

ENGLISH-MALAY-ENGLISH DICTIONARY

**NORAFIDAH BINTI MD YUSOF
CD09051**

**FACULTY OF COMPUTER SYSTEMS & SOFTWARE ENGINEERING
UNIVERSITI MALAYSIA PAHANG**

SUPERVISOR'S DECLARATION

“I hereby declare that I have checked this project report and in my opinion this project is satisfactory in terms of scope and quality for the award of the degree of Bachelor of Computer Sciences (Graphic & Multimedia Technology)”.

Signature :

Name of Supervisor: DR TUTY ASMAWATY BINTI ABDUL KADIR

Date : 31 May 2012

STUDENT DECLARATION

I declare that this thesis entitled “English-Malay-English Dictionary” is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature:

Name : NORAFIDAH BINTI MD YUSOF

Date : 31 May 2012

DEDICATION

Thankful To Allah the Almighty

To My Beloved Father and Mother:

MD YUSOF BIN MOHD AMIN

HABSAH BINTI ABDUL HAMID

... Your love and Sacrifice Will Be Always In My Mind...

My Beloved Siblings:

NORHIDAYAH, MOHD ARIFFUDIN, NUR ATIQA AND NURFAIZ AQILAH

... May Allah Bless You All...

To My Supervisor:

DR TUTY ASMAWATY BINTI ABDUL KADIR

... Thank A Lot for Support, Encouragement and Guidance...

To All My Friends:

All 3BCG, 3BCN and 3BCS especially ABDUL HADI, NURUL MAHAYA,

NURUL AIN, NURAZMA, NUR NASIHA and NORLIYANA

... Thank for yours support and cooperation...

Sincerely

NORAFIDAH BINTI MD YUSOF

ACKNOWLEDGEMENTS

The highest gratitude is for Allah for giving me the strength and His blesses me with abundance of people around me that have been so helpful. There have been so many people that have been involved in this project directly or indirectly. I might not have the chance to thank of all them, but surely I hope that their assistant would be rewarded by Allah.

I am grateful and would like to express my sincere gratitude to my supervisor, Dr Tuty Asmawaty binti Abdul Kadir for her germinal ideas, invaluable guidance, continuous encouragement and constant support in making this research possible. I also sincerely thanks for the time spent proofreading and correcting my many mistakes. Without her continued support and interest, this thesis would not have been the same as presented here.

I acknowledge my sincere indebtedness and gratitude to my parents for their love, dream, and sacrifice throughout my life. I cannot find the appropriate words that could properly describe my appreciation for their devotion, support and faith in my ability to attain my goals. Special thanks should be given to my committee members. I would like to acknowledge their comments and suggestions, which was crucial for the successful completion of this study.

ABSTRACT

English-Malay-English Dictionary is a solution to the problems that always occur to the tourist from abroad when they come to Malaysia. This thesis was about what had done in order to try to solve the problem by develop the English-Malay-English Dictionary in mobile. The English-Malay-English Dictionary was develop in mobile because nowadays mobile is an important gadget for everyone. This is because mobile is easy to carry with its size which is small and the price that suitable for everyone. The dictionary is choosing for the case study since there are many tourists got problems to communicate with the Malaysian. From the research, they are having done the dictionary in mobile that had cover two language which are Mandarin and English language that caused the dictionary is Mandarin-English dictionary. That is means English-Malay-English Dictionary is a new application that can attract tourist to come to Malaysia because they can understand and communicate with the Malaysian by using this dictionary. The English-Malay-English Dictionary is developing to make the newest dictionary for Android Smartphone. By having this dictionary, tourists no need to worry about the communication problem with Malaysian.

ABSTRAK

Kamus Inggeris-Melayu-Inggeris merupakan penyelesaian kepada masalah-masalah yang sering berlaku kepada pelancong dari luar negara apabila mereka datang ke Malaysia. Tesis ini adalah mengenai apa yang telah dilakukan dalam usaha menyelesaikan masalah ini dengan membangunkan Kamus Inggeris-Melayu-Inggeris dalam telefon mudah alih. Kamus Inggeris-Melayu-Inggeris telah dibangunkan dalam telefon mudah alih kerana telefon mudah alih masa kini adalah alat yang penting bagi semua orang. Ini adalah kerana telefon mudah alih mudah untuk dibawa ke mana-mana kerana saiznya yang kecil dan harga yang sesuai untuk semua orang. Kamus Inggeris-Melayu-Inggeris dipilih untuk kajian kes memandangkan terdapat ramai pelancong mendapat masalah untuk berkomunikasi dengan rakyat Malaysia. Daripada kajian, terdapat kamus dalam telefon mudah alih yang meliputi dua bahasa iaitu bahasa Mandarin dan Bahasa Inggeris yang dikenali sebagai Kamus Bahasa Mandarin-Bahasa Inggeris. Ini bermakna Kamus Inggeris-Melayu-Inggeris adalah satu aplikasi baru yang boleh menarik pelancong untuk datang ke Malaysia kerana mereka dapat memahami dan berkomunikasi dengan rakyat Malaysia dengan menggunakan kamus ini. Kamus Inggeris-Melayu-Inggeris dibangunkan sebagai kamus terbaru untuk Telefon Pintar Android.. Dengan adanya kamus ini, pelancong tidak perlu risau tentang masalah untuk berkomunikasi dengan rakyat Malaysia.

