements will be transmitted or displayed.

2. Hyperactive Multimedia

This multimedia has a structure of interconnected elements to the user to steer it. It can be said that this type of multimedia has many links that connect the available multimedia elements.

3. Linear Multimedia

In this Multimedia, the user can simply be a spectator and enjoy multimedia products presented from beginning to the end. In making this project, authors use linear multimedia types, because the author only aims to tell from the form of the 3D animation.

2. Methodology

The process of making this animation is run in 4 stages and each stage will be detailed in accordance with the stages, either people or actors involved in manufacturing process. The design stage is the stage where ideas are collected. Post design stage is the stage of the developing concept process, manufacture, and storyboard. Manufacturing Stage is the stage where the animation is formed and processed in manufacturing. Post-Manufacturing phase is the editing stage that combines scenes from animation made into the manufacturing process into a video. The descriptions of 3D Animation making are as follows (Amir Fatah Sofyan and Agus Purwanto, 2008):

1. Designing Stage.

Design is the stage of collecting ideas to pour into the concept and form of 3D that will be animated. The process will starts from the design stage where the process that occurs in this stage is the formation of structures or schemes and concepts. This process means refining ideas that had been collected into a concept that can provide production values.

2. Post-Design Stage

Post-Design is the stage where the object observation and preparation are required in production. Post-Design consists of several processes, namely: a storyboard writing and supporting in the manufacturing process including software and devices. Manufacture design is an image or shape or structure that can also be used as a reference to create objects in a 3D application. Once the storyboard is complete, it's time to record voice as the narrator (Zeembrey, 2006)

3. Manufacturing Stage

The stages of manufacturing include: Shape Animation, Camera Animation, Lighting Animation. Animation is the art of motion based, where an understanding of how to move objects is very important to become a reliable animator. At this stage it will use 3DS MAX (Figure 1).

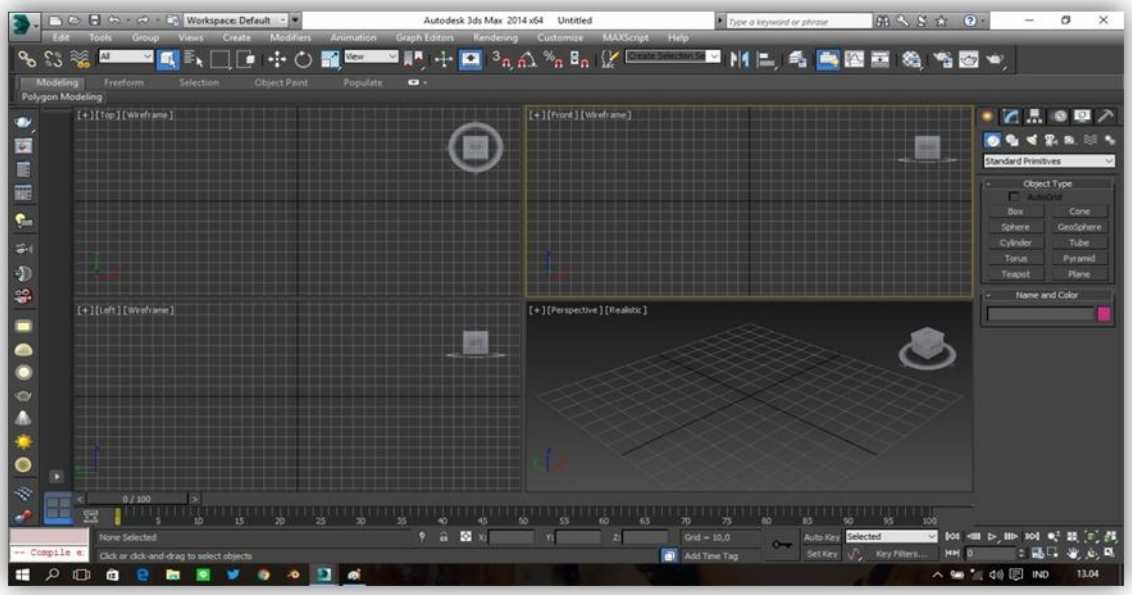

Figure 1. 3DS MAX Display

3DS MAX or 3D Studio Max software is a vector graphic three-dimensional and animated, written by Autodesk Media & Entertainment and became one of thethe widest software packages used nowadays, due to several reasons such as the use of the Microsoft Windows platform, the ability to edit the versatile, and many plugin architecture. (Djalle, 2006). At this stage it was going to use Plugin named V-RAY. V-RAY as seen in figure 2, which makes more realistic animations depending on the maximally technique used. V-RAY is a tool to produce qualified rendering images expected (Wibirama, 2011).

