

**THE IMPLEMENTATION OF 3D TECHNOLOGY AND SIMULATION
IN INTERACTIVE HELP**

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IN INTERACTIVE HELP

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This report is submitted in partial fulfilment of the requirements for the
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FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
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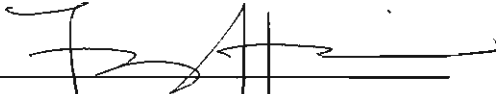
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I hereby declare that this project report entitled
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citations.

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DEDICATION

I dedicate this thesis to my beloved parents, supervisor, colleagues and friends for their constant support and encouragement.

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First and foremost, I would like to thank my parents for their unconditional love and constant support that has motivated me to complete the project. They have been there for me through the ups and downs and for that, I am deeply grateful.

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Consequently, I would like to thank my course mates and friends who have helped me either directly or indirectly in the completion of this project. Lastly, I would like to thank everyone else that I have not mentioned who had assisted me in my project.

ABSTRACT

This project examines the implementation of 3D technology and simulation in interactive help. The number of Digital SLR users around the globe is increasing at a fast rate. The majority of people now are mostly interest in photography. In order for them to take good quality pictures, a DSLR camera is required. However, many users actually do not understand how to use a DSLR camera. The most common way of obtaining tips and tricks on how to use a DSLR is through forums and websites. Users often waste countless hours searching the internet and also the user manuals for specific troubleshooting advice. The conventional help that comes with the camera is the Help Manual. This help manual is usually a small, printed booklet. These help are often arranged in a linear form and it contains a lot of other information that would confuse users. Furthermore, text based help manuals are not interactive. Therefore, text based help manuals are ineffective in delivering the information that it is suppose to. By incorporating the latest 3D technology and interactivity features, this project has succeeded in producing an interactive 3D help manual. This 3D help manual gives users a better visualization on the model of the DLSR camera. Moreover, through the interactive element incorporated into the simulation, users can learn and understand much faster. This project has also a detailed analysis of the meaning and effects interactivity has on an individual.

ABSTRAK

Projek ini mengkaji teknologi 3D dan simulasi dalam aplikasi buku panduan yang interaktif. Jumlah pengguna Digital SLR di seluruh dunia telah meningkat kepada satu tahap yang mendadak. Sebahagian besar dalam masyarakat sekarang amat berminat dengan fotografi. Untuk menghasilkan sekeping gambar yang berkualiti, kamera DSLR diperlukan. Namun begitu, banyak pengguna sebenarnya tidak tahu bagaimana menggunakan kamera DSLR. Pengguna terpaksa mendapatkan bantuan daripada laman web. Mereka memerlukan banyak masa untuk mencari informasi yang tepat untuk mendapat cadangan penyelesaian masalah tersebut. Bantuan konvensional yang dilengkapi dengan kamera DSLR merupakan Buku Panduan yang bersaiz kecil. Buku Panduan ini merupakan sejenis medium cetak yang mengandungi informasi dalam bentuk teks. Informasi ini disusun dalam bentuk linear dan mengandungi banyak informasi lain yang sering mengelirukan pengguna. Seterusnya, buku panduan tersebut juga tidak mempunyai unsur interaktiviti. Justeru, buku panduan berasaskan teks tidak begitu berkesan dalam penyampaian maklumat. Dengan menggabungkan teknologi 3D terbaru dan ciri-ciri interaktiviti, projek ini telah berjaya menghasilkan satu aplikasi buku panduan yang interaktif dan dalam 3D. Aplikasi ini dapat memberikan visualisasi yang lebih baik kepada pengguna tentang model kamera DSLR tersebut. Selain itu, melalui elemen-elemen interaktif yang digabungkan dengan simulasi, pengguna boleh mempelajari dan memahami informasi lebih cekap. Projek ini juga mempunyai analisis yang terperinci mengenai erti dan kesan interaktiviti terhadap individu.