TABLE OF CONTENT

CHAPTER	TITLE	PAGE
	ABSTRACT	vi
	TABLE OF CONTENTS	viii
	LIST OF TABLES	x
	LIST OF FIGURES	xi
	LIST OF APPENDICES	xii
1	INTRODUCTION	
	1.1 Introduction	1
	1.2 Problem Statement	3
	1.3 Objectives	4
	1.4 Scope	4
	1.5 Contribution	4
	1.6 Thesis Organization	5
2	LITERATURE REVIEW	
	2.1 Existing System	6
	2.1.1 Chinese-English Dictionary	6
	2.1.2 English Dictionary	8
	2.1.3 Multi-Touch Gesture Dictionary	10
	2.1.4 Comparison of existing system	12
	2.2 Technology of existing system	15
	2.2.1 Chinese-English Dictionary	15
	2.2.2 English Dictionary	15
	2.2.3 Multi-Touch Gesture Dictionary	16
	2.2.4 Comparison of existing system	16
	2.2.4.1 Comparison of Operating System	19

2.3	Interface Design	20
3	METHODOLOGY	
3.1	Rapid Application Development (RAD)	23
3.2	The justification of RAD	25
3.3	Steps of Rapid Application Development (RAD)	27
3.3.1	Requirement Planning Phase	28
3.3.1.1	Research on Current Situation	29
3.3.1.2	Analyze and Finalize Requirement	30
3.3.1.3	Software and Hardware Tools	31
3.3.1.4	Hardware	32
3.3.1.5	Software	32
3.3.2	User Design Phase	33
3.3.3	Construction Phase	34
3.3.4	Cutover Phase	35
3.4	Design	34
4	IMPLEMENTATION	
4.1	System Interface	35
5	RESULT, DISCUSSION AND CONCLUSION	
5.1	Introduction	41
5.2	Result	41
5.3	Discussion	43
5.4	Conclusion	43
	REFERENCES	44
	APPENDICES A	47

LIST OF TABLES

TABLE NO.	TITLE	PAGE
Table 2.1.4	Comparison between Chinese-English Dictionary, English Dictionary and Multi-Touch Gesture Dictionary	12
Table 2.2.4	Comparison between Chinese-English Dictionary, English Dictionary and Multi-Touch Gesture Dictionary	17
Table 2.2.4.1	Comparison between Operating System	19
Table 3.2	Advantages and Disadvantages	26

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE
2.1	Summary Design	7
2.2	Main Window	8
2.3	Framework of English Dictionary	9
2.4	Interface English Dictionary	10
2.5	Development Structure	11
2.6	Example Multi-Touch Gesture function	11
2.7	Main Interface	20
2.8	Search Word	21
2.9	Result Interface	22
3.1	Rapid Application Development Lifecycle	28
3.2	Storyboard	34
4.1	Main Interface	37
4.2	Activity Code	38
4.3	Database Activity	40

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
A	Gantt Chart	47
	Software requirement	48
	Data	4

CHAPTER I

INTRODUCTION

This chapter briefly describes the “**English-Malay-English Dictionary**” that had been developed. This chapter comprises five sections: The first section describes the background of the project. The second section describes the problem statement and motivation of the project. The third section describes the objectives for the project. The fourth section describes the scopes for the project. Finally the thesis organization is described in section five.

1.1. Background

A dictionary which also called as wordbook, lexicon or vocabulary is a collection of words in one or more specific languages, often listed alphabetically, with usage information, definitions, etymologies, and other information. According to the Nielsen, a dictionary may be regarded as lexicographical product that is characterized by three significant features. It also known as book that contains data that been selected for the purpose of fulfilling those functions. It is also known as lexicographic structures link and establish relationships between the data so that they can meet the needs of users and fulfill the functions of dictionary. Even though there are have digital dictionary, but it too much to buy and difficult to bring [1].

