HUSNA HOMESTAY JEMENTAH: THE DEVELOPMENT OF AUGMENTED REALITY BUSINESS CARD

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# BORANG PENGESAHAN STATUS LAPORAN

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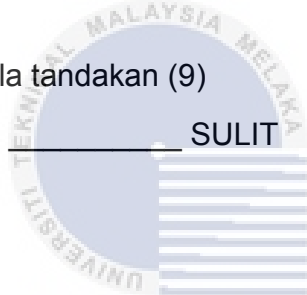
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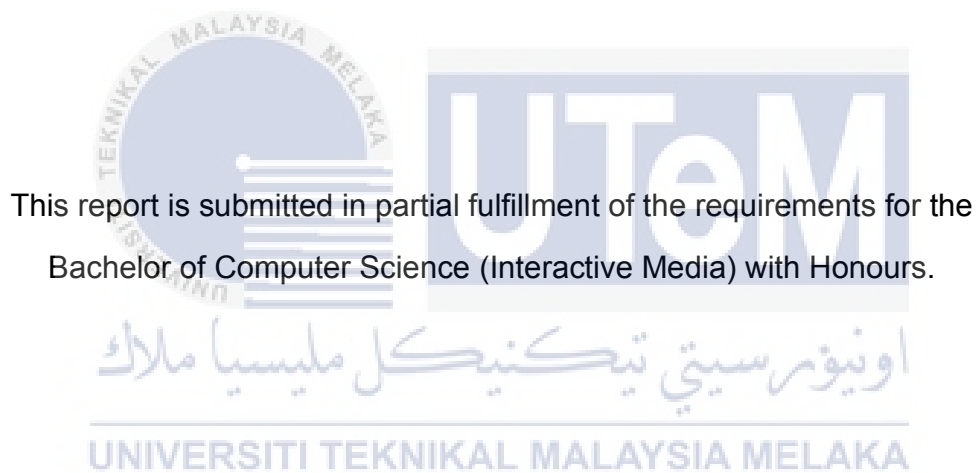JALAN BELAKANG SEKOLAH AGAMA,

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Tarikh: 25 JUNE 2021

PROFESOR TS. DR. SAZILAH BINTI SALAM

Tarikh: 12 September 2021 _____

HUSNA HOMESTAY JEMENTAH: THE DEVELOPMENT OF AUGMENTED
REALITY BUSINESS CARD

MOHD NAZMI BIN YUSOF

This report is submitted in partial fulfillment of the requirements for the

Bachelor of Computer Science (Interactive Media) with Honours.

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2021

DECLARATION

I hereby declare that this project report entitled

HUSNA HOMESTAY JEMENTAH: THE DEVELOPMENT OF AUGMENTED REALITY BUSINESS CARD

is written by me and is my own effort and that no part has been

plagiarized without citations.

STUDENT   : MOHD NAZMI BIN YUSOF   Date : 25 JUNE 2021

I hereby declare that I have read this project report and found

this project report is sufficient in term of the scope and quality for the award of

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SUPERVISOR: PROFESOR TS. DR. SAZILAH BINTI SALAM   Date : 12 September 2021

DEDICATION

To all those who have supported, encouraged, challenged and inspire me especially to my beloved parents, honourable lectures for all their guidance, love and attention which has make it possible for me to make it up to this point.

In addition, to my supervisor, Prof. Ts. Dr. Sazilah Salam who always committed, giving endless support while also guide me while the progress of this final project.

Lastly, to all my friends who always there to help me though everything and shared their advice and give encouragement to finish my final year project. I would also like to thank my beloved parents for their support and I am grateful and blessed to have them in my life

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Lastly, I would like to thank everyone that has contributes to my final year project directly or indirectly. I would like to acknowledge their comments and suggestions, which was crucial for the successful completion of this study.
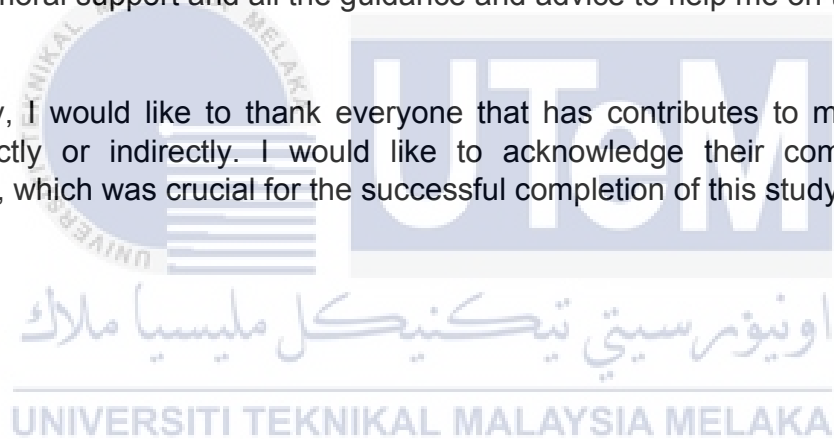
ABSTRACT

The primarily idea for this project is to introduce the technology of Mobile Phone Augmented Reality (AR) for Husna Homestay Jementah and develop it into an application for business card. AR technology is rather easier to introduce to the public by using Mobile Phone as compared to any other devices and a growing trend among companied involved in mobile computing and business application in particular. While AR also increases the engagement and interaction and provides a richer user experience. Thus, this project will bring up the basic idea of Mobile Phone AR technology and its application on a physical Business Card. Using a typical business card imprinted with as a marker that assists in the marker tracking and identification process, and AR virtual business card will be displayed on the Mobile Phone upon application execution. The project is aimed to increase and expand the brand of Husna Homestay Jementah by using AR technology and expected it be able stand out from the rest.

