

BORANG PENGESAHAN STATUS TESIS*

JUDUL: RUNWAY STAGE DESIGN USING VIRTUAL REALITY METHOD

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RUNWAY STAGE DESIGN

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DECLARATION

I hereby declare that this project report entitled

RUNWAY STAGE DESIGN USING VIRTUAL REALITY METHOD

is written by me and is my own effort and that no part has been plagiarized without citations.

STUDENT :  _____ Date: 22 October 2007
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SUPERVISOR:  _____ Date: 22 October 2007
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DEDICATION

To my beloved parents, sisters, caspery, shnow, curien, moon and friends...

ACKNOWLEDGEMENT

Please take a few minutes to read the names of the people who have contributed for the completion of my Project Sarjana Muda report - they've earned it, and I am humbly grateful to them all.

I would like to thank Mrs. Farah Nadia Azman and Shahrul Badariah, my supervisor for guiding and updating me on my PSM report.

Last but not least, I wish to express my appreciation to my beloved parents, family and friend for their never ending love and support. Many more persons participated in various ways to ensure this thesis a success.

ABSTRACT

The “Runway Stage Design using Virtual Reality method” project is focus on virtual reality approach to design the Runway Stage through walkthrough viewing aspect. This project will help the stage coordinator to visualize and plan on the stage. They can arrange the lighting, decoration and equipment on stage. The target users of this application are Fashion Show director, Interior Light Design Students and Interior Designer Students. The methodologies used for this project are the combination of Dean & Whitlock and Spector methodologies. The main objective to be achieved in this project are to create a 3D Runway Stage Design simulation using Virtual Reality method, to provide an application for stage designer to help them to visualize their idea to their client, to examine the lighting effect used in Runway Stage and to observe on the texture used for Runway Stage and stage equipment. In this Runway Stage Design project there are four stage layouts. The user can design Runway Stage in Virtual Environment by arranging the decoration, lighting, wallpaper and change the flooring pattern. In this Virtual Environment, the user can change the decoration position, turn and rotate the decoration according to their liking. The user can test on the stage lighting effect on the stage and change the wallpapers, flooring and stage flooring pattern. In the end of this project, the expected output is a Virtual Reality application that able to help Stage Designer to design on Runway Stage easily and faster then the manual method. In the end of the project this application is a non-immersive Virtual Reality that will be running on desktop system or can be store in to a CD

ABSTRAK

Projek "Runway Stage Design using Virtual Reality method" ini menumpukan pendekatan menggunakan teknologi realiti maya dalam merekabentuk pementasan Runway. Penggunaan Realiti Maya membolehkan pengguna mendapat penglihatan 360 darjah dalam pementasan maya. Projek ini dapat membantu pereka pentas, pelajar rekabentuk cahaya and pelajar rekabentuk dalam merekabentuk pementasan Runway. Metodologi yang digunakan dalam membangunkan projek ini ialah metodologi Dean & Whitlock dan metodologi Spector. Objektif utama projek ini adalah membangunkan sebuah simulasi Rekabentuk Pementasan Runway dalam 3D menggunakan teknologi realiti maya, menyediakan aplikasi untuk Pereka pentas, pelajar rekabentuk cahaya dan pelajar rekabentuk dalaman bagi membantu dalam merekabentuk pementasan Runway dan mengkaji texture untuk pentas Runway dan perhiasan di pentas. Pereka boleh mereka pentas Runway dalam keadaan maya dengan menyusun perhiasan dan perabot dalam ruangan pentas, mengubah suai kertas dinding untuk latar belakang pentas, mengubah suai corak lantai pentas dan bilik pementasan. Dalam pementasan maya, pengguna boleh mengubah kedudukan dan posisi dekorasi di dalam pentas maya. Pengguna boleh mengkaji penggunaan cahaya di atas pentas dengan menggunakan aplikasi ini. Di akhik projek ini, output yang dijangka ialah sebuah aplikasi Reality Maya yang boleh membantu pereka pementasan dalam mereka bentuk pementasan Runway lebih efisien dan berkesan. Projek ini menggunakan aplikasi realiti maya 'non-immersive' yang boleh dimainkan di desktop computer tanpa menggunakan alatan tambahan untuk aplikasi realiti maya. Aplikasi ini juga boleh disimpan di dalam cakera padat.

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CHAPTER 1

INTRODUCTION

1.1 Project Background

Runway Stage Design using Virtual Reality method is projects that focus on virtual reality approach to design the Runway Stage through walkthrough viewing aspect. This project will help the stage coordinator to visualize and plan on the stage. They can arrange the lighting, decoration and equipment on stage. In this application the user can choose the layout of the stage, flooring pattern, wall colour, LED lighting and spotlight effect to be used on stage.