Malaysia is a country that now very success in tourism part. This is due to number of tourists that come to Malaysia and choose this country as their place for vacation. Since Malaysia has many states in, thus there are many dialects that have always used by the residents of each state. Everyone that lives

in Malaysia can speak freedom according to their dialects or use the standard language or official language of Malaysia which is Malay. But, as we know the tourists that come to Malaysia consists of oversea tourists likes from United States of America, New Zealand and also the other Asia' state likes China, Korea and etc. Every tourist that comes to Malaysia usually cannot speak in Malays because that not uses the Malays as their language. They always use the English as their language for communication. But for Malaysian, the English not usually is taken as communication language. Therefore, it is difficult for the tourist to communicate with the Malaysian when they need to ask for help. This is because they need someone that really good to communicate when they in trouble when they in travel. The tourist need to go the Help Center to ask help or called them when they needed a help just because they cannot understand what the Malaysian speak to them. It usually occurs when they go to visit a village. The villagers usually do not know how to speak in English thus it give them a problem to communicate with the tourist. Since the Malaysia now very success in development, thus everything information of Malaysia can get easily via any websites [2].

Nowadays, mobile phone is a gadget that really important for everyone. This is because the mobile phone is easy to carry and can need a small space to keep it. Mobile phone is used to communication with other that far distance, to take a picture or video, to listen the music and also for social networking. Mobile phone become more intelligent since the world is will turn to the technologies one day. Therefore, Smartphone is developing as intelligent gadget for the user. Smartphone consists several type which is it different based on the platform that use. The application on the phone also really upgrade because it can store type of application and games. Platform that always use for Smartphone likes Window platform, Android platform and also Symbian platform. But the most in trend today is Android platform and followed by Window platform.

1.2. Problem Statement and Motivation

Malaysia is a one of country that receive many tourist day by day, year by year, the government should take part to prevent from the tourist not come back to visit Malaysia. This is because tourists usually get many problems when they travel in Malaysia especially related to communication. They cannot travel by their own and need someone to be their tourist guide. When the tourist need help if they go to the cafe or any place to enjoy and their tourist guide cannot be on side with them, it will give big problem for the tourist. It consequently makes the tourist feel as an outsider because they cannot understand what the people say.

Even thought that have digital dictionary now, there is really expensive to buy and not all people tends to buy the dictionary. It compare to the mobile application because everyone today must have at least a mobile phone since that technology become really important for everyone. So, the tourist no need to bring many gadgets since the dictionary just can put in mobile.

Dictionary nowadays usually need to connect with the internet for use. To find standalone dictionary application is difficult. Android also comes with many type of API and platform likes Honeycomb, Gingerbread and Ice-cream Sandwich. The dictionary also usually not provides the example of sentences that can help the tourist.

Since the issue nowadays really serious, this hopefully can help the tourist in order to avoid them from get problem during their vacation. It can see clearly in the objective that this is a good solution to the tourist.

1.3. Objective

From the research, there are a few objectives that can list out as a guideline in order to develop the system. The objectives are:

- To identify and analysis the Malay words that always use in communication.
- To develop English-Malay-English dictionary in mobile application.

1.4. Scope

The scope of the research may focus on Malaysia since this is about the Malaysia country and the tourist. This application make especially to the tourist from the overseas. This is due to the statistic of tourist come to Malaysia that increases year by year. The dictionary is make on mobile since nowadays people does not use to read dictionary book. This dictionary will include words in Malays and English and each word will provide with example sentences. This application will develop in Eclipse Indigo which is for the Android platform. The application also has several functions likes search and the meaning will display with the example in order to make it user friendly type. The words also have limited number that will be stored which is 100 words or above.

1.5. Contribution

This purpose was designed for the tourist that comes to Malaysia. The Malaysian also can use since it can help to improve English language for communication. The target user is also to the mobile phone user.

1.6. Thesis Organization

This thesis organization was summarizing all the chapter of the thesis. The thesis contains five chapters which are chapter 1, chapter 2, chapter 3, chapter 4 and chapter 5.

Chapter 1 is for introduction. In this chapter, the introduction, problems statement, objective, scope and contribution was included.

Chapter 2 is literature review. This chapter was describe the existing system and the comparison that make between all three existing system. The technique and method also describe in this chapter.

Chapter 3 is methodology. In this chapter, it describes the methods that choose for English-Malay-English Dictionary development. It also includes the storyboard.

Chapter 4 is implementation. This chapter is the continuing from the previous chapter.

Chapter 5 is result, discussion and conclusion. This chapter will conclude overall about this project.

CHAPTER II

LITERATURE REVIEW

This chapter briefly describes the review on existing techniques related with **“Intelligent Dictionary”**. This chapter comprises two sections: The first section describes the comprehensive review on existing related systems. The second section describes the review on method, equipment, and technology previously used in the same domain.

2.1 Existing Systems

This section is to review the current system and the existing system that related to dictionary in mobile.

