TESIS APPROVAL FORM

JUDUL: KalimahAR : Augmented Reality Mobile Translator Application
SESI PENGAJIAN: 2010
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KalimahAR : Augmented Reality Mobile Translator Application

MUHAMMAD ZULHILMI B. JAMIL

**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
2013**

DECLARATION

I hereby declare that this project report entitled

KalimahAR : Augmented Reality Mobile Translator Application

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

STUDENT   : _____Date: _____
(MUHAMMAD ZULHILMI JAMIL)

SUPERVISOR   : _____Date: _____
(WAN SAZLI NASARUDDIN SAIFUDIN)

DEDICATION

This report is dedicated to my beloved family, supervisor,friends and for all who have provided encouragement and guidance all the way during the completion of the report.

ACKNOWLEDGEMENTS

ABSTRACT

This report is about develop translation application for mobile using augmented reality technology. Augmented reality describes this technology is an enhancement the virtual experience by adding elements of the real environment. This report also make comparison between a few translation applications that already in the market. Besides that, this report also compare between marker and markerless of augmented reality.

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ABBREVIATION	DESCRIPTION
OCR	Optical Character Recognition
AR	Augmented Reality
SDK	Software Development Kit

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CHAPTER I

INTRODUCTION

1.0   Introduction

This project is a requirement for students taking the subject BITU 3973 – Projek Sarjana Muda (PSM). In the process of completing the project, problems occurred are solved with the best efforts. This project is about develop simple translator application that will use augmented reality technology. Augmented reality (AR) technology is a field of computer science that involves combining the physical world and an interactive, virtual world. The concept behind it is pretty simple. It is to overlay the physical world with objects that appear to occupy the same space. AR was initially used for military, industrial, and medical applications, but was soon applied to commercial and entertainment areas as well.

1.1   Project background

Communication is the exchange and flow of information and ideas from one person to another. Every person have their own communication skill or language to communicate to another. Each country have set their own official language for their citizen communicate each other without problem. The problem will came when people

go travel to another country and they can't communicate with the people on the country their visit.

Because of that, one of the reason this project develop is for the tourist used to read tourist flyers, letters, papers, or signboard that use Arabic word. Even Malaysian also can use this application if their go travel. However, this application will not cover all word that have in dictionary or any book because the time given for finish this project is limited. It will just cover a few word to be tested and to see how effective this application to people.

1.2 Problem Statement (s)

Normal dictionary application that available on the market need to type the word and get the meaning. It will take time to type the word. Augmented reality also still new and not widely use in Malaysia.

1.3   Objective

The objective of this proposal is:

1.   To develop translator using mobile augmented reality system
2.   To study the difference between marker and markerless augmented reality
3.   To investigate acceptance of user towards the mobile translator application.

1.4   Research Questions

- How reaction user use translator using augmented reality?
- How effectiveness translation using augmented reality?

1.5   Project Scope

- Student

The target user will be the student that study foreign language. Student can translate word by using the mobile apps on the tablet or smartphone.

