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# Video Virtual Reality Museum Rahmat with Vintage 360

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### Abstract

Virtual reality (VR) is a technology created to able to interact with a computer-simulated environment. VR was invented by Morton Heilig in 1950 and began to be developed in 1968 by general electic. VR can make it easier to access the locations they want. VR technology will be implemented in the form of websites that display information visually using virtual reality video that aims to introduce the Museum of Grace as one of the tourist locations in the city of Medan. The technique used to produce this VR video is stitching panorama, which is the process of merging video - video into a single unit that produces videos that can be viewed from all directions. The development methodology used in this research is multimedia software design methodology that emphasizes on 6 stages of multimedia development called MDLC (Multimedia Development Life Cycle). The tools used in designing this application are Autopano Video Pro and Panorama 360. The end result of this app can display a collection of animals totaling over 2000 animals in the Museum of Grace in the form of 360o videos that can be viewed from various directions

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*Key-word:* - museum rahmat, video 360,virtual tour,virtual reality

## 1. Introduction

VR (Virtual-Reality) is a technology which able to interact with a computer-simulated environment, virtual reality is used to describe the three dimensions produced by a computer and able to interact with a person. The simulated environment can be similar to the real world, a representative caliber of virtual experiences by including simulated combinations of sensing results (visual, audio, touch). Computers help simulate a real object by generating a three-dimensional (3-D) atmosphere that makes the user involved physically.The combination of interaction, immersivity, and digital computers makes VR a unique medium for presenting and detailing performance process or product of some field in order to create efficiency and even open up new development ideas. Currently, VR offers many useful applications in various areas of life, and has been grabbing the great attention of some of the world's governments, researchers and professionals. VR is a high-end technology that has attractive and explorative qualities to complement more traditional methods of performance and product. But of course when this concept is developed and collaborated with the application of other disciplinary fields such as architecture then arise various problems. The problem is generally in addition to technology tools are also in the form of collaborative platform-based methods and models. Making video 360 aims to facilitate the public to see the details of a place location and the surrounding environment. Various types of virtual reality emerging due to the development of technology, VR is not just appear as a video that displays all corners of the room but in this growing age users can enjoy the VR in a website and make it easy for users to understand the concept of the VR. Web media is the easiest media to introduce a travel destination, by utilizing (VRP) photography technique, it is expected to deliver travel information in Medan where web media can inform travelling destination in attractive way due to this virtual media tour. The users who access this website, will feel as if they were in real location, what had been seen by the photographer when shooting the 3600 panoramic photos will be shared to the user.(saib and hasibuan, 2016).

## 2. Theoretical basis

### a. Virtual Reality

Virtual Reality (VR) or virtual reality is a technology allowing users to interact with an environment simulated environment (computer-simulated environment), a the actual environment being imitated or actually an environment that is only in imagination (Sihite, 2013). The VR concept refers to system principles, methods and techniques used to design and create software products for use by help from some multimedia computer system with device system special (Lacrama, 2007)

### b. Website

Website known by the name of the site, website. Website is also called as a set of pages of information placed by the Internet so that can be accessed from various countries around the world as long as the device is still connected to the internet network. Website has various components available in, animated sounds became one of the media information that attracted the public attention to visit the web.Website also as a medium of information that is accessible easily for users.(Rudyanto Arief,2011)

### c. Web Design

Web Design is an art that combines in a creative and innovative, able to process and create web pages. Web Design is one of the terms of visual design which is applied to the digital media of the website. Related to what is web development, Because the development of a website requires not only the functionality of the website, but we also need an art essence. Content - Space - Colors - Typography - Creating html or xml animation, java script, programming, and ecommerce development. - Color selection - Selection of font size Creating web content (content) ( Jeprie, 2012)

### d.Vintage 360

360 degree videos are some of the videos that are combined into a unified video to make it easy for viewers to see all sides of the place in an object. This 360 degree video can bring viewers to see the three most dimensions in the 360 video can bring you as if it were real in a room. Some steps in making video 360, first You must choose specific "OBJECT". The second you must have software or application which fully support for the incorporation of several videos that will produces a desired 360 video, the example of software that supports video 360 is good intervals or frames and stitching. In making 360 degree video you have to prepare some tools in taking video and supporting video software 360. I use some tools and software:

- 4 cam action camera
- Scissor
- Solation
- Two camera enforcement rods
- Lenses
- Software (Autopano video pro)

The focus distance of a good lens is 50 mm or longer, with a 50 mm focal length, a panoramic photo will look natural. But if you want to create more dimensionless and dramatic effects, wider focal distances like 24 and 35 mm can be used