2.1.1 Chinese – English Dictionary

According to research that made by Yuxiang Li, Lijun Cao, Hongkui Yu, Cao Cheng and Shendong Li in their journal, it is show how the application in mobile can develop[4]. This dictionary was developed for the user that need Chinese-English dictionary or vice versa. It mainly to achieve the foundation of English-Chinese dictionary, as well as to query the Chinese meaning of English words, to add new words into dictionary to modify the Chinese meaning, delete the words in user’s dictionary. For this dictionary, the query is use to queue the Chinese word when the English words search. User will input the word or letter and the program will automatically match and display all the related words in dictionary. The user may click at

the word and the meaning in the Chinese will appear. While for the add function, the dictionary support the user-defined new word which that means the database can change and update. For the deletion, it divides to two parts which are the system and user dictionary. The Chinese – English dictionary was used the simple interface for the dictionary and it use Microsoft Visual Studio 2005 for developing. The summary of the design can see in the Figure 1 below:

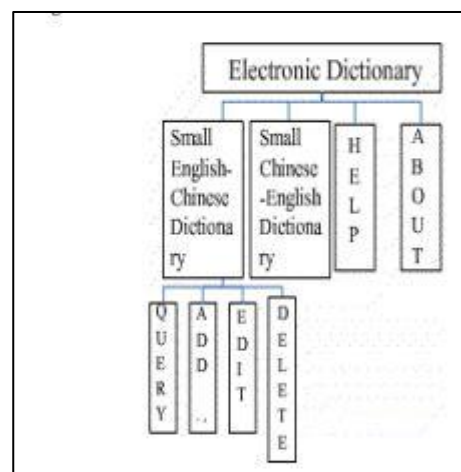


Figure 2.1: Summary design

The summary of the design was describe contains of the dictionary. As can see, the dictionary has four parts which are small English- Chinese dictionary that below it has query, add, edit and also delete. The others three are small dictionary Chinese – English dictionary, help and about.

For the interface design, the Chinese – English Dictionary was used simple tools like textbox, button and etc. For the main window, it shows the menu list of the dictionary. From the Figure 3 below, it show the menu that was arranged in the dictionary. As the main page, it always functions as the menu page. There are five menus that can choose by the user. The entire menu will explain more details in the

next. Figure 2 show the interface for the Chinese – English Dictionary.

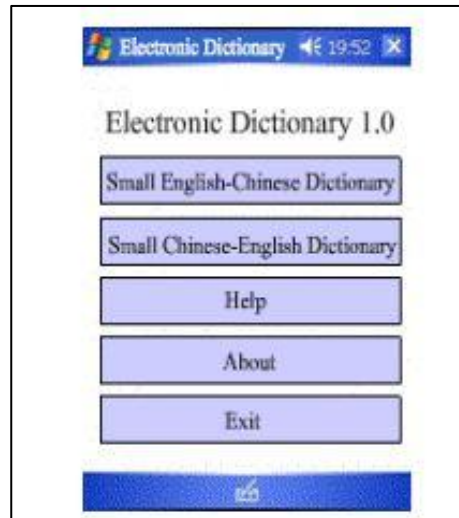


Figure 2.2: Main window

2.1.2 English Dictionary

From the research that made by Jia Yu and Min Liu [5], the journal was described the design and development of English electronic dictionary in intelligent mobile phone based on Android platform. Android nowadays get more attention from people because it quality and system that give much satisfied to them. Android was choosing because it is not only operating system, but also open source architecture. From this journal, android got important function characteristics likes with Linux Kernel, tailored and optimized by Google, with Davis VM which an modified JVM by Google, with a number of immediately available library and application software, with optimized Graphic system for 2D and 3D and also it support connectivity including Bluetooth, UMTS, GPS and Wi-Fi.

The Figure 3 below show the framework of the English Dictionary.

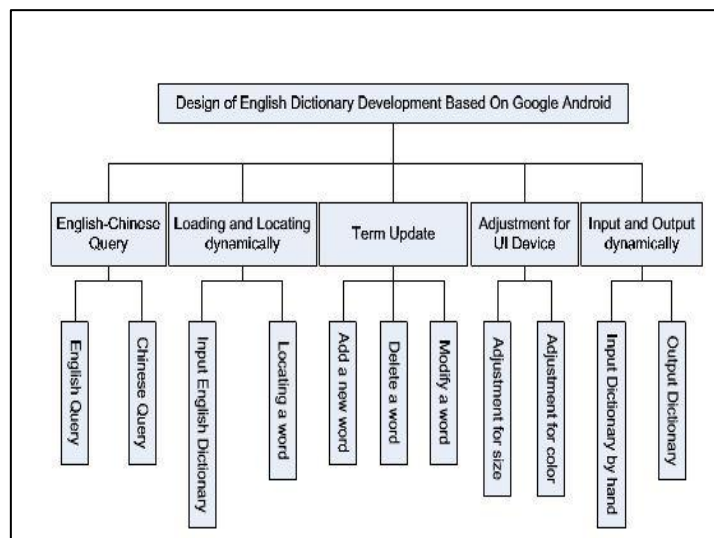


Figure 2.3: Framework of English Dictionary

For the interface, the English Dictionary five parts that acts as base of the dictionary. For the overall system, the number of words shown in the screen is adaptive to the size of screen. User can select relevant modules to retrieve, add, modify or delete words [2]. The interface for this English Dictionary can be seen in Figure 4 below:

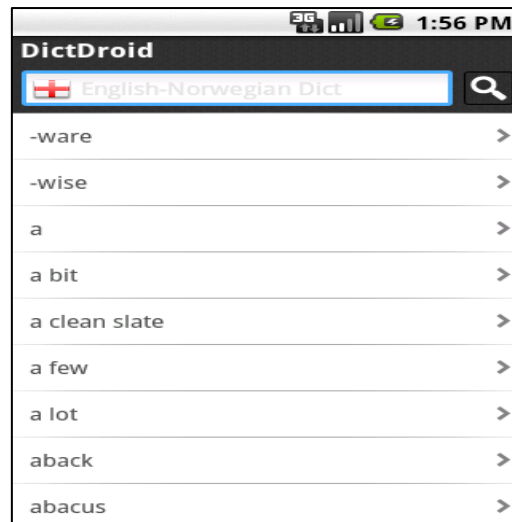


Figure 2.4: Interface English Dictionary

2.1.3 Multi-Touch Gesture Dictionary

According to John Greer Elias, Wayne Carl Westerman and Myra Mary Haggerty in research entitle Multi – Touch Gesture Dictionary, the dictionary entries can include a variety of motions associated with the chord and the meaning of gesture formed from the chord and the motion [6]. From the title multi-touch, that means the user can use the dictionary by touch the screen using the finger. In this journal, is tell about how to make the system and what the signal that can use or apply to the system. Multi-touch gestures may be considered to include at least two phases that taken together in sequence signal the beginning and the completion of a particular gesture. The first phase of a multi-touch gesture can include presenting a specific combination of hand parts. For the second phase is gesture can include motion of the specific part of hand. The structure of the development this Multi-Touch Gesture Dictionary can see in Figure 5:

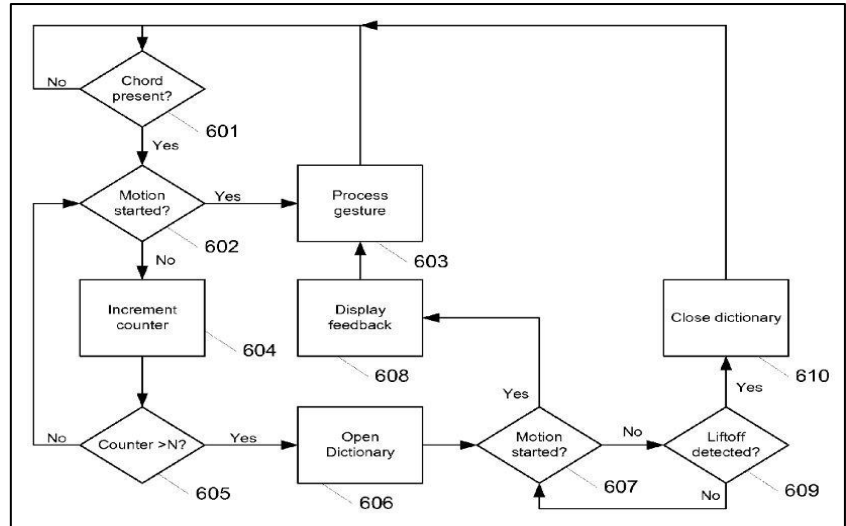


Figure 2.5: Development Structure

This motion may take the form of lateral motions such as rotation, translation and etc. Example of the motion that can use like in Figure 6 below:

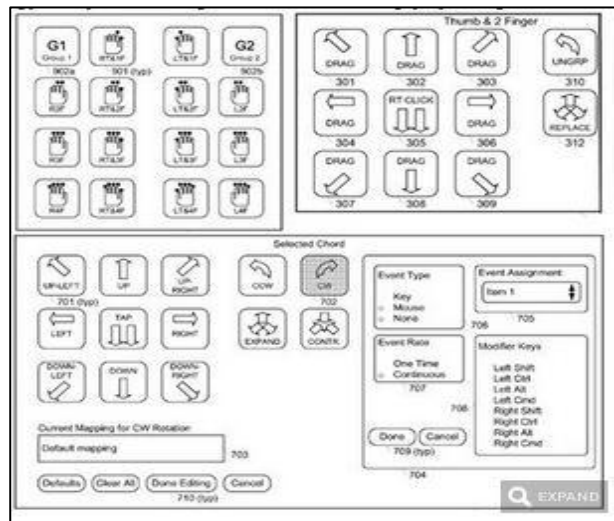


Figure 2.6: Example Multi-Touch Gesture function

2.1.4 Comparison between Chinese – English Dictionary, English Dictionary and Multi – Touch Gesture Dictionary.

Each of the dictionaries has similarities which are developing in mobile. The comparison will describe more details and the table of comparison will provide. For the explanation, next paragraph has describes the comparison.

Chinese – English Dictionary is an example of the existing dictionary that develops in the window mobile. It is because the software that use and database is for window mobile.

While English Dictionary, it is example the existing application in mobile that develop in Android. From the research, the Android dictionary is quite simple but it depends on the functions.

The Multi-Touch Gesture Dictionary is example of an existing system for the touch screen use. This research was referred to Apple Inc. which iPhone mobile. This is because the iPhone is a touch screen mobile.

Table 2.1.4: Comparison between Chinese – English Dictionary, English Dictionary and Multi-Touch Gesture

No	Features	Chinese – English Dictionary	English Dictionary	Multi – Touch Gesture Dictionary
1	Platform	Windows Mobile Platform	Android Mobile Platform	iOS (iPhone OS) [4]
2	Interface	The interface that used is simple and easy not complicated.	The interface not really user friendly and also not use many pages.	The interface can use by touch the screen and it will out with meaning.
3	Function	<p>This dictionary has functions likes:</p> <ul style="list-style-type: none"> • Add word • Edit word 	<p>This dictionary has functions likes:</p> <ul style="list-style-type: none"> • Retrieved word • Add word 	<p>This dictionary has functions likes:</p> <ul style="list-style-type: none"> • Add word • Edit word

		<ul style="list-style-type: none"> • Delete word • Query • Help <p>All this function has it interface and the buttons provide the function run according to the coding.</p>	<ul style="list-style-type: none"> • Delete word • Loading module <p>All the function is connect to database to make the application run smoothly without any problems.</p>	<ul style="list-style-type: none"> • Delete word <p>All the function is to make the dictionary can use by the user. This is because button is for show the function of that page to the user.</p>
4	Database	The database that use is Microsoft SQL Server 2005 Mobile Edition.	The database used to develop Android application is SQLite.	The database use Software Development Kit (SDK)
5	Model Available	Window Mobile	Android Mobile likes Sharp SH905i mobile.	IPhone

2.2 Technology of existing system

This section will describe the techniques, method, equipment and technology that will use by all the three existing system.

2.2.1 Chinese – English Dictionary

Chinese – English Dictionary uses technologies likes Operating System, Development Environment and Database Management System. For Operating System, it uses Microsoft Windows XP Professional Service Pack 2 and Windows Mobile 5.0. For Development Environment contains Microsoft Visual Studio 2005, .NET Compact Framework 2.0, Windows Mobile 5.0 Pocket PC SDK and Windows Mobile 5.0 Emulator Images for Pocket PC – CHS and Active Sync 4.5. For database, the system use Microsoft SQL Server 2005 Mobile Edition. The system uses method query and it because the user cans entry the word into the box. The equipment use by the system likes mobile phone that use window platform. [4]

2.2.2 English Dictionary

For this English Dictionary, the technology that uses likes Android Mobile Phone. The software that uses likes Web- Kit, SGL, Media Framework, OpenGL ES, Free Type, SQL lite, and others. The system also uses intelligence technique since it is the intelligence dictionary mobile phone. It use the fuzzy to retrieve the words to search in database when the user entry the words. For database, it uses the SQL technique to make table, field, the character and many things that related to database. [5]

2.2.3 Multi-Touch Gesture Dictionary

For the Multi-Touch Gesture Dictionary which multi touch gesture dictionary, it uses the technique of touch screen. The system was published by Apple Co. It may use by Mac OS to develop because it is the Apple Products. The system also interrupt with the coding that can make it translate the motion of the finger with the instruction that need dictionary to understand. It is for make sure the user get the information that they try to find. [6]

2.2.4 Comparison Chinese-English Dictionary, English Dictionary and Multi-Touch Gesture Dictionary

For the comparison between all the existing systems, the table below was describing the comparison by factors of software, technique and method that had use.

Table 2.2.4: Comparison between Chinese – English Dictionary, English Dictionary and Multi-Touch Gesture Dictionary

No	Features	Chinese – English Dictionary	English Dictionary	Multi – Touch Gesture Dictionary
1	Software	<p>The software that use to develop this application are:</p> <ul style="list-style-type: none"> • Microsoft Visual Studio 2005 • NET Compact Framework 2.0 • Windows Mobile 5.0 Pocket PC SDK • Windows Mobile 5.0 Emulator Images for Pocket PC-CHS 	<p>The software that use in developing this application are:</p> <ul style="list-style-type: none"> • Web- Kit • SGL • Media Framework • OpenGL ES • Free Type • SQL lite 	<p>The software that use to develop this application are:</p> <ul style="list-style-type: none"> • Xcode 3.1 • Safari

2	Technique	Technique that use: <ul style="list-style-type: none">• Fuzzy in query the menu and word	Technique that use: <ul style="list-style-type: none">• Fuzzy for retrieve the word	Technique that use: <ul style="list-style-type: none">• Not specified
3	Operating System for development	Windows	Linux	Mac

2.2.4.1 Comparison between the Operating System for Development

Table 2.2.4.1: Comparison between Operating System

Details	Window(Window 7)	Linux	Mac
Performance	<ul style="list-style-type: none"> -Better at synthetic benchmarks. <input type="checkbox"/>Faster transfer of large files. -Final version likes to improve. -Suspend/resume work 	<ul style="list-style-type: none"> -Faster booting. <input type="checkbox"/>Less memory usage. <input type="checkbox"/>Smaller install size. <input type="checkbox"/>Broader hardware compatibility. 	-
Cost	Expensive compare to Linux	Very cheap or free.	Very expensive compare to Linux and Window.

2.3 Interface Design

For interface design, it will explain more details in Chapter 4. This is because on this part, the interface design was provided with the little bit explanation. Since this dictionary needs to connect with the database, the search button will act as the linker to make the interface link with the database. This dictionary was developed with the simple interface which consist only the search button. When the user type the word that they want, the user need to click on the button and the meaning with the example of sentence will pop out. This is because this dictionary is for the tourist. Therefore, the complicated interface is not suitable for this dictionary. This dictionary was made by considered many factors likes user-friendly, time to respond and others. This is to make sure that the system will looked interesting. So, when it looked interesting, they it can attract the user to use it properly. For the interface, since that this system will develop in Eclipse Indigo and the language that will be used is Java script. This is since the application was develop for the Android mobile phone and for the Android, it use Android 2.3 or also known as Android Gingerbread OS.

Below show the interface of the dictionary:

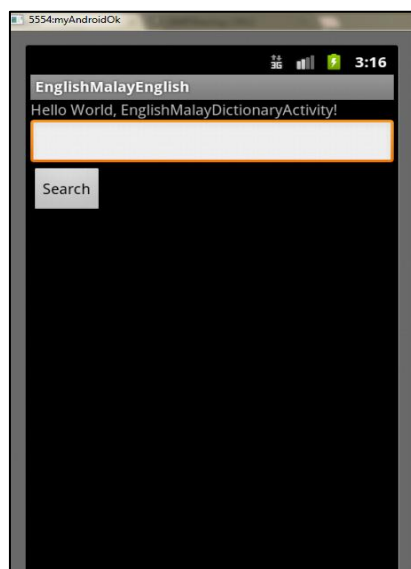


Figure 2.7: Main Interface

As can see from the above figure, the main interface of dictionary was made in simple way since it to make the time for the user use is short. Therefore, user can get the result quickly without need to wait.

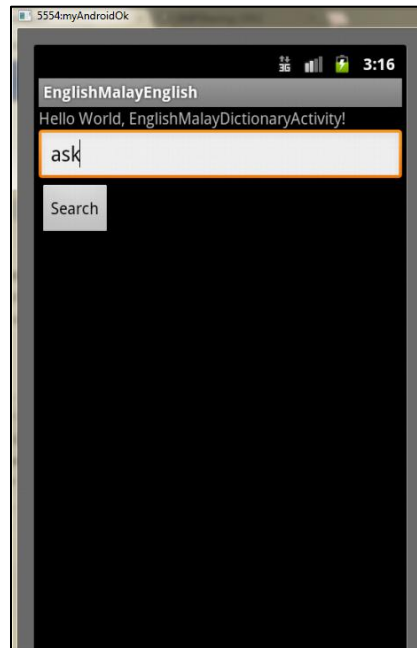


Figure 2.8: Search word

Figure 2.8 show how the user can use the dictionary. User just needs to type the word that they want. After that, they click on the search button and the result will appear.

Figure 2.9 below show the interface of the result. When the user is typing the word and clicks the search button, the translation which is contains of meaning in English and Malay. User can read the translation since it is provided with the simple example of sentences and the phrase or sentences is usually always use by the tourist.