The stage coordinator/ Stage designer need to plan on the stage lighting and decoration on stage before a Fashion Show or Runway Project are being held. 3D Virtual Reality enables to have the end-user to have a realistic view on environment and space. This project enables the stage coordinator to plan on what runway layout, lighting effects and floor pattern to be used on the runway stage. They can choose a selection of stage equipment models, LED light, spotlight, the flooring pattern and the runway stage layout. These models selection in this application will be in 3D form. After choosing the model from the various selections, they can arrange this equipment to their liking suitable with the fashion show theme that they are going to held and view the result of their design through different camera perspectives. The user can have different angle view in viewing the Runway Stage.

In this project the first step in setting a Runway Stage is to identify the theme of the Runway Show then the stage coordinator needs to choose the stage layout

suitable for the Runway Show. Secondly the stage designer needs to decide on the stage equipment and decoration on stage. For final and most critical steps is to set up the lighting and spotlight to be use on stage. The lighting effects will give the most important impact to the whole stage and show performance atmosphere.

This virtual reality project will be a non-immersive virtual reality. The user can interact with this project application using keyboard or mouse. The output for the project will be presented on the user computer monitor. The user can have a walkthrough on the stage design, arrange the stage set-up and decide on the flooring and wall mapping pattern.

1.2 Problem Statements

This project is carry out because of some problems occur in the existing method. By building this project, hopefully it will ease the burden faced by Stage Designer in designing a Runway Stage.

The problem discovered in the current system is the stage designer does not have specific software to help them in designing a runway stage. Runway stage consist a runway and small stage. Therefore it is hard for the designer to decorate the stage because of it limited space. Lighting effect and stage decoration plays an important role to make the stage more attractive. Through the runway stage design simulation, it will help the stage designer to design the stage layout, decoration and lighting on stage.

Other than that, through this design simulation the stage designer can easily describe and visualize their stage design to their clients. Usually the stage designer will have difficulties on describing their ideas to the client. Although the designer sketch his idea on a piece of paper, it is very hard for the client to 'see and feel' the exact design of the stage. The client can have a realistic view on the stage designer idea through this virtual reality project and both the designer and client can achieve an agreement on stage decoration matters. Besides, using this virtual reality approach,

the stage designer and their client can both design the runway stage because they can easily arrange the stage equipment, lighting and floor/wall pattern.

Currently, the stage designer needs to set up the lighting equipment on stage to view on the effect of lights and spotlight. This lighting test can only be view once the whole stage has been set up. This will waste the designer time, energy and cost if they happen to choose the wrong stage equipment or flooring pattern texture. But by using the virtual reality runway stage design, the stage designer can view the light effects on stage even before the stage is being set. As simply as choose and arrange, this virtual reality method can help the stage designer to save time and energy in the stage design.

1.3 Objectives

There some main objectives on the developing this Runway Stage Design using Virtual Reality Method. The objectives of this project are:

- To create a 3D Runway Stage Design Simulation using Virtual Reality method.
 - To provide a commercial application for Stage Designer to help them to visualize their idea to their client.
 - To examine on the lighting effects used in a Runway Stage
 - To observe on the texture used for Runway Stage and the stage equipment.
- i. **To create a 3d Runway Stage Design Simulation using Virtual Reality Method**

This project is developed to provide a tool for the stage designer to simulate their design idea in 3D form. This project allows the Stage Designer to plan on how to design a Runway Stage by selecting the stage layout, stage equipment, flooring and lighting effect on the runway stage. The Stage Designer can pick the stage equipment

and decoration from the model selection and arrange it on stage. They can also choose the flooring pattern to decorate on the stage. They also add lighting effects and spotlight on the Runway Stage.

ii. To help Stage Designer to plan for the stage for a Runway Show

In this project, there are selection of stage equipment and stage decoration for Runway Stage. The lighting effects and spotlight are also specially for stage performance lighting. This equipment selection will make it easier for the stage designer to plan for Runway Show. They can choose and arrange the equipment on stage. This will save time for the designer as they do not have to sketch their design and can minimize error in designing.

Besides that, this project aim is to provide a commercial application for Stage Designer to help them visualize their idea to their client. Through this simulation the stage designer can easily describe and visualize their stage design to their clients. The client can have a realistic view on the stage designer idea through this virtual reality project and both the designer and client can achieve an agreement on stage decoration matters.

iii. To examine on lighting effect used in a runway stage using 3d model.

This project is developed to make a research on the lighting and the lighting effect used in a runway stage. Wisely selected lighting and spotlight on stage will give special effect and lighten up the stage performance. The combinations of two or more light on stage give different effect from the original lighting. It is also very important for the stage designer to choose carefully on the type and colour of the stage flooring and wall because these two will become the reflector for the lights and each type of colour and surface type has their individual effects on the lights. In this project each light effect and its impact on the flooring and wall will be study and examine.

- iv. To observe on the texture used for Runway Stage and the stage equipment.**

The Runway Stage Design project provides a selection of texture for the stage flooring and wallpaper. Each texture will give different mood effect to the stage. While building this project, the texture and type of stage flooring and wallpaper will be observe. Stage equipment or decoration plays important role to add extra attraction on the Runway Stage. Stage equipment such as stairs, LED decoration and others equipment for Runway Stage will be study in this project.

1.4 Scope

This 3D Runway project Design is a non immersive virtual reality project. It is categorized as “Desktop VR “. In Desktop VR, the output of the project image will be display on the conventional desktop monitor. It does not use the technology of goggles and gloves for immersive effects. This non-immersive virtual reality will accept input from keyboard and mouse while output is display on user’s computer monitor.

This Runway Stage using Virtual Reality method will mainly focus on the lighting effect and equipment on the Runway Stage to give the Stage coordinator the real atmosphere on the Fashion Show. This project will have a limited selection of spotlight, lighting effects and stage equipment for the user to choose and arrange it. This project will only cover the runway stage area, stage equipment, stage flooring and the lighting effect. This project allow the user to have a walkthrough in the Runway Stage which will provides different angle view on the stage and allows the user to arrange the stage equipment and lighting effect on the stage.

The target users for this application are:

- Interior Stage Designer
- Fashion Show director
- Interior Light Design Students

- Interior Designer Students

1.5 Project Significance

The main purpose of developing this project is to create a simulation for Runway Stage Design that enable the user to plan the stage layout, stage equipment and lighting on stage. This will be a training tool for the designers to plan on the stage before they start to do the real stage preparation. This simulation also helps the stage designer to have a realistic view on the stage proposition for the real Runway show. The designer can try and error in designing the Runway stage without wasting much time and energy through the virtual reality simulation.

Besides that, this project also benefits Interior Designer classes to learn on Runway Stage design and lighting effect on stage. The walkthrough advantage in the Runway Stage Design Simulation allows the student to observe the stage design and study on the lighting and luminous effects. They can learn on how the flooring and wall surfaces will effect the lighting on stage and through training in the Runway Stage design, they can enhance their skills in interior design especially in lights.

This project indirectly will be the medium between a Stage Designer and their client to convey their design ideas. It may be hard for some Stage Designer to describe their idea specially on lighting design to their client but with this project, the Stage Designer can actually shows their idea to the client through the stage simulation they have created in Virtual Reality Simulation project.

As stated earlier, this Runway Stage Design Simulation project will be a non-immersive virtual reality. Therefore, this project cost lower than immersive Virtual Reality because the developer do not have to spend on extra hardware for immersive Virtual Reality. It will also make this project affordable for other user to use as they do not require special hardware to use this application. The users only need a computer, keyboard and mouse to use this Runway Stage simulation.

1.6 Expected Output

Upon the completion of the project, the main output to be expected is an application that able to help Stage designer to design on Runway Stage easily and faster than the manual method. This project should make stage design steps easier and reliable. This project will have a friendly-user interface to make it easier for the user to use this application and have simple key configuration.

This project will have tutorial or instruction on how to use the interface and key configuration for the new user. The user can follow step by step on designing the stage. Firstly the user can choose the runway stage layout, and then select the flooring and wall color. After that the user can choose the stage equipment and arrange it on the stage. Finally they can decide on the lighting to be use on stage. The user can have different camera view can change their design if they are not satisfied with their design. For the stage layout, the user can choose three type of runway stage layout which is 'T', 'Y' or 'L' type runway stage. The stage equipment and decoration will be assorted equipment like stairs, LED light and curtain. All the project's models will be in 3D form.

In the end of the project this application is a non-immersive Virtual Reality that will be running on desktop system or can be store in to a CD.

1.7 Conclusion

The "Runway Stage Design using Virtual Reality method" is a new project that will focus on the interior design for a Runway Stage. This project focuses more on the lighting effect on stage and creating 3D stage equipment. This project will need a lot of research and reference from other interior design application using Virtual Reality method.

This project is developed resulting on the problem statement that have been identified. By developing this project, it can help Stage designer and interior

designing student to expand their creativity in designing at the same time make their design work easier. This project also will help the user to understand more on the concept of lighting on stage and stage design.

In the next chapter will discuss more on the literature review of the project. This chapter contains article from the current article involving the project field to support on the development of the project and the facts and finding regarding the subject that being research for this project. Also will explain more on the techniques, project methodology and project requirement in building this project.