ABSTRAK

Idea utama untuk projek ini adalah memperkenalkan teknologi Mobile Phone Augmented Reality (AR) untuk Husna Homestay Jementah dan mengembangkannya menjadi aplikasi untuk kad nama. Teknologi AR lebih mudah diperkenalkan kepada umum dengan menggunakan Telefon bimbit berbanding dengan peranti lain dan trend yang semakin meningkat di kalangan pengiring yang terlibat dalam pengkomputeran mudah alih dan aplikasi perniagaan khususnya. Sementara AR juga meningkatkan interaksi dan interaksi dan memberikan pengalaman pengguna yang lebih kaya. Oleh itu, projek ini akan memunculkan idea asas teknologi AR Telefon Bimbit dan aplikasinya pada Kad Perniagaan fizikal. Menggunakan kad nama khas yang dicetak sebagai penanda yang membantu proses pengesanan dan pengenalpastian penanda, dan kad perniagaan maya AR akan dipaparkan di Telefon bimbit semasa pelaksanaan aplikasi. Projek ini bertujuan untuk meningkatkan dan mengembangkan jenama Husna Homestay Jementah dengan menggunakan teknologi AR dan diharapkan dapat menonjol dari yang lain.

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CHAPTER 1: INTRODUCTION

1.1   Introduction

An Augmented Reality (AR) technology, is a growing area that lets the user experience the real world which originally comes from the Virtual Reality (VR) technology, yet vary form VR where removes the user from that real-world experience, replacing it with a completely simulated one. Despite the technology of mobile phone AR is still in an immature state, the number of smart phone usage which implementing this technology is gradually increasing and this trend tells that the mobile phone AR technology is going to become a new broad area.

By applying the mobile phone AR technology into a business, it brings many benefits such as providing a new experience to a person and can increase consumer engagement. With the application of this technology, it can also affect the interests of the users who see the advertisement and they will get engaged to examine it. Therefore, an AR application will be use to enhance the brand of Husna Homestay Jementah and hopefully will have a very positive impact.

Existing business card is static and cannot convey interactive information about the business. The main objective of this project is to develop a mobile phone AR business card application for Husna Homestay Jementah in which the owners can include much more interactive information about their accommodation services. The use of this application will give users a new experience while cutting cost of advertisement and increase viewer's understanding by providing others information.

1.2   Problem Statement

As we all know, a typical business card is made of paper and has a small size that often includes the name of the giver, company name or even their business name and others related information such as address, phone numbers and other information. However, with the sophistication of today's technology, many have turned to the use of new technologies such as using augmented reality technology.

Now days, it is clear that the use of paper business cards is no longer relevant because with the ability of AR technology, it can help many things including being used in marketing purposes in various sectors. Therefore, with the use of AR technology it is expected to help solve some problems. From observations made around my surrounding area which is Jementah, Johor, accommodation that provides Muslim-friendly accommodation is not easy to find, especially on accommodation booking sites such as booking.com, agoda and airbnb.

This is because, homestay operators near the area, especially Husna Homestay Jementah are still using the old method where reservations are made through phone calls or text messages. However, bookers or prospective residents cannot see the environment of this homestay and information related to this home stay. Apart from that, Husna Homestay Jementah also only runs small accommodation and has no provision to advertise their businesses. It is hoped that with the development of this system, it will to some extent be able to expand the brand of Husna Homestay Jementah and be able to attract more visitors.

1.3 Objective

There are three objectives that are needed to be achieved. The objectives are as follows:

I.   To determine the appropriate AR sdk software for developing an Augmented Reality Business Card.

II. To develop an interactive augmented reality business card for Husna Homestay Jementah that includes interactive information such as contact information, social links, video,3D model and sounds.

III. To evaluate the acceptance of the Augmented Reality business card prototype.

1.4 Scope

I.   The project only covers the enhancement and development of business card by using Mobile Phone AR technology for Husna Homestay Jementah.

II. The target user for this project are open for general and is targeting for public.

1.5   Project Significant

This project serves as a medium of cooperation with a homestay entrepreneur, Husna Homestay Jementah, by helping to develop an augmented reality business card application to further enhance marketing and advertising for this homestay.

The expected result of this project is the production of a smartphone application that uses augmented reality technology as the main framework where in the main system, users can access various interactive multimedia element regarding this homestay. Among them is that users can access information on homestay in more detail with features such as video players that display the homestay area as well as interior space and more.

