

**TO DESIGN AND IMPLEMENTATION OF AUGMENTED REALITY
APPLICATION FOR RAPIDKL**



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

**TO DESIGN AND IMPLEMENTATION OF AUGMENTED
REALITY APPLICATION FOR RAPIDKL**

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

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JUDUL: THE DEVELOPMENT LRT AND MRT RAPIDKL BY USING AUGMENTED REALITY

SESI PENGAJIAN: [2020 / 2021]

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DECLARATION

I hereby declare that this project report entitled

[The development LRT and MRT RapidKL by using
Augmented Reality

is written by me and is my own effort and that no part has
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STUDENT : nazira Date : 31/8/2021
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I hereby declare that I have read this project report and found
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Bachelor of [Computer Science (Interactive Media)] with
Honours.

A handwritten signature in black ink, appearing to read 'ulka', is written over a horizontal line.

SUPERVISOR : _____ Date : 31/8/2021

(DR ULKA CHANDINI PENDIT)

DEDICATION

This final project is wholeheartedly dedicated to my beloved parents, who have been my source of inspiration, gave me strength when I thought of giving up, support and help whenever and wherever I need.

In addition, to my supervisor, who always committed, endless support and guide me while the progress of this final project.

To my evaluator, who gives a feedback and advice on this final year project.

Lastly, to all my beloved friends who always there to help me through anything and shared their words of advice and encouragement to finish my final year project.



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To wrap things up, I dedicated this final year project to all my friends who always give a hand and their support during the development of this projects.

Thank you.

ABSTRACT

Malaysia has many different public transports. LRT and MRT are the most popular public transport in Malaysia. LRT and MRT is a train that link from one place to others place. LRT and MRT simplify user affairs without having to face traffic jam especially when go and back form works and public holiday. This project for promoting LRT and MRT for user and tourists. In this project, have information about LRT and MRT RapidKL using Augmented Reality (AR). The users need to download the Augmented Reality application and scan the RapidKl card so the popup of Augmented Reality will display. This project to study about the LRT and MRT transportation using Augmented Reality. Next, to develop the augmented reality application for LRT and MRT RapidKL and to evaluate the effectiveness of Augmented RapidKL based on usability. The application is expected to successfully develop the application that use an augmented reality feature as a platform for promote LRT and MRT RapidKL.



ABSTRAK

Malaysia mempunyai pelbagai pengangkutan awam yang berbeza. LRT dan MRT antara pengangkutan awam yang paling popular di Malaysia. LRT dan MRT adalah kereta api yang menghubungkan dari satu tempat ke tempat lain. LRT dan MRT juga mempermudah urusan pengguna tanpa perlu menghadapi kesesakan jalan raya terutama ketika pergi dan balik kerja dan cuti umum. Projek ini untuk mempromosikan LRT dan MRT untuk pengguna dan pelancong. Dalam projek ini, mendapatkan maklumat mengenai LRT dan MRT RapidKL dengan menggunakan Augmented Reality (AR). Pengguna perlu memuat turun aplikasi Augmented Reality dan mengimbas kad RapidKl sehingga pop timbul Augmented Reality akan dipaparkan. Projek ini untuk mengkaji mengenai pengangkutan LRT dan MRT menggunakan Augmented Reality. Seterusnya, untuk mengembangkan aplikasi augmented reality untuk LRT dan MRT RapidKL dan untuk menilai keberkesanan Augmented RapidKL berdasarkan kebolegunaan. Aplikasi ini diharapkan dapat berjaya mengembangkan aplikasi yang menggunakan ciri-ciri augmented reality sebagai platform untuk mempromosikan LRT dan MRT RapidKL.

اونيور سيتي تيكنيكل مليسيا ملاك

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LIST OF ABBREVIATIONS

FYP - - Final Year Project

AR - - Augmented Reality

LRT - - Light Rail Transit

MRT - - Mass Rail Transit



CHAPTER 1: INTRODUCTION

1.1 Project Background

In retail or sales (for example, an online fashion shop), augmented reality has been widely employed as a virtual product demo tool, giving you to virtually visualise the clothes you want to buy. In the sector of industry training, augmented reality technology can give virtual products to be studied in place of the physical product. Augmented reality provides extra information about the product while also improving subject visualisation. Malaysia is a developing country that has public transportation. RapidKL is a brand name used by Prasarana Malaysia companies to represent to public transportation services in the Kuala Lumpur and Klang Valley areas.

Users may move faster, reduce traffic congestion, especially when heading to and from work, and reduce air pollution caused by car and motor smoke with this LRT and MRT RapidKL. Understanding and researching the LRT and MRT RapidKL to users and tourists through augmented reality technology is one approach to accomplish this (AR). As a result, with Marker-Based Augmented Reality, an AR application is created to visualise the information of the LRT and MRT transit stations based on Android.

Many companies have switched to a computerised working system in this information technology age. Augmented Reality (AR), which is part of computer science, is the less field than its counterparts. Augmented Reality (AR) is an interactive experience of a real-world environment in which computer-generated elements complement the real-world ones. The purpose of this study is to look into the relevance

and importance of Augmented Reality in assisting users in using and launching LRT and MRT RapidKL as a public transportation system.