## 1. Methodology

The methodology used is the MDLC (Multimedia Development Life Cycle) sourced from Luther (1994) described by sutopo in multimedia applications in education, consisting of 6 stages:

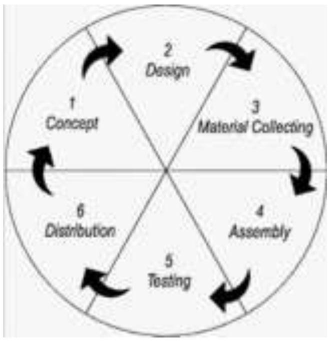

**Figure** 1.Development of MDLC methodology development

1. Concept
The concept stage (conceptualization) is the stage to determine the purpose and the user of the program (audience identification)
2. Design
Design (design) is the stage of making a specification about the program architecture, style, appearance and material needs / materials for the program.
3. Material collecting
Material collecting is the collecting stage of the bahana that suits the needs done
4. Assembly
The assembly stage is the stage of making all objects or multimedia materials. Application creation is based on the design stage, such as storyboards, flow charts and navigation structures.
5. Testing
The testing phase (testing) is done after completing the assembly stage by running the application / program and see if there is any error or not
6. Distribution
At this stage, the application will be stored in a storage medium. If the storage media is not sufficient to accommodate the application, compression of the application will be performed

a. Concept
The title has been made is "Virtual reality video with vintage 360". The purpose of developing one of these interactive website based applications is to make it easier to see, unwittingly that they see virtual reality videos in the form of websites and as if the viewers see it realize in the real world, because this VR displays the video as if it is 100% real, and the purpose of this website to make it easier to see the whole direction.

5.Design

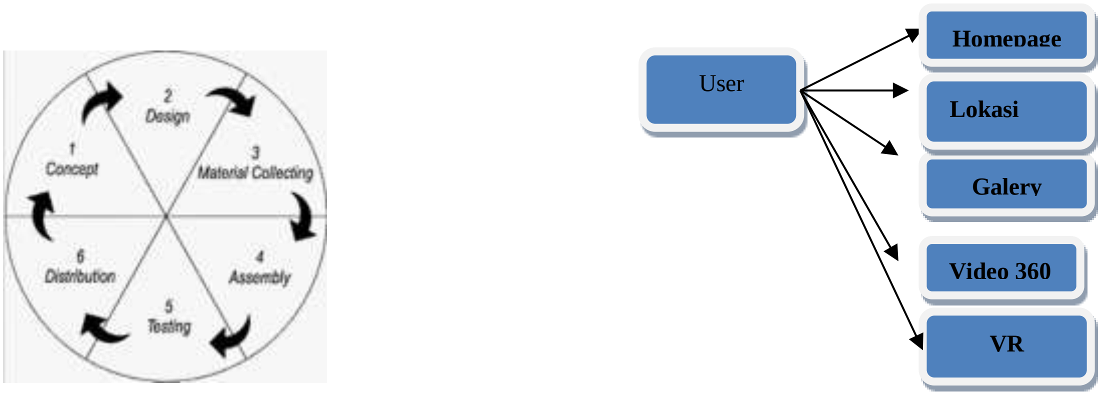

**Figure 2** Diagram Website

The diagram tells that the user can perform 5 activities. The first activity will be brought a hompage page that contains brief information about the website. In the map are available points that indicate the location of tourist attractions. All three users able to see the room and content of gallery Rahmad entirely. The fourth will be presented information about the sights of galery rahmad beauty that made the video 360o. The five users see the whole room in the form of virtual reality as if the user who saw felt in the room

b. Material collecting
Researchers take data from some historical sights that exist in the city of the form of video and tourist information. Researchers also analyzed the location where the video is taken, this is necessary to make the video produced good quality. Researchers collect 360o panoramic videos at historical sights in the city of Medan. Video session is done by selecting the point that becomes the center of 360o video. Then the tripod is placed above the predetermined center point, then the camera is used using a lens (focal length) 18-55 mm mounted on a tripod. Camera position in upright state (vertical). Then the video is taken rotate to the right until back to the starting point, then after returning the initial point of taking the video, then the camera lens is directed upright upright (zeninth) and perpendicular down (nadir).

Researchers need at least 6 videos at each point of the tour location to produce a 360o panoramic video. If using a cam action with a large 2.75 mm (focal length) video lens it takes much less that is enough 6 horizontal videos with 6 segments of video and 1 video facing up (zeninth) and 1 video face down (Koyuncu & Pinar, 2007 ).