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CHAPTER I

INTRODUCTION

1.1 Project Background

The help that a person can get about a DSLR camera is often wasted on countless hours of searching on the internet and also user manuals. These help are often found written in a text based form. One has to browse through the whole page or a booklet to locate the solution to the problem. Users are also often confused as they do not know the keywords in which to search for in order to solve the problem at hand. Moreover, these text based help are not interactive and does not capture the user's attention.

Therefore this project will study the effectiveness of interactivity through a simulated model of the product which is a DSLR Camera. By incorporating 3D Technology and simulation in help applications, we can engage the user's attention and as a result, vital information can be passed on to them. This application can be a vital tool in the help and services sector where users themselves can solve or avoid problems. The application will feature a 3D model of the camera in a virtual environment where users can interact freely with it and learn more even before handling the real camera. Users can get useful tips about the camera and also get a vivid representation of the camera. This application can be extended and expanded to include much more information on any other appliances that has a text based user guide.

1.2 Problem Statements

Text based help are often found on the internet and also on printed paper which is normally compiled into a small and compact booklet. These help are often arranged in a linear form and it contains a lot of other information that would confuse users. Furthermore, text based help manuals are not interactive. Users waste precious time and resources searching for the right solutions to a problem. Therefore, text based help manuals are ineffective in delivering the information that it is suppose to.

1.3 Objectives

- To study the effectiveness of simulations in conveying information.
- To incorporate interactivity in designing an interactive digital help application.
- To improve users' interaction and performance in using a DSLR camera.

1.4 Scope

The scope for this project includes different modules that users can select to better understand how to use a Digital SLR camera. Users can also obtain simple but effective tips on how to operate their equipment in different environments. The target users will be Digital SLR enthusiast and also novice camera users who want to learn more about the different camera techniques.

1.5 Project Significance

Individuals who love photography and want to learn more will mostly benefit from this project. This project incorporates interactivity and enhances the visualization of the DSLR Camera through a simple simulation. Users have the freedom to view and also test different settings to suit the environment in which they want to capture a picture. This will aid novice photographers to learn more and understand the art of taking a perfect picture.

1.6 Summary

This project incorporates interactivity into the otherwise linear and passive method of help manuals found on the web and also in the DSLR package. Interactive manuals will help users better understand the usage of a DSLR camera. Through interactivity, users can learn much effectively and have a better visualization of the camera. The following chapter will be about the literature review and project methodology which contains an explanation of the existing system, a comparison of simulations in a 2D and 3D environment, the project methodology, instructional design, hardware requirements and lastly software requirements.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

Most of the products in the market come with a user manual where it gives a brief description on the product. These user manuals explain how to operate and handle the product. However some user manuals are in a text based form and it is normally printed on paper. Users have to browse through the entire section, reading it before they can fully understand the product. Therefore this project is to develop an interactive digital guide to help users better understand the product fast and effectively. The product that will be used for this project is a DSLR camera. This chapter will provide and insight and overview of the project. It outlines the domain related to this project, details about the existing system, project methodology and project requirements.

2.2 Domain

The domain for this project is related to the limitations of traditional text based help manuals and how interactivity can help users to better understand a DSLR camera. Through an interactive digital help application, users can interact and are able to identify and use the functions and features of the camera.

Traditional help manuals are usually printed on paper and compiled into a booklet. According to Jern, Palmberg, Ranlöf and Nilsson (2003), a traditional document is usually structured and arranged in a hierarchical chapter structure which is passive and linear. The hierarchical chapter structure is arranged in an order that is preferred to read. These chapters contain information and explanations about the product. The comprehensibility and the ease of retrieving data from the document will depend highly on the way the author writes and how it is structured.

However, the linear and hierarchical structures of traditional text based manuals have their own limitations and restrictions. The linearity of the documents often leads to the contents of the document being static. Once printed, the manuals' structure is fixed for the particular version. The users can only gain that much information that the manuals offer. A complete visualization and understanding of the camera will be hard to achieve if the manual is not written properly.

These text based manuals are also restricted because it can only support text and a little graphics. The element of interactivity is important when it comes to understanding and learning a particular skill. Studies have found that website interactivity has a positive influence on the learning outcomes for children and adolescents. (Sundar, Qian and Saraswathi, 2010)