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JUDUL: VIRTUAL WALKTHROUGH SHOW HOUSE: METACORP BHD

SESI PENGAJIAN: 2003/2004

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Tarikh : 5 Oktober 2004

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Pn Safiza Suhana Kamal Baharin

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VIRTUAL WALKTHROUGH SHOW HOUSE

SUWARNI BINTI HJ TERMUJI

This report is submitted in partial fulfillment of the requirements for the
Bachelor of Information and Communication Technology (Interactive Media)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA
2004

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ADMISSION

I admitted that this project title name of

VIRTUAL WALKTHROUGH SHOW HOUSE

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

STUDENT : SUWARNI BINTI HJ TERMUJI Date: 05 October 2004

SUPERVISOR: SAFIZA SUHANA KAMAL BAHARIN Date: 05 October2004

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DEDICATION

Praise to Allah the gracious and the merciful, its an honorable journey into developing this project not just by my will and commitment, but with every individuals, team effort and supportive elements by my colleagues in Media Interactive course, through the guidance and excellent of knowledge from my supervisor Pn. Safiza Suhana Bte Kamal Baharin, and discipline trained by my lecturers.

It is an honour to finish this task as it not only helps me into unload the favorable burden, but to gather precious understanding and knowledge.

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IN THE NAME OF ALLAH (AL MIGHTY), THE GRACIOUS, THE MOST MERCIFUL.

Peace and blessings of Allah Al Mighty be our beloved, final Prophet and Messenger of Allah, his relatives and all his companions and those who have followed. Alhamdulillah, all praise and thankfulness to Allah S.W.T, the most Glorious and Omnipotent, with His willing has allowed me to complete this Projek Sarjana Muda II.

First of all, I would like to take this golden opportunity to express my deeply gratitude to Pn. Safiza Suhana Binti Kamal Baharin who is my faculty supervisor for her guidance, advice, valuable suggestion, encouragement and moral supports throughout the completion of this Projek Sarjana Muda II. Also my sincere appreciation to my friend Mohd Shamsul Bahri Bin Abdul Hadi for sharing his knowledge, expertise, providing guidance and willingness to assist in the research in completing this Projek Sarjana Muda II.

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ABSTRACT

The project is about the virtual reality of Tropical Bungalow Show House for Metacorp Bhd. It is the 3D walkthrough application for the single storey bungalow based on the Tropical Bungalow Show House located at Taman Tasek Utama, Ayer Keroh, Melaka. The purposes of the development project are as promotion effort to promote and introduce house selling to each of the visitors, locally and even internationally. It is a method or a tool that can be used by the Metacorp developer itself as an element of attraction and for the convenience of the visitors itself. There is a lot of problem existed using the Show House as a medium to promote the house such as congested, exhausted, far distance and others. However, by using this virtual reality Show House, customer may just visit the house via the internet using the virtual technology which is like a real world environment. The importance of this research is to develop the high quality product of 3D application due to introduce the usage in public itself beside help the developer in selling their house. Various methodologies have been applied due to analyze the requirement for this project such as observation, interview, data collection, and questionnaire. It is because the survey from the respondent and research place important to gather information about the view and suggestion to convenience the development process. This 3D walkthrough application also contains 3 modules for user in exploring the house such as walkthrough option, where the user can begin their exploration from the front door. While the second option is room environment option, which is the user also can be directly inside any room they are choosing and the last option is the map direction, which is to avoid user from lost during the exploration. Hopefully this virtual reality Show House application will have a good potential and market value in the future.