## 2. Results and Discussion

The results obtained from the use of video virtual reality video system includes:
a. Assembly
The assembly stage is the stage of making all objects or multimedia materials. Application creation is based on the design stage, such as storyboards, flow charts and navigation structures. Based on a combination of several videos that have been made, it will be developed with the stages are:

1. Making video 360o using Autopano Video Pro software.
2. Making a website using Adobe Dreamwaever software with HTML programming language to build applications that can display video VR and display the information gallery grace

a. Testing
Testing is done by running the program and see whether there is an error or not, the results of the test can be concluded the program runs well and the content and buttons in the navigation goes well. But researchers found some external problems:
1. Type of laptop
Researchers recommend to access this website by using a laptop, if the user uses the notebook then the website will run slowly and the virtual tour movement becomes not smooth.
2. Internet connection
The concept of Virtual Reality Video will process, then required a good internet connection.

b. Distribution
This video has been uploaded and can be accessed by all community with domain address www.video virtual reality.plm.ac.id

The results of the process of creating a virtual reality video website have been in accordance with the results of the analysis conducted. In the application of the website, users able to see the state of the collection of all types of animals in the museum. so it can display interactive visual information. The videos can be rotated in all directions and also the museum's part as a guide to see the zoo's tourist sites. Here are the stages of the video stitching process until it becomes a virtual reality video.