This application has several objectives, which is to study about the LRT and MRT transportation using Augmented Reality and also to develop the augmented reality application for LRT and MRT RapidKL. Aside from that, is to evaluate the effectiveness of Augmented RapidKL based on usability. Next, the project's expected outcome is the successful development of an application that uses an augmented reality feature as a platform to promote LRT and MRT RapidKL so that tourists are more aware of their use and people have a better understanding of LRT and MRT.

1.2 Problem Statement

Malaysia provides a variety of public transportation options, including LRT, MRT, bus, and taxi. People prefer to use public transportation to get there from one location to another, especially in cities where traffic is unpredictable and has become an issue. In certain places, the local government prevents private vehicles from entering the city centre, encouraging residents to take public transportation instead to avoid traffic jams and pollution. The problem now is that users and tourists are having difficulty finding the interactive map. In addition, there is no AR application for RapidKL. Lack of AR application for RapidKL (Ng, C., & Ramasamy, C., 2018). And also, lack of interactive maps for RapidKL to be use by user (siti nurbaya binti karim, 2016).

When users or tourists visit a train station these days, they are given a board with a map but no interactive content. As a result, no one wants to see the map. Those applications, in general, provide information on LRT and MRT rail station maps.

1.3 Objectives

The objectives of this project are:

- a) To study about the LRT and MRT transportation using Augmented Reality.
- b) To develop the augmented reality application for LRT and MRT RapidKL.

- c) To evaluate the effectiveness of Augmented RapidKL based on usability.

1.4 Scope

The scopes in developing this project are :

1. Module/content:

There are several module will be used in this application. The features on part of the LRT RapidKL will be displayed such as

- a) Introduction
- b) RapidKL map
- c) Information

2. Target Audience :

This Augmented Reality application is targeting for public and tourists.

3. Software and Requirement:

I. Software components :

- Unity 2019
- Vuforia Engine
- Operating System : Windows 10
- Aurasma Studio

II. Hardware components :

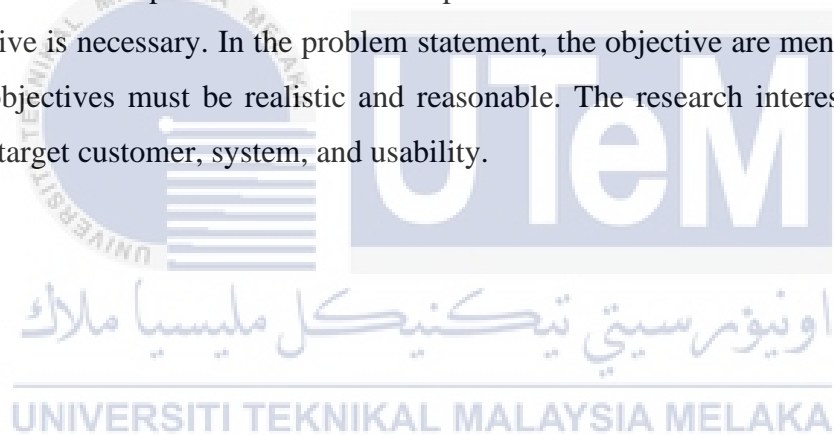
- *WINDOWS-R77FH7H*
- Processor: Intel® Core™ i3. 6006U CPU @ 2.00GHz 1.99GHz
- 64-BIT Operating System, x64-based processor
- 4.00 GB Installed RAM

1.5 Project Significant

The purpose of the project is to provide an interactive new experience for the audience in understanding RapidKL through Augmented Reality. Following that, it will be quite helpful to everyone. Users will gain a better knowledge of what augmented reality is as a result of the initiative. As a result, the new Augmented Reality technology can be developed or upgraded.

1.6 Conclusion

The aim of this project is to create a standalone application that can display the LRT and MRT train station maps to the public so that they may better understand LRT and MRT. Using Augmented Reality technology, the application was created and constructed. The problem statements explain the situation as it is now and why this initiative is necessary. In the problem statement, the objective are mentioned clearly. The objectives must be realistic and reasonable. The research interests explain the basic target customer, system, and usability.



CHAPTER 2: LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

A writing audit is a study of useful materials on a specific topic. It provides a flow diagram, identifying relevant hypotheses, methodologies, and holes in the current investigation. It keeps track of the best in class on the subject or point you're discussing. Make a reference to Harvey. A library dedicated to Andrus (2019) It should provide a speculative foundation for the research and helps in the selection of assessment options. The writing evaluation considers previous subject matter experts' contributions and, as a result, assures the reader that the examination has been thoroughly organised.

Methodology is a set of procedures, processes, cycles, and frameworks that are utilised to attain a goal. The strategy is a broad investigative framework that sets out how assessment will be carried out and, among other things, how the procedures will be carried out. These procedures described in the theory show techniques or strategies for data variety or how to resolve a given result. Despite how much effort is put to the nature and types of cycles to be maintained in a particular system or to achieve a purpose, theory does not provide definitive strategies.

2.2 Facts and findings

The basic concept of Augmented Reality in terms of definition, as well as several problems related to Augmented Reality, will be discussed in Chapter 2. (AR). This