Figure 2. Example
(*Sumber : Hendratman, 2012)*

4. Post Manufacturing Stage
   This is editing, polishing and rendering animation stage that has been made so that resulting ready scenes to be processed to the next stage. After being animated and rendered, it should be processed in some process to add sound effect. Overall, after conducting all the stages, they will be merged from animation scenes and narrator's sound to be a full video (Syaiful Nurudin and Nugroho Agung Prabowo, 2011)

The object of this research is maimoon palace, both from the interior and exterior to easier the process of visualization into 3D. in this process, it needs hardware and software. The usable equipment and material can be seen on the table 1 and table 2

Table 1. Hardware table in making animation

No	The terms of hardware
1	Personal Computer and Laptop
2	Mouse and Keyboard
3	Speaker (to listen to voice visualization)
4	Laptop : Processor Intel Core(TM) i3-2348M CPU @ 2.30Ghz (4 CPUs), ~2.3 GHz. Personal Computer : Processor Inter Core(TM) i5-3330M CPU @ 3.00GHz (4 CPUs), ~3,2GHz
5	VGA Intel(R) HD Graphics Family
6	Laptop : RAM 4GB DDR3; Personal Computer : RAM 2GB DDR3 (PC)
7	HARDISK 500GB

Table 2. Software table

No	The process of 3D animation making
1	Corel Draw X7 (Desain Material and Ornament)
2	3DS MAX (Software pembuatan animasi 3D) WITH Plugins V-RAY
3	Adobe Premiere (combining the animation scenes and audio in full version)

The input process is obtained by drawing a building material using Corel Draw software X7 generate output image object PNG (Portable Network Graphics). Furthermore, the image had been used as a material in 3dsmax Software, in the process of making animation in 3dsmax, texturing process is conducted. Texturing process is the stage of material provision or texture in the form or model that looks more real. Texturing is coloring of selected object or model. Giving texture in 3DS MAX uses Tools Materials. After the texturing process is completed then do the animation process. Animation is the process of making motion on the model or object animation which then will be made in the video scenes. In this stage, the animation will be stored into the camera. So we will use the camera nimation. Once the process is completed the last stage of the animation is rendered using Vray. Rendering using Vray is the process where a 3D animation is created as a real one (Sukoco, 2011).

3. Finding and Discussion

1. Post-Design Phase

The concept is the most basic preparation before entering the stage of manufacture. This concept allows us to determine what channel is expected. In this process, there will be a voice called by the writer as narrator. Narrator is going to explain about the whole Maimun Palace and its history. The narrator in the animation that will be applied is a model being used by Rigging to be animated.

2. Manufacturing Phase (Modelling)

At this stage, it will be drawn the environment, property by using software 3DS MAX. There are many tools that can simplify and shorten the modeling process in this software. (Figure 3).