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ABSTRAK

Projek ini adalah berkenaan realiti maya Rumah Contoh Banglo Tropical bagi Metacorp Bhd. Ini adalah aplikasi '*walkthrough*' 3D bagi banglo setingkat merujuk kepada Rumah Contoh Banglo Tropical yang terletak di Taman Tasek Utama, Ayer Keroh, Melaka. Tujuan pembangunan projek ini adalah sebagai usaha mempromosikan dan memperkenalkan penjualan rumah kepada setiap pelanggan, samada tempatan mahupun antarabangsa. Ia adalah kaedah yang boleh digunakan bagi pihak pemaju Metacorp sendiri sebagai elemen untuk menarik pelanggan dan di samping memudahkan pelanggan. Terdapat beberapa masalah yang wujud menggunakan Rumah Contoh sebagai medium untuk mempromosikan rumah seperti kesesakan, keletihan, jarak dan lain-lain. Walau bagaimanapun, dengan menggunakan Rumah Contoh realiti maya, pelanggan hanya perlu melihat rumah melalui internet menggunakan teknologi maya yang mana ianya menyerupai persekitaran sebenar. Kepentingan kajian ini adalah untuk membangunkan produk yang berkualiti tinggi dalam aplikasi 3D untuk memperkenalkan kegunaannya kepada orang ramai di samping membantu pemaju dalam penjualan rumah. Terdapat pelbagai kaedah digunakan bagi menganalisa keperluan projek ini seperti pemerhatian, temubual, pengumpulan data dan soal selidik. Ini diperlukan kerana tinjauan dari responden dan tempat kajian penting untuk mendapatkan maklumat berkenaan pandangan dan cadangan bagi memudahkan proses pembangunan. Aplikasi '*walkthrough*' 3D ini merangkumi 3 modul seperti pilihan '*walkthrough*', di mana pengguna boleh bermula dari pintu depan. Manakala pilihan kedua ialah persekitaran bilik,di mana pengguna juga boleh berada di dalam mana-mana bilik yang dipilih dan yang terakhir adalah peta panduan, yang akan mengelakkan pengguna sesat sewaktu melawat. Semoga aplikasi realiti maya bagi Rumah Contoh ini mempunyai potensi dan pasaran yang bagus di masa akan datang.

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ABBREVIATIONS

ASCII	America Standard Code
C	C Programming Language
CAD	Computer Aided Design
C++	C++ Programming Language
CPU	Central Processing Unit
DARPA	Defense Advanced Research Project Administration
DFDs	Data Flow Diagrams
DIS	Distributed Interactive Simulation
ESC	Escape
FTP	File Transfer Protocol
JAD	Join Application Design
HMD	Head Mounted Display
KLSE	Kuala Lumpur Stock Exchange
LBE	Location Based entertainment
LCD	Liquid Crystal Display
Mac	Macintosh
OOD	Object Oriented Design
PC	Personal computer
RAD	Rapid Application Design
RM	Real Media
SIMNET	Simulation Internet
VGA	Video Graphic Adapter
VR	Virtual Reality
WAV	Audio File Format for WAVE
2D	2 Dimensions
3D	3 Dimensions
6D	6 Dimensions

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CHAPTER I

INTRODUCTION

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CHAPTER I

INTRODUCTION

1.1 Introduction of the Project.

Virtual reality is the simulation of a real or imagined environment that can be experienced visually in the three dimensions of width, height, and depth and that may additionally provide an interactive experience visually in full real-time motion with sound and possibly with tactile and other forms of feedback. The simplest form of virtual reality is a 3-D image that can be explored interactively at a personal computer, usually by manipulating keys or the mouse so that the content of the image moves in some direction or zooms in or out. Most of these images require installing a plug-in for your browser. As the images become larger and interactive controls more complex, the perception of "reality" increases. More sophisticated efforts involve such approaches as wrap-around display screens, actual rooms augmented with wearable computers, and haptics joystick devices that let you feel the display images.

The project is about the virtual reality of Tropical Bungalow Show House for Metacorp developer that is located at Taman Tasek Utama, Ayer Keroh Melaka. Taman Tasik Utama is a 742-acre integrated township in Ayer Keroh being developed by Metacorp Properties Sdn. Bhd. The only integrated township in Melaka, Taman Tasik Utama was launched on 8 August 1996. To-date, 525 units of properties have been sold and completed. Taman Tasik Utama is strategically located in Ayer Keroh, Melaka which has been earmarked to be the new growth centre of Melaka. Only five minutes drive from the Ayer Keroh toll plaza, Taman Tasik Utama poise to be in the heart of Melaka's property development activities.

This virtual reality application can be a promotion effort to promote and introduce house selling to each of the visitors, locally and even internationally. It is a

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method or a tool that can be used by the Metacorp developer itself as an element of attraction and for the convenience of the visitors itself.

The structure of Tropical Bungalow Show House is a single storey bungalow with new cotemporary concept at built up area large across 2,041 square fit in land area 4,564 square fit (min) – 5,769 square fit (max) and on the selling price between RM295 000 to RM370 000. Through virtual reality, customer or buyer can explore the entire space of the house through the 'walkthrough' environment by just using computer. In virtual reality, user feels like being inside the real house. User can choose either to enter the hall, bedroom, kitchen, dining or any other space of the house and look the style, concept and architecture of the house by moving the mouse or just using the arrow on keyboard.