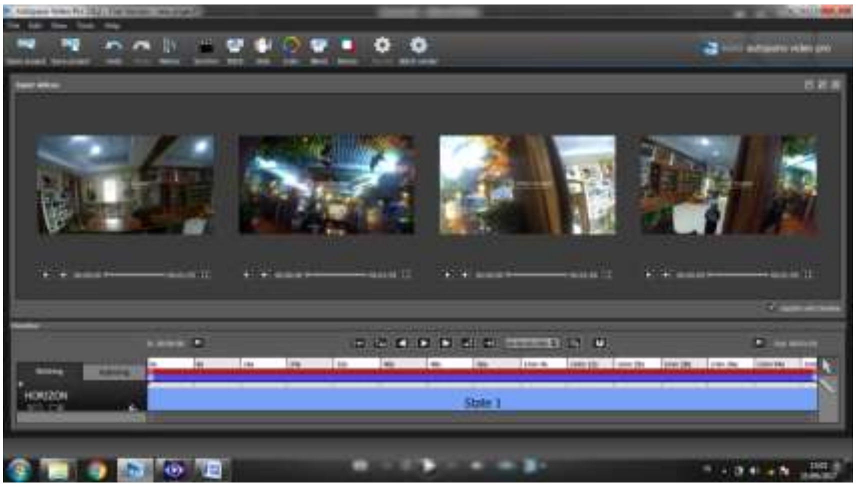

**Figure** 1 Import video process

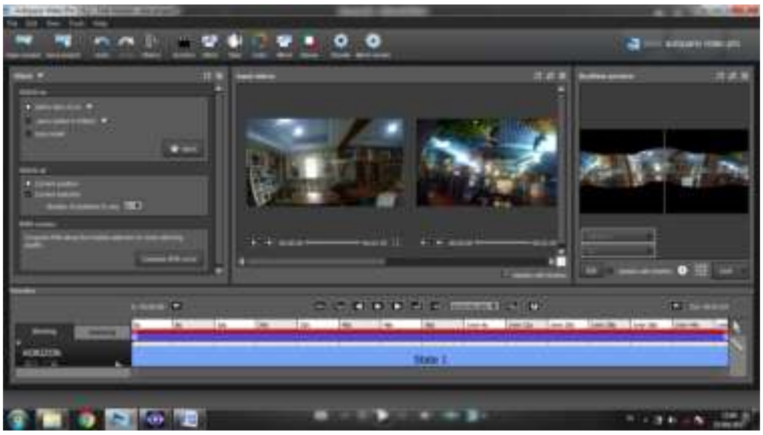

**Figure 2** Stitching Process

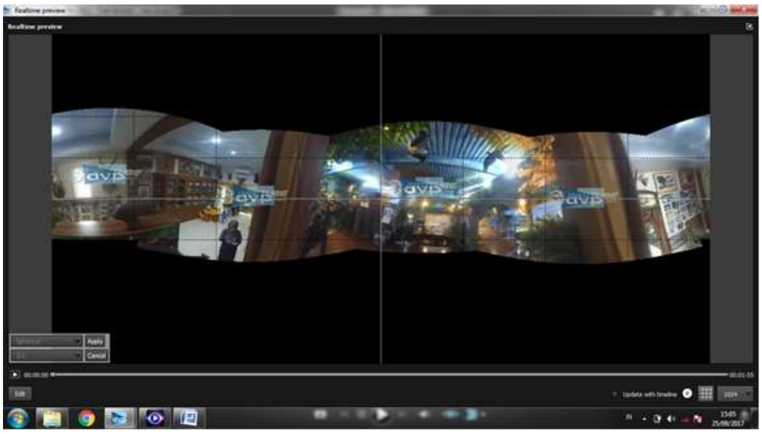

**Figure 3** Stitching results

After all video processed, then uploaded directly to the web. At this stage the authors create a website that provides virtual reality video with vintage 360 about the museum. It is a historical tour city video format 360 using the HTML program that the author created

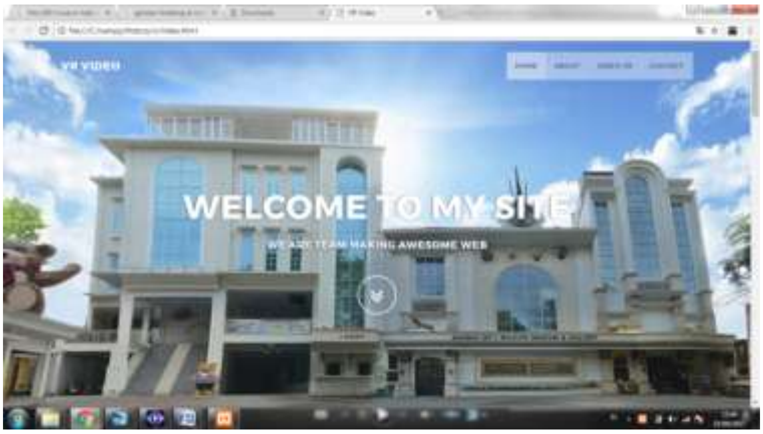
VR VIDEO
WELCOME TO MY SITE
WE ARE TEAM MAKING AWESOME WEB

**Figure 4** Main Website

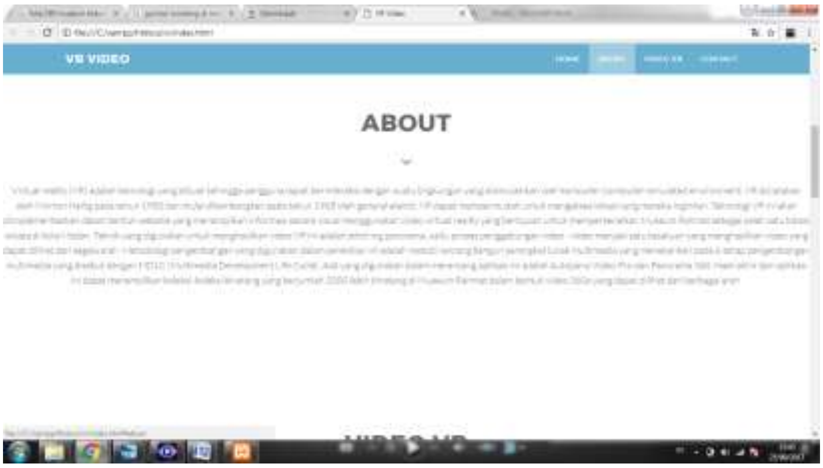

**Figure 7** Information page on the museum of Rahmat

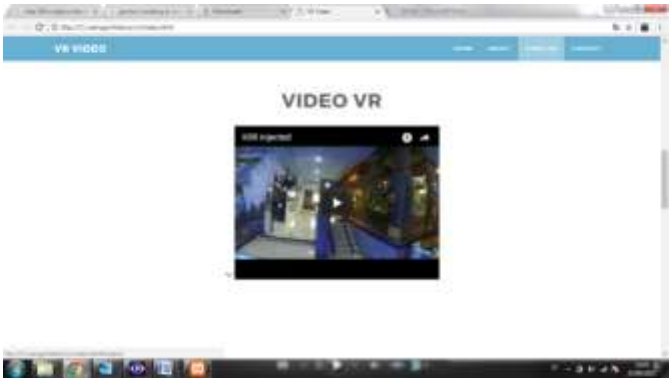

**Figure 8** Video VR after being uploaded to the Web

## 3. Conclusions

Presenting information in 360-degree video form can add user insight into the technique of making renewable videos and also make it easier for users to receive and understand the picture. VR technology will further facilitate the community in terms of familiar surroundings of the location used as a tourist attraction. Completed applications created using VR technology can display a collection of more than 2,000 animals in the Museum and can be viewed from different directions..

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