AUGMENTED REALITY WITH RESPONSIVE WEB FOR RESPIRATORY SYSTEM FLASH CARD

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BORANG PENGESAHAN STATUS TESIS

JUDUL: AUGMENTED REALITY WITH RESPONSIVE WEB FOR RESPIRATORY SYSTEM FLASH CARD

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AUGMENTED REALITY WITH RESPONSIVE WEB FOR RESPIRATORY SYSTEM FLASH CARD

ANTHONY SEE CHIN SIONG

This report is submitted in partial fulfilment of the requirements for the Bachelor of Computer Science (Interactive Media)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA
2017

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I hereby declare that this project report entitled

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DEDICATION

I dedicate this thesis to my family who sacrificial care for me with affections and love and make me possible to complete this project within the time limit.

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ABSTRACT

This study is about the modern technology which is Augmented Reality (AR) being applied in the education sector as new teaching materials. The current teaching materials such as textbook are less attractive to learners, this system able to act as an add-on to the teaching materials to attract their interest. This technology is capable to display virtual object in reality via application. For example, a student is able to view the entire angle of an organ through AR compared only 2d image or picture on the textbook. This creates a new way where a class or lesson can be conducted more interesting. The deliverable included the mobile application which used to scan images and display 3d model, responsive website acts as a platform to cover the information which do not included in the application and flash card which printed which images to be scan. Users able to interact with the application through direct input or touch screen to zoom and rotate. Also via button, users can view or hide the information or the label based on their preference.

ABSTRAK

Augmented Reality With Responsive Web For Respiratory System Flash Card adalah mengenai teknologi moden Augmented Reality (AR) yang digunakan dalam bidang pendidikan sebagai bahan pembelajaran baru. Bahan pembelajaran yang terkini seperti buku teks kurang menarik dan kurang interaktif yang mengakibatkan pembelajaran yang tidak beberapa kesan kepada pelajar. Oleh itu, kami membangunkan web responsif dan aplikasi mudah alih berasaskan 'marker-based' yang menggunakan Augmented Reality untuk memaparkan model 3d sistem pernafasan. Pelajar boleh belajar melalui web responsif dan memuat turun kad flash yang disediakan di laman web. Dengan menggunakan aplikasi mudah alih berasaskan 'marker-based' melalui kad flash, pelajar dapat melihat objek maya dan melihat keseluruhan sudut organ melalui AR berbanding dengan gambar atau gambar 2d pada buku teks. Ini akan mewujudkan cara pembelajaran baru di mana kelas atau pengajaran dapat dijalankan dengan lebih menarik.

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AR	-	Augmented Reality
UTeM	-	Universiti Teknikal Malaysia Melaka
VR	-	Virtual Reality

CHAPTER I

INTRODUCTION

1.1 Introduction

This chapter start with the discussion of the project background which describes the organisational background of the project. The problem statements will be examined after the discussion of project background. Afterward, the discussion will continue with the stated of project objective. Next, the scope will be determine and thus discuss about the project significant of the project. Lastly, a conclusion will be making to conclude this section.

1.2 Project Background

Although virtual reality and augmented reality mostly are the same as both have the remarkable ability to alter human perception of the world but the perception of presence have been separate virtual reality and augmented reality into two different technologies.

Augmented reality is the integration of digital information with the user's environment in real time which able to deal with the new information direct or indirect thus affect the physical real-world environment that has been upgraded were by adding virtual computer-generated information or in other words uses the existing environment and overlays new information on top of it. Furthermore, Azuma in 1997 indicates that the AR is not only restricted to the technical hardware whereas it brings the real and virtual items together in a real environment.

Augmented reality have been used in many fields included medical learning & training, education, advertising, entertainment, design and media, etc. The first application of augmented reality is believed presented in 1902 which was a virtual fixtures AR system developed for air forces training and learning purpose. The augmented reality is started afterward to be utilizing in other fields. An example for the current application of augmented reality is where a branded electronic components and materials manufacturer, Toshiba introduce 3D augmented reality hybrid theatre planning application for medical purpose.

The use of technology in teaching and learning process had been seen improve in the performance as well as the academic result. One the technologies is augmented reality, according to Christian Diaz (2015), in this article of “How the Type of Content in Educative Augmented Reality Application Affects the Learning Experience” stated that augmented reality allows overlaying layers of virtual information on real scene with the aim of increasing the perception the user has of reality. Augmented reality not only can capture attention as an eye-catching, but also able to foster intellectual

curiosity and acts as portable learning materials. This creates interactivity between users and the application which bring the visual or perspective to another level.

Augmented reality not only acts as a new technology in this computerized world, but it also bring a lots of benefits like enrich content and provide interactivity. This can be happened when augmented reality provide more data or information in real time in a specific environment and condition. For example, AR able to provided 3d controllable body organ model for learners to see through the entire angle. Personal experience is also one of the advantages of augmented reality. This can be seen where the new application from IBM Research present shoppers with a personalized and differences shopping experience with an instant merchandise comparisons and special offers as they move throughout the shopping mall.

Although AR offers new learning opportunities, but it also builds new challenges for educators. For example, students in augmented reality environments can be cognitively overloaded by the huge amount of information encounter, the numerous technological devices they are required to handling, and the complicated tasks they have to finish. The security or privacy also is a trouble for augmented reality that cause huge matter on the personal information where users unaware their personal information is exposed to strangers outside. Anyway, a solution was come out to protect user's privacy where users can wear to "passively manage dynamic privacy" in environments which potentially sensitive data is streamed across real and virtual worlds.

In conclusion, the augmented reality of body organ give another ways of learning and teaching which new technology was applied to the teaching materials.

1.3 Problem Statement

This part will discuss about the problem statements of this project which believe happened to the current education system.

i. The available teaching materials less attractive to learners

Many teaching materials such as text book or reference book consist only picture and text provided less attractive toward learners.

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ii. Less interaction between learners and teachers during lesson

Most of the time learners passively listened and copy from the board in the learning and teaching process.

iii. Learners more interesting on video compared to picture and text

Many learners prefer video compared to textbook when conduct lesson because video is more interesting that picture and text.

1.4 Objective

This project is believe able to solved those problem stated above by developing the augmented reality of body organ. The objectives of this project are: