LEARNING COVID-19 RESTAURANT STANDARD OPERATING PROCEDURE THROUGH VIRTUAL REALITY GAME

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LEARNING COVID-19 RESTAURANT STANDARD OPERATING PROCEDURE THROUGH VIRTUAL REALITY GAME

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This report is submitted in partial fulfillment of the requirements for the Bachelor of [Computer Science (Interactive Media)] with Honours.

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FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
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2021

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I hereby declare that this project report entitled

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DEDICATION

Specially dedicated to my beloved family and friends who always giving the support throughout my journey in education.

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ABSTRACT

COVID-19 SOPs keep on changing according to the pandemic situation which cause confusion among people. This project is to applicate VR game into the understanding and learning of COVID-19 restaurant SOPs. The implementation of the gaze interaction will increase the excitement of the VR game. The game is a based on simple puzzle solving game with three different stages. In the first two stages, the player plays as the restaurant worker with aim to make sure the customers follow the SOPs. Whereas the last stage, the player will play in the role of customer which required to follow all the previous SOPs. The expected outcome for the VR game in practicing COVID-19 restaurant SOPs is to allow the player to become familiar with the COVID-19 restaurant SOPs in the sense of protecting self-individuals from COVID-19 and stopping the spread of COVID-19.

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ABSTRAK

COVID-19 SOPs sentiasa berubah atas situasi pandemik dan oleh sebab perubah tersebut menyebabkan kekeliruan antara masyarakat. Projek ini adalah untuk mengaplikasikan VR game dalam penyebaran dan pendidikan COVID-19 SOPs restoran. Untuk mempertingkatkan keseronokan pengguna dan dapat interaktif dalam VR game tersebut, interaktif secara pandangan digunakan. VR game ini dalam bentuk puzzle game dan mengandungi tiga tahap. Dalam tahap pertama dan kedua, pengguna bermain dalam role pekerja restoran yang bertujuan untuk memstikan pelanggan restoran tersebut mengikut SOPs. Manakala, unutk tahap ketiga, pengguna akan bermain sebagai pelanggan dan perlu mengamalkan semua SOPs yang diberitahu dalam tahap pertama dan kedua. VR game ini bertujuan untuk membolehkan masyarakat dapat melatih diri sendiri COVID-19 SOPs restoran yang betul dan mempertingkatkan kesefahaman dan mengurangkan kekeliruan masyarakat atas COVID-19 SOPs restoran agar mereka dapat mempertahankan diri sendiri daripada dijangkiti COVID-19 dan mengatasi penyebaran COVID-19.

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LIST OF ABBREVIATIONS

FYP	**-**	**Final Year Project**
VR	**-**	**Virtual Reality**
SOP	**-**	**Standard Operating Procedure**
SOPs	**-**	**Standard Operating Procedures**
COVID-19	**-**	**Coronavirus Disease**
UAT	**-**	**User Acceptance Test**

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Chapter 1: INTRODUCTION

1.1 Introduction

Standard Operating Procedures (SOPs) is a document or written instructions which describes the regularly recurring operations or a routine to ensure that the operations are carried out correctly (quality) and always in the same manner (consistency). SOPs are specific sets of practices that are required to be initiated and followed at specific circumstances. In 2020, SOPs were introduced by the Malaysia government in response to COVID-19 pandemic such as Movement Control Order (MCO) and Conditional Movement Control Order (CMCO). Due to uncontrollable circumstances, the fight with COVID-19 has been prolonged till today and SOPs requirements are constantly changing based on the current situation of the pandemic. Malaysian are confused towards the SOPs introduced by the government from time to time as they look similar but different. For instance, MCO1.0 dine-in is prohibited in all cases yet on the other hand, MCO 2.0 allows dine-in with 2 pax per table.

Beside confusion of the current SOPs among Malaysian, teenagers are uninterested towards current issues and situations. Teenagers lack awareness and understanding about COVID-19, consequences of getting it and the correct SOPs to be followed. With the advance of technology, teenagers tend to be tricked and misled by fake news and information across the internet causing them to have different understanding toward SOPs and even following the wrong SOPs. To aid the spread of information, implementing VR game increases efficiency of spreading COVID-19 restaurant SOPs.

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1.2 Problem Statement

SOPs change based on the situation of the pandemic and cause people to be confused and misleading. Movement Control Order (MCO) and Conditional Movement Control Order (CMCO) are the examples of SOP that were introduced by the Malaysia Government in response to COVID-19 pandemic. MCO prohibited people to dine in while CMCO allowed people to dine in with physical distancing rules. When the first MCO was introduced, almost all daily activities were prohibited and only one person per household was allowed to go out for groceries shopping. However, when MCO2.0, people start to confuse it as it is totally different from what it used to be in MCO1.0 as dine-in are allowed and two passengers are permitted in one car based on the car capacity. People are confused and not sure which to which should be followed and moreover there will be fine of 1000 Malaysia Ringgit (MYR) for those who did not obey the SOP.

Next, the dullness and ineffective ways of information delivered to citizens. Infographic and video has been applied by the Malaysia government to raise awareness towards COVID-19. However, teenagers still lack of COVID-19 SOPs awareness and understanding as they do not obey the COVID-19 SOPs properly and some even find loopholes in SOP just to hang out with friends. Furthermore, they are not aware of the severity of the COVID-19 virus toward our body. As a result, the daily cases of COVID-19 in Malaysia keep on increasing. Yet, many methods and preventions have been taken by the government to decrease the COVID-19 cases.

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1.3 Objective

The objective of this project are as below:

- To study Virtual Reality (VR) application requirement for development of COVID-19 Restaurant Standard Operating Procedures.
- To develop a VR game application in practicing the COVID-19 Restaurant Standard Operating Procedures.
- To evaluate the User Acceptance Test (UAT) of VR in practicing the COVID-19 Restaurant Standard Operating Procedure among teenagers.

1.4 Scope

This game is localized for Malaysian society, especially for the teenagers. This project applicate Virtual Reality (VR), to let the user have better understanding about COVID-19 Standard Operating Procedures (SOPs) in the restaurant. This game allow the users personate as a worker and customer of the restaurant in first-person perspective. The users can interact with the customer (NPC) in the game to check whether the customers obey the COVID-19 SOPs or not in the restaurant.

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1.5 Project Significant

This project will help the teenagers to enhance their knowledge of COVID-19 standard operating procedure (SOP) to avoid the spread of the COVID-19. This project will also further point out how to obey COVID-19 SOP by Virtual Reality (VR) game based learning. By using VR, the user will be more immersed in the environment to obey the COVID-19 SOP and able to more understanding of how SOPs actually works in restaurant to decrease the risk of spread of COVID-19.

1.6 Conclusion

A Virtual Reality (VR) game related with COVID-19 restaurant standard operating procedure (SOP) will be developed in this project. In conclusion, this chapter briefly explained the main core idea and objective for this project. The literature review and methodology used for this project will be discussed in Chapter II.

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Chapter 2: LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

This chapter is going to discuss Virtual Reality in COVID-19 restaurant standard operating game system and existing game system about VR game. VR is not a new technology but it is still trending as a helping tool to let the user immersed in the real environment for learning something new.

2.2 Domain

This subchapter will discuss the concept of virtual reality, visualisation, types of virtual reality, virtual reality devices, virtual reality application, virtual reality in learning and basic concept of COVID-19 Pandemic.

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2.2.1 Visualisation

Based on the Merriam-Webster Dictionary, visualisation can be defined as the formation of mental visual images or the act or process of interpreting visual terms or of putting them into visible form. Visualisation employs graphics to make visible form or pictures that give insight into certain abstract data and symbols. Based on Shneiderman .B (1996), Visualisation technique is applicable to certain types of data which include Scatter Data, Scalar Data and Vector Data and dimensions such as a linear (1D), planer (2D), volumetric (3D) or multidimensional (nD). However, high complexity or high dimensionality of modern data sets represent a critical obstacle to us as humans are biologically optimized to see the world and the patterns in three dimensions by Ciro Donalek et al. (2014). Based on Steven Segenchuk (1997), the