A STUDY OF DIGITAL VIDEO EXPRESSION USING DOUBLE PROJECTION MAPPING TECHNIQUES

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Bachelor of Applied Arts with Honours
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This project is submitted in partial fulfilment of
the requirements for the degree of Bachelor of Applied Arts with Honours

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2018

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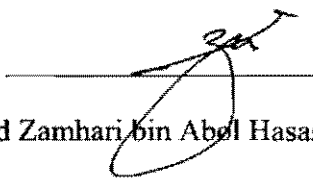

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Abstract

This research is about creating a digital video expression by using double projection mapping in order to create a new genre of projection mapping. The purpose of the research is to investigate the characteristics of using two projector in projection mapping through experimentation.

Keywords: Digital media art, Projection Mapping, Two Projector, Video Expression.

Chapter 1

Introduction

1.1 Introduction

The terms projection mapping is three-dimensional Video Projection which consists of video and 3D objects projected on a display or object surface. By making objects which do not physically exist as if they were in existence. This technique enables projector art that combines the real and virtual to be finished by programming the structure and dimensions to precise measurements and projecting CG images and lights.

Projection Mapping is now being used widely in every fields such as in dance performance, concert, museum and gallery. The technology was combined with sound and environment which create another dimensional and new experiences to audiences. Projection Mapping is a method that projected images or videos from a single projector or more.

The usage of projector brings a different effect on projected surface. Through this research, it will focus more on experimentations in digital video by using double projector rather than a single projector. This research is to make applications on another genre of projection mapping.

1.2 Background Study

Projection mapping have become one of the tools which give a new experience to viewers. The evolution of technology help artist itself to express their art more universal. It allow the artist to create 2D or 3D effects and project on plain surface. This study is to create a new genre of projection mapping by using double projector. The purpose of using dual projector is to support the deficiency of single projector and to experiment the usage of double projector.

1.3 Research Hypothesis

Through the past research, this research can come out a hypothesis that the usage of double projection mapping manage to mute the deficiencies of a single projection mapping. Besides that, the projected digital video that will be apply on double projector will help increase the probability of the experimentation.

1.4 Research Question

Based on the literature review, this research have come out with 3 problem statement:

1. What is the suitable form that should be projected?

2. What type of video should be apply on the projection mapping?

2. How to manipulate double projection mapping into video expression?

1.5 Research Objective

Based on literature review, this research have come out with 3 objectives:

1. To identify the suitable form to be projected by double projection mapping.

2. To identify the most suitable type of video that should be used in projection mapping.

3. To manipulate double projection mapping into video expression.

1.6 Research Statements

This research statements have come out after the survey of the previous research thesis on literature review. This research have the potential in several aspects:

1. To make experimentation of probability on double projection mapping.

2. To shows the edge of using double projector.

3. To shows another genre of video projection mapping.

1.7 Scope of Study

The experimentation of this research will be more on medium which on projection mapping. Projection is the main purpose of this research, however the medium itself not enough to support the research. This research will also focus on theory of lighting which to support the flow of the experimentation. Both medium and theory will be collaborate to make the final work.

Besides that, this research not only study on the terms 'projection mapping' itself, it also including the tools in the research. The experiment of the research will be identify the suitable tools that should be used.

1.8 Research Expectations

The collaborations of medium and theory in this research will make sure the flow of the experimentation. The usage of the projection mapping techniques bring the expectation towards this research is can mute some of the deficiency of projection mapping.

Through the experiments, this research will give the new review to the audiences about the projection mapping.

1.9 Conclusion

As conclusion, researcher have stated introduction, background study, research hypothesis, research question, research objectives, research statements, scope of study and research expectation.

Chapter 2

Literature Review

2.1 Introduction

Literature review is a summary about previous research. Literature review is a process to survey scholarly articles, journal and book that related with the research topic. Literature review is the main source to decide the direction of the research, research methodology and the discussion about the data analysis. Source of literature review divided into three categories which primarily, secondary and tertiary.

2.2 Concept of Lighting

Light is electromagnetic radiation that human eye can detect. According to **Prakel, D (2007)** in his book *Basic Photography: Lighting*, light is that narrow band of electromagnetic radiation to which human eye is sensitive. Light travels in straight line which that enable us to see our own shadow.

In context of double projection mapping, choosing the right brightness of light is very important. The level of brightness that should be use are depend on three factors which is the content, the image size and the brightness of the room. Based on ***Projector Expert White Paper Series: Projectors 101 – Educate Yourself about Projectors*** stated that if you want to project a large image to a large audience, you should choose a bright projector and dim the lights as much as possible. If you want to project a detailed image, you may want to minimize the brightness of the room.

This means that lighting influenced the types of projector that should be used. Light bring the white light that contain rainbow colors through the wavelength called