Using the virtual reality, the problems like exhausted when visiting and entering the entire house in the Show House can be avoid. Beside that, it can save time for customer and buyer to visit the Show House. User may enjoy to try this new application that more sophisticated and attractive. Virtual reality is not just a walkthrough application only but user can also get the face of the real house that has been build. To produce the high quality of virtual reality application, a few methodology need to be used such as observation, interview and questionnaire. Using these methodologies, the application may build on the requirement from the customer or situation in house selling.

1.2 Project Objectives.

For the purpose of developing and completing this walkthrough application, some objectives has been gathered and discussed which will be a guideline during the structuring of the project itself. The objectives include:

- To produce the first product of virtual reality for the house promoting and selling purpose.
- To produce the addition medium besides old medium used in promoting house to ensure the customer or buyer convenience especially the outside customer.

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- To avoid the congested problem during visiting the Show house at the one time.
- As an aid tool to facilitate user to getting the information where information can be presented in attractive and interactive way.
- To show the architecture and concept applied for the bungalow inside a simple, attractive complete and interactive way that will aid the customer to get to know what the special criteria of the house is all about.

1.3 Project Scope.

The project is focus on Show House of Single Storey Bungalow. It describe about the plan of the house, the architecture and cotemporary design of the Tropical Bungalow type. The features of this virtual reality house are like how many room in this house, decoration concept, wall and floor finishing, architecture of this house, type of element for the structure, bricks, roof, ceiling and others that has been used, size of this house and many others about this Tropical Bungalow. This application allows the visitor to 'enter' the house using the walkthrough environment, visit room by room and interact with the interactive graphic and icon to view or get the information.

This application provides 2 options for customer to visit the Show House. First option is walkthrough application which allows the customer exploring the entire house beginning from the front door. While for second option contain the list of parts of the house where is allows customer to choose which one they one and automatically the customer was be inside the room that they choose before. So, customer no need to explore the entire house but by just clicking the selection button they can also been there.

There is also providing a direction map on the top screen while the walkthrough exploration which is customer can know where actually they were by refer to the small map when they feel lost. The map is shown in floor plan of the house.

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1.4 The Importance of the Project.

The importances of the project for the Metacorp developer are it can be an aid tool for the developer to attract the customer or buyer to come and visit the Tropical Bungalow Show House. With virtual reality, user may feel the different about this Show House and it makes the expectation that they may buy the house in future or disseminate to public about the unique of the house promote. It is because Metacorp Bhd is not only promoting the new house concept but also enhance the usage of futuristic application such as the walkthrough using the computer.

For the customer or buyer, there may enjoy their walkthrough in the entire house using a different and attractive way which is using the computer as a platform. Virtual reality is presented to the customer in such a way that it appears and feels like a real environment. Beside that, it can save their time to visit the Show House and avoid the traffic during too many customers or buyer visit the house at the same time. The customer also can learn and know something new about nowadays technology.

As a conclusion, the benefits of this project are to study how the virtual reality application can attract people in a house selling field and either the result is same like in the real world. Beside that, the benefit of this project is to specify a comparison and similarity of the product that will be produce between the products in the market.

1.5 Introduction Summary.

In brief, this chapter tries to invoke to the purpose and introduction of this project. There are 4 subsections in this chapter that explains the significance of doing the project, including state out the objective of the project, the scope of the project and the importance of the project. This chapter can also be recognized as the introductory chapter for the whole report that related to the core research element for the whole project itself.

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CHAPTER II

LITERATURE REVIEW

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CHAPTER II

LITERATURE REVIEW

2.1 Introduction of Literature Review.

This chapter presents literature review related to this subject area. It includes methodologies and approaches, which deal with related problems. Besides, it also presents other similar or on-going projects and other issues related to the virtual reality application. A literature review is an up-to-date, comprehensive, critical discussion of research and other material to a particular topic. A wide coverage of studies has been done to clearly understand the related literature that has been produced in this project matter.

Virtual Reality (VR) refers to the computer-generated simulation of a world, or a subset of it, in which the users is immersed. It represents the state of the art in multimedia systems, but concentrates on the visual sense. VR allows the users to experience situations that are too dangerous or expensive to enter 'in the flesh'. Users may explore the real world at a different scale and with hidden features made visible. Alternatively, the virtual worlds that are generated may be entirely synthesized: realistic between themselves, but purely a manifestation of electronic structures.

The term 'virtual reality' conjures up an image of a user weighed down with a helmet or goggles grasping, apparently blindly, into empty space. The user, isolated within his virtual environment, moves, through a simulation landscape, picking up objects on the way. This is fully immersive VR. However, it is only one part of the spectrum of VR, which also includes desktop VR, command and control situations, and augmented reality, where virtual reality and reality meet.

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