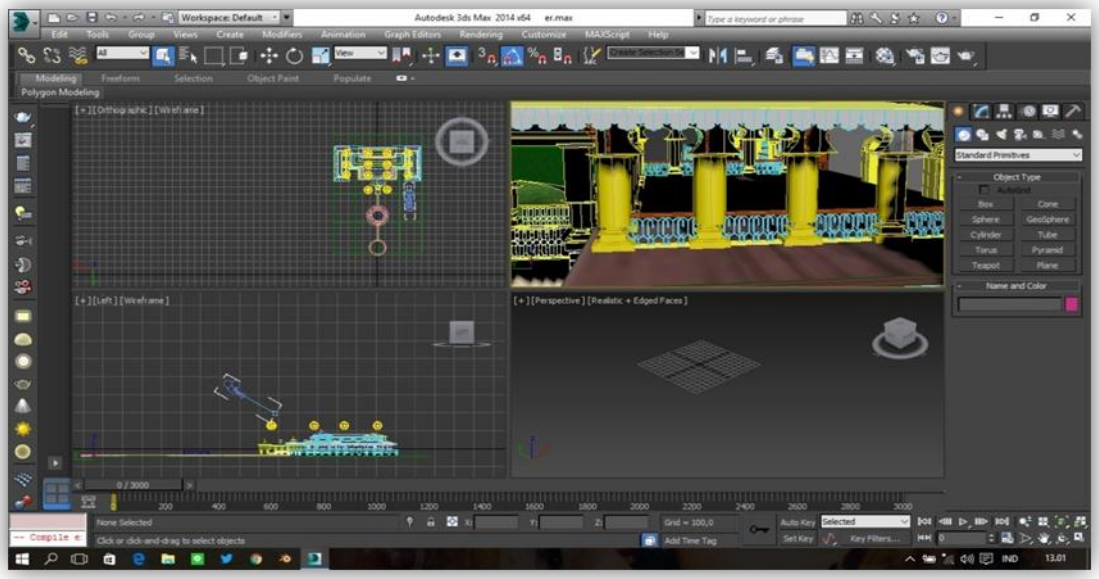

Figure 3. The depiction of the figure using 3DX MAX

3.Texturing

Here is the stage for material or texture provision in the form or model that looks more real. Texturing is coloring process on selected object or model. Giving texture in 3DS MAX uses Material Tools (Figure 4).

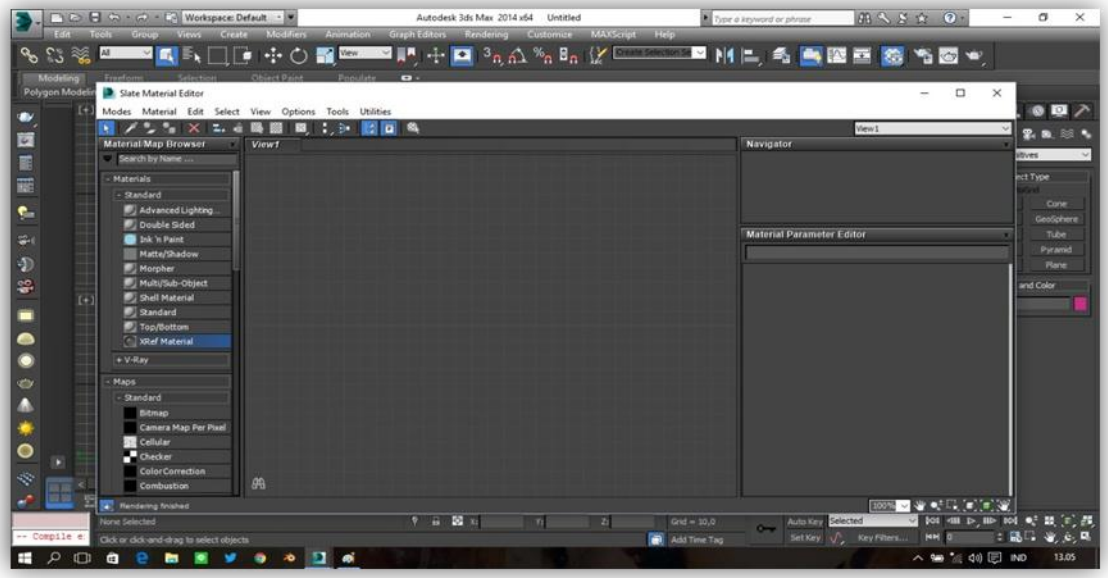

Figure 4. Window for material storing

4. Animation

After texturing process, it's time for animation process. Animation is the process of making motion on the model or object animation that will be made into video scenes. In this phase, the animation will be stored into the camera. So we will use camera animation. Due to the animation created is a form or model of a building, so just use a camera animation. Later, the camera animation will surround, round, and enter the part of the building Figure 5.1. Design Stage Post. The concept is the most basic preparation before entering the stage of manufacture. This concept allows us to determine what channel is desired. In this process, there will be a voice that the writer mentioned by the narrator. Narrator is what will explain about the whole Maimun Palace and its history. The narrator in the animation that will be applied is a model that is being used by Rigging to be animated.