1.6   Project Framework
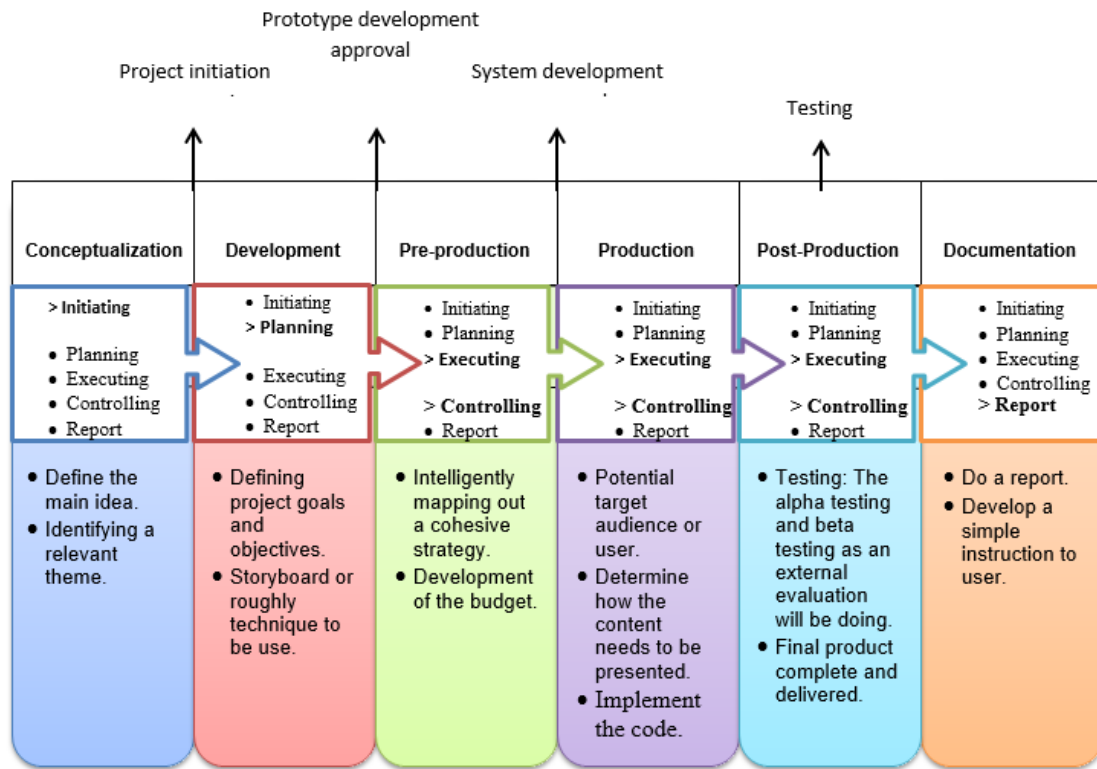
Figure 1.1 : Project Framework

1.7   Project Significance

Simple application focus on how recognition of the text.

Summary

The project background introduces the whole project, current scenario, and the problem that might arise from the current situation. The problem statements describe the

problem from the current scenario and why this project should be developed. From the problem statement, the objectives of project are clearly stated. The objectives should achievable and measureable at the end of the project. The scopes of the project explain the specific target user, platform, and functionality.

This project focus on the text recognition for non alphabetic character and integrate with mobile and archive the project objective.

CHAPTER 2

LITERATURE REVIEW

2.0 Literature Review

A literature review is a text written by someone to consider the critical points of current knowledge including substantive findings as well as theoretical and methodological contributions to a particular topic. Literature reviews are secondary sources, and as such, do not report any new or original experimental work. Also, a literature review can be interpreted as a review of an abstract accomplishment. Most often associated with academic-oriented literature, such as a thesis, a literature review usually precedes a research proposal and results section. Its main goals are to situate the current study within the body of literature and to provide context for the particular reader.

2.1 Area of Study

2.1.1 Optical Character Recognition(OCR)

Optical Character Recognition is a technology that can change from word image to digital text that can be edited. This technology catch every character that have on the images. It make work easier rather than typing one to one word.

Based on research from RWTH OCR: A Large Vocabulary Optical Character Recognition System for Arabic Scripts by Philippe Dreuw, David Rybach, Georg Heigold, and Hermann Ney said they want to create script that can recognize handwriting for Arabic. Optical character recognition that available currently do not support Arabic fonts. Non alphabet character their have own unique technique to write the word and it make a bit hard to recognize non alphabet character.

2.1.2 Augmented Reality

Augmented reality is a combination between real-world environments and digital environments. Nowadays, augmented reality technology get attention all developer. Augmented reality actually use in military and medical field but today developer use augmented reality on mobile.

