

**INTERACTIVE VIRTUAL REALITY
VIDEO WALKTHROUGH**

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Comb

INTERACTIVE VIRTUAL REALITY VIDEO WALKTHROUGH

**A thesis submitted to the Centre for Graduate Studies in
full fulfillment of the requirements for the degree Master of
Science (Information Technology), Universiti Utara
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by

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ABSTRAK

Penyelidikan ini bertujuan untuk membina satu prototaip yang mempunyai ciri-ciri Video Interaktif dan QuickTime Virtual Reality (QTVR). Perisian Adobe Flash telah digunakan sebagai pentas untuk membangunkan prototaip ini kerana pengguna akhir hanya perlu memuat turun fail masa larian yang kecil untuk berinteraksi dan bermain dengan program ini.

Di samping itu, ujian kebolegunaan juga telah dibuat dengan menggunakan *System Usability Scale (SUS)* untuk menguji kebolegunaan prototaip tersebut supaya ia mudah digunakan dan dapat memenuhi keperluan pengguna.

Kesimpulannya, penyelidikan ini berjaya menggabungkan ciri-ciri Video Interaktif dan QTVR dalam Adobe Flash dan juga berjaya menjalankan ujian kebolegunaan.

ABSTRACT

This research aims to build a prototype that has Interactive Video and QuickTime Virtual Reality (QTVR) features into one program. Adobe Flash software has been used as the platform to develop this prototype because end user only needs to download small size of runtime file to play and interact with the program.

Other than that, usability testing have been done on the prototype by using System Usability Scale (SUS) to test the prototype usability so that it is easier to use and closely fill user needs and requirements.

As conclusions, this research successfully combines features of Interactive Video and QTVR in one prototype in Adobe Flash and successfully finished doing the usability testing.

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LIST OF ABBREVIATIONS

*.avi	- File Extension for Audio Video Interleaved
*.exe	- File Extension for Executable or Application
*.fla	- File Extension for Flash Document
*.flv	- File Extension for Macromedia Flash Video
*.swf	- File Extension for Shockwave Flash
2D	- Two Dimension
3D	- Three Dimension
ASCII	- American Standard Code for Information Interchange
ASP	- Active Server Pages
BOOM	- Binocular Omni-Orientation Monitor
BSE	- Breast Self Examination
Codec	- Coder/Decoder
COP	- Center of Projection
CRT	- Cathode Ray Tubes
CSUQ	- Computer System Usability Questionnaire
D8	- Digital8 or Digital Camcorder Tape
dB	- Decibel
DDR	- Double Data Rate
DV	- Digital Video
FOV	- Field of View
fps	- Frame per seconds
GB	- Gigabyte
GHz	- Gigahertz
HMD	- Head Mounted Display
HTML	- Hypertext Markup Language

JRE	Java Runtime Environment
KB	- Kilobyte
Kbps	- Kilobits Per Second
km/h	- Kilometers Per Hour
LCD	- Liquid Crystal Display
LCS	- Liquid Crystal Shutter
MB	- Megabyte
MHz	- Megahertz
MJPEG	- Motion Joint Pictures Expert Group
MPEG-2	- Moving Pictures Experts Group 2
NTSC	- National Television System(s) Committee
Object VR	- Object Virtual Reality
PAL	- Phase Alternating Line
PC	- Personal Computer
PSNR	- Peak Signal to Noise Ratio
QTVR	- QuickTime Virtual Reality
QUIS	- Questionnaire for User Interaction Satisfaction
RPM	- Rotational Per Minute
SUS	- System Usability Scale
TOPIC	- Training for Oral Proficiency Interviewing Competence
USD	- United States Dollar
UUM	- Universiti Utara Malaysia
VB	- Visual Basic
VDU	- Visual Display Unit
VE	- Virtual Environment
VFW	- Video For Windows
VR	- Virtual Reality

Chapter 1

Introduction to the Research

There have been many attempts to recreate the experiences of being in particular places. Before photography has been invented, the places are illustrated by arts thru drawing. The inventions of photography have made it easy to depict any places available. Then, come the motion pictures but both are strictly passive media. The end user can only play, stop, pause, fast forward and reverse the conventional video (Kimber, Foote & Lertsithichai, 2001). Contrast to Interactive Virtual Reality Video Walkthrough, the video is interactive where user can controlled it like conventional video and the user can move forward, move backward and jump to other video scene thru hyperlink.

1.1 Motivations

Two previous researches motivate this prototype to be developed. One is Aspen Movie Maps by Andrew Lippman in 1980 for Interactive Video and second is QuickTime Virtual Reality (QTVR) by Shenchang Eric Chen in 1995. Both are pioneer in Interactive Video and Panoramic Image (PI) and also great program and software. Interactive Virtual Reality Video Walkthrough is combinations of these two superb features. By this, Interactive Virtual Reality Video Walkthrough has been born.

The contents of
the thesis is for
internal user
only

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