2. Preparation Phase (Modelling)

At this stage will be drawn shapes - shapes the environment, property by using the software 3DS MAX. At present there are many software tools that can simplify and shorten the modeling workmanship. (Figure 3).

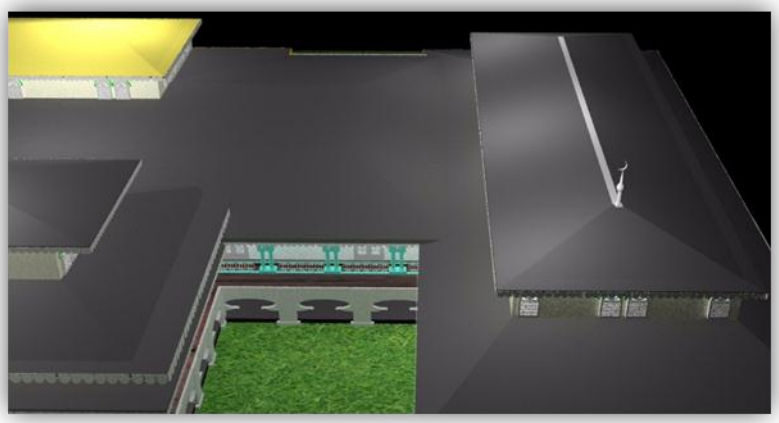

Figure 5. Camera view.

5.Rendering

After animation phase, the next phase is rendering. Rendering is the process by which the created animation will be formulated into video scenes. In 3DS MAX, there is a choice in the rendering process, they are; the image rendering and animation rendering. In the image rendering, the animation generated will be a form of image or JPEG. While in animation rendering, the animation produced can be a form of AVI or MOV. In this case, it will use animation rendering in form of video by supporting V-Ray plugin. In 3D animation, V-Ray is really needed and has already become a mandatory feature in the world of animation Figure 6 (Novan Andre Prastyo, 2012).

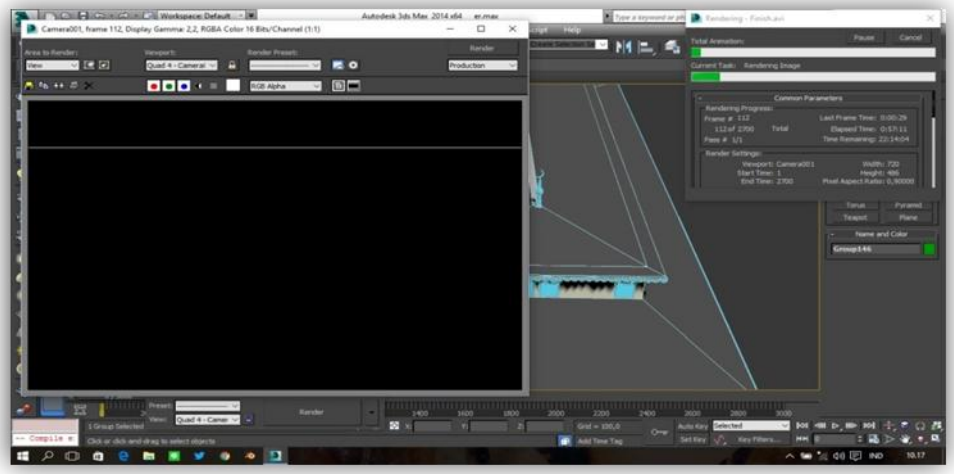

Figure 6 Rendering process model by 3D animation

4. Post- Compositing stage

In this process, recording and editing of audio from the narrator's voice will be in the animation. Audio is recorded via mobile phones and Mic Stand. On the phone, the results of recorded voice are AMR extension. For AMR extension will be earlier changed into MP3 and to change them we will use Format Factory application.

5. Finishing Composition

Furthermore, the results of animated scenes and edited sound, we compile into Adobe Premiere to make Full Video (FILM). After that, matching process will be processed, start from the timing, plot and storing text. When matching process, rendering process is going to be conducted to form it in films Figure 7.