1.6   Conclusion

From this project, the expectation is to develop a stand -alone application that can further enhance the advertising services of Husna Homestay Jementah. The application is mainly developed by using Augmented Reality technology as the main framework. Through the development of this system which has a variety of interactive media it is also able to help users to better understand the field of augmented reality. The introduction, problem statement, objectives, scope, significant project and expected output are included in this chapter to demonstrate a general understanding about the project. In the next chapter 2 will be discussing the literature related to the project topic.

CHAPTER 2: LITERATURE REVIEW AND PROJECT METHADOLOGY

2.1   Introduction

This chapter discusses augmented reality, mobile phone augmented reality, and software for augmented reality. Not only that, but several existent augmented business card examples will be discussed as well. The application of mobile phone AR in the application of physical business cards will be covered at the end of this chapter.

A methodology is an organised set of tactics, practises, processes, and systems that are utilised to achieve a goal. The procedure is the entire investigation system that maps out how investigation will be carried out and, among other things, identifies the strategies that will be used. These philosophical strategies define the ways or methods of gathering knowledge, or how a specific outcome is to be determined. Despite the fact that much thought is paid to the nature and types of cycles to be followed in a specific methodology or to achieve a goal, philosophy does not specify explicit approaches.

2.2   Domain

The domain of this project is based on the Augmented Reality in Business card. Through this application, user can gain the new experience on using a business card by using augmented reality. With this application, user can also get many new information regarding the homestay.

Augmented Reality technology is a basic idea which superimposes graphics, audio and other sense enhancements over real world environment in real time. Augmented Reality is also the workmanship innovation that limit

between what is genuine and what is PC created. Term Augmented Reality is accustomed to compositing an immediate and roundabout perspective on the physical world with PC produced tangible information 3D model or sound. At the point when the increase is completed continuously, the utilization of Augmented Reality can genuinely improve the view of reality through intuitive and carefully data, and result in the formation of new novel stunning encounters. Augmented Reality overcomes any issues between the genuine and virtual universes progressively. In contrast to augmented reality (VR), AR makes an absolutely fake condition that actualize the current condition.

2.2.1 Type of Augmented Reality

There are several platforms that can be used in AR to view the output which is Marker Based Augmented Reality that can be used in AR to view the output. A Marker-Less Based Augmented Reality, Superimposition Based Augmented Reality and Projection Based Augmented Reality.

2.2.1.1 Marker Based Augmented Reality

After focusing on object detection, this type of AR gives us with more information about the thing. It recognises and displays information about the thing in front of the camera on the screen. The object is recognised using a marker, such as a QR Code or flyer, which replaces the marker on the screen with a 3D replica of the related object. As a result, the user can examine the object in more depth and from multiple perspectives. Aside from that, the user can spin the 3D images while rotating the marker.

Figure 2.1: Marker Based Augmented Reality

2.2.1.2   Marker-less Based Augmented Reality

One of the most widely used applications is markerless augmented reality. It's also known as Location-based AR because of the ease with which the highlights in cell phones that provide area identification may be accessed. Aside from that, it encourages customers to look for interesting places in their current location. This method works by analysing data from the portable's GPS, sophisticated compass, and accelerometer while anticipating the client's centering point. This AR is linked to a page that displays area info about the items that can be viewed from the user's camera.

Figure 2.2: Marker Based Augmented Reality

2.2.1.3 Projection Based Augmented Reality

Projection-based AR is engaging and intuitive where light is blown onto a surface and the collaboration is finished by contacting the extended surface with hand. The far reaching employments of projection-based AR methods can be utilized to make misdirection about the position, direction, and profundity of an article. Another case of Projection Based Augmented Reality laser plasma innovation that venture multi-dimensional image in reality

Figure 2.3: Projection Based Augmented Reality

2.2.1.4 Projection Based Augmented Reality

Superimposition Based Augmented Reality are the ability to recognize the object as the object replacement cannot be done if it cannot determine what the original object is. This AR provides a replacement view of the object in focus. This is done by replacing the entire or partial view with an augmented view of the object. A strong consumer-facing example of superimposition based augmented reality could be found in the Ikea augmented reality furniture catalogue where user just need to download the apps and place virtual furniture to get the one that match with their house.

Figure 2.4: Superimposition Based Augmented Reality

In conclusion, AR technology offers many potential applications in various fields not only in marketing including maintenance and construction, military, instant information as well as gaming. There are hundreds of potential applications for such a technology, gaming and entertainment being the most obvious ones.

2.2.2 AR SDK's Software

An SDK stands for software development kit or devkit for short. It is a set of software tools and programs used by developers to create applications for specific platforms, For this it is only focussing on Augmented Reality SDK's. There are several AR SDK's that can be used such Vuforia Engine, ARKit, ARCore, Unity Composer, and HP Reveal. These SDK are all serve the same purposes which is to perform the non-trivial task of fusing digital content and information with the real world. It is responsible for many component of the applications, which are currently available, including content rendering, AT tracking, and scene recognition.