Based on research from Real-Time Detection and Tracking for Augmented Reality on Mobile Phones by Daniel Wagner, Member, IEEE, Gerhard Reitmayr, Member, IEEE, Alessandro Mulloni, Student Member, IEEE, Tom Drummond, and Dieter Schmalstieg, Member, IEEE Computer Society said mobile phones are very inexpensive, attractive targets for AR, but have even more limited performance. Augmented reality on mobile phones still in development. Develop mobile application and implement augmented reality on it can give user the best experience.

2.1.3 Android Platform

According to research article Android Based Mobile Application Development and its Security by Suhas Holla, Mahima M Katti from Department of Information Science & Engg, R V College of Engineering, Bangalore, India said in the advancing world of technology, Mobile application are fast growing segment of the global mobile market.

Android is a one of mobile operating system that have in the market. Android is an open source that using Linux Kernal. Android also became famous among developer because it a place for developer create or testing their mobile application apart of open source. User can download all the application from android market.

2.2 Current Systems/Tools/Output

There are many translator application that existing and the application mostly use key input to translate. After done some research, I have found a few translator application that already available in market. There are two translator application that I interested to discover. The application are Word Lens and iTranslate.

2.2.1   Word Lens

Figure 2.1 : Word Lens Application

Word Lens is a new translator application that have implement augmented reality on their system. User can instantly translate word using camera phone. Just snap the word that want to translate and the meaning will instantly appear on the phone screen as shown in Figure 2.0. Right now, this application just cover a few language such as German, Portuguese, French and other.

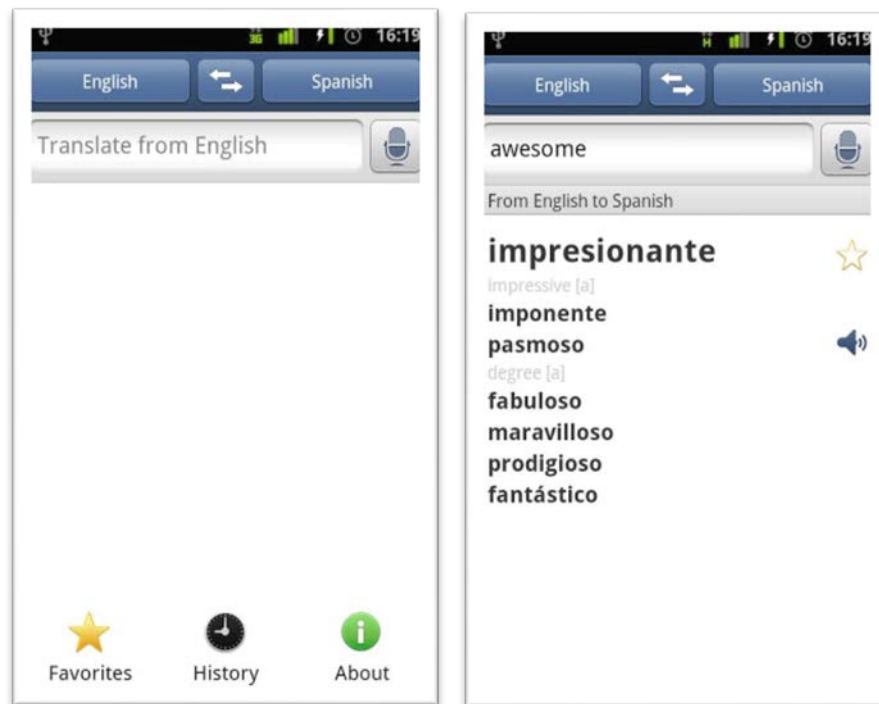## 2.2.2   iTranslate

Figure 2.2 : iTranslate Application

iTranslate is a one of the application that available in the market. User need to key in the word for translate using iTranslate as show in Figure 2.1. Besides that, user also can use voice recognition. This application have cover over 50 language to translate such as Serbians, Welsh and many more.