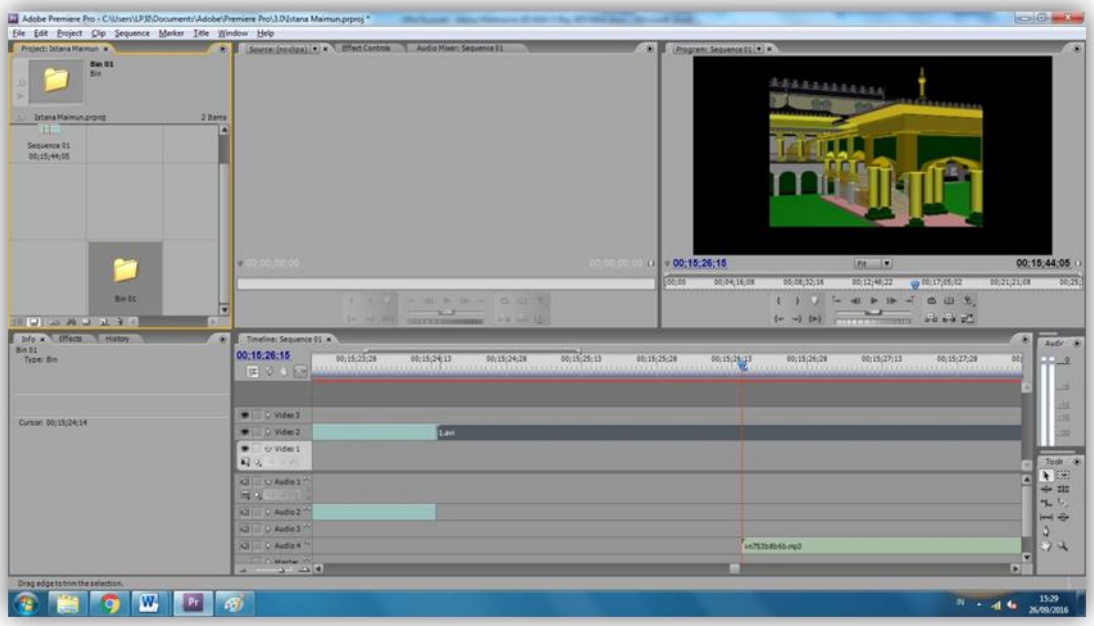

Figure 7 Adobe Premiere Display

5. Conclusion

After finishing the process of making 3D animation and this film, the author can find some conclusions. First, the film which is created by 3D animation can contribute attractive education and it will reduce nerd on society. Secondly, there are plenty enough necessary software in making 3D animation and the film, one of the is that 3DS MAX which is a main software in making this animation. Rendering method can give great impression for those who look at the corners of Maimun Palace as real.

References

Amir Fatah Sofyan, Agus Purwanto. (2008), Digital Multimedia : Animasi, Sound Editing & Video Editing, ANDI & STMIK AMIKOM, Yogyakarta

Djalle, G. Zaharuddin. (2006), The Making of 3D Animation Movie Using 3DStudioMax, Informatika, Bandung, 2006.

Hendratman, Hendi, Robby. (2012), The Magic of 3D Studio Max, Informatika, Bandung

Jarot, Darma S, Ananda, Shenia. (2009), Buku Pintar Menguasai Multimedia, Mediakita, Jakarta

Mnir, (2004), Multimedia Konsep & Aplikasi dalam Pendidikan, Alfabeta, Bandung

Novan Andre Prastyo. (2012), Pembuatan Video Profil Tiga Dimensi (3D) Sentra Ponsel Kudus, Indonesian Jurnal on Computer Science - Speed (IJCSS) 13 Volume 9 No 2, ISSN 1979 – 9330

Syaiful Nurudin, Nugroho Agung Prabowo. (2011) Pembuatan Video Profile Tiga Dimensi (3D) Octrash Gemolong Kabupaten Sragen, Indonesian Jurnal on Computer Science - Speed (IJCSS) 12 Volume 9 No 2 – , ISSN 1979 – 9330

Sukoco. (2011),Teknologi Motion Capture Untuk Pembuatan Film Kartun Animasi 3D, Speed 10 Edisi Web-Februari 2011, ISSN : 2088-0154

Wibirama.S. (2011), "Fundamental Techniques for 3D Computer Vision," Department of Electrical Engineering Gadjah Mada University, Indonesia