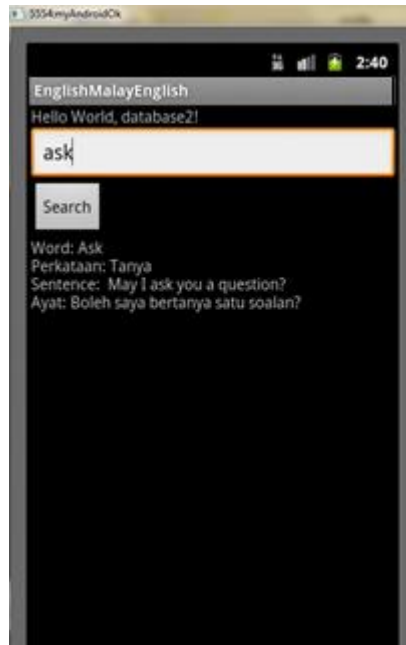


Figure 2.9: Result interface

CHAPTER III

METHODOLOGY

This chapter will be discussing the methodology and the framework of the **“English-Malay-English Dictionary”**. **“English-Malay-English Dictionary”** will be conducted based on the **“Rapid Application Development (RAD)”**. There have three section consists in this chapter. The first section explains about the introduction of the RAD development method and the reason to choosing the RAD approach. The next section discuss about the implementation of RAD method in **English-Malay-English Dictionary** development. The last section will elaborate the hardware and software that was used in the development of **English-Malay-English Dictionary**

3.1 Rapid Application Development (RAD)

Rapid Application Development (RAD) is a software development methodology that uses minimal planning in favor of rapid prototyping. The planning of software developed using RAD is interleaved with writing the software itself. The lack of extensive pre-planning generally allows software to be written much faster and makes it easier to change requirements. James Martin, in his book first containing the term, that wrote, “ Rapid Application Development (RAD) is a development lifecycle designed to give much faster development and higher-quality results than those achieved with the

traditional lifecycle. It is designed to take the maximum advantages of powerful development software that has evolved recently [8].”

Professor Clifford Kettemborough of Whitehead College, University of Redlands, defines Rapid Application Development (RAD) as “an approach to building computer systems which is combines Computer-Assisted Software Engineering (CASE) tools and techniques, user-driven prototyping and stringent project delivery time limits into a potent, tested, reliable formula for top-notch quality and productivity. RAD drastically raises the quality of finished systems while reducing the time it takes to build those [9].”

In short, by using Rapid Application Development is exactly a process through which the development cycle of an application is expedited. Rapid Application Development (RAD) enables quality products to be developed faster and saving valuable resource. RAD is a development that consists of requirement planning phase, user design phase, construction phase and cutover phase. It is using a minimal planning in a favor of rapid prototyping allowing short time development and makes it easy to change the requirement. This project is applying the RAD methods as the development method guidance.

3.2 The justification of the Rapid Application Development (RAD)

For this project, Rapid Application Development (RAD) method was choosing. This is because this method is suitable since the project is for mobile application. The Rapid Application Development (RAD) takes advantages of automated tools and techniques to restructure the process of building information systems. Rapid Application Development extrapolated to the entire IS organization, results in a profound transformation of information systems development. Rapid Application Development replaces hand-design and coding processes, which are dependent upon the skills of isolated individuals with automated design and coding which is an inherently more stable process.

By using the Rapid Application Development, the development conducted at a higher level of abstraction. It is because RAD tool operate at that level. Besides that, RAD is early visibility because of prototyping. Using Rapid Application Development, it is greatly reduced manual coding. This is because the wizards, code generator and code reused. RAD also increases user involvement because they are represented on the team at all time. In addition, RAD possibly fewer defects because the CASE tool may generate much of the code. The most important, by using the Rapid Application Development, it may reduce the cost because time is money and also it can reuse. The other is RAD has shorter development cycles because development tilts toward schedule.

The advantages and disadvantages using the Rapid Application Development are:

Table 3.2: Advantages and Disadvantages

Advantages	Disadvantages
Time to deliver is less.	Management complexity is more.
Changing requirements can be accommodated.	Resource requirements may be more.
Program can be measured.	Suitable for systems that are component based and scalable.
Cycle time can be short with use of powerful RAD tools.	Suitable only when requirements are well known.
Productivity with fewer people in short time.	Requires user involvement throughout the life cycle.
Use of tools and frameworks.	Suitable for project requiring shorter development times.

3.3 Steps of Rapid Application Development (RAD)

This section describes briefly the implementation of RAD phases in developing this project. Rapid Application Development (RAD) focuses on four major components which are tools, people, methodology and management. Martin has suggests four phases for the Rapid Application Development (RAD) which every phase has its own function.

There have four main life cycle phases in the RAD life cycle as refer to figure 3.1, which is:

- a. Requirement Planning
- b. User Design
- c. Construction
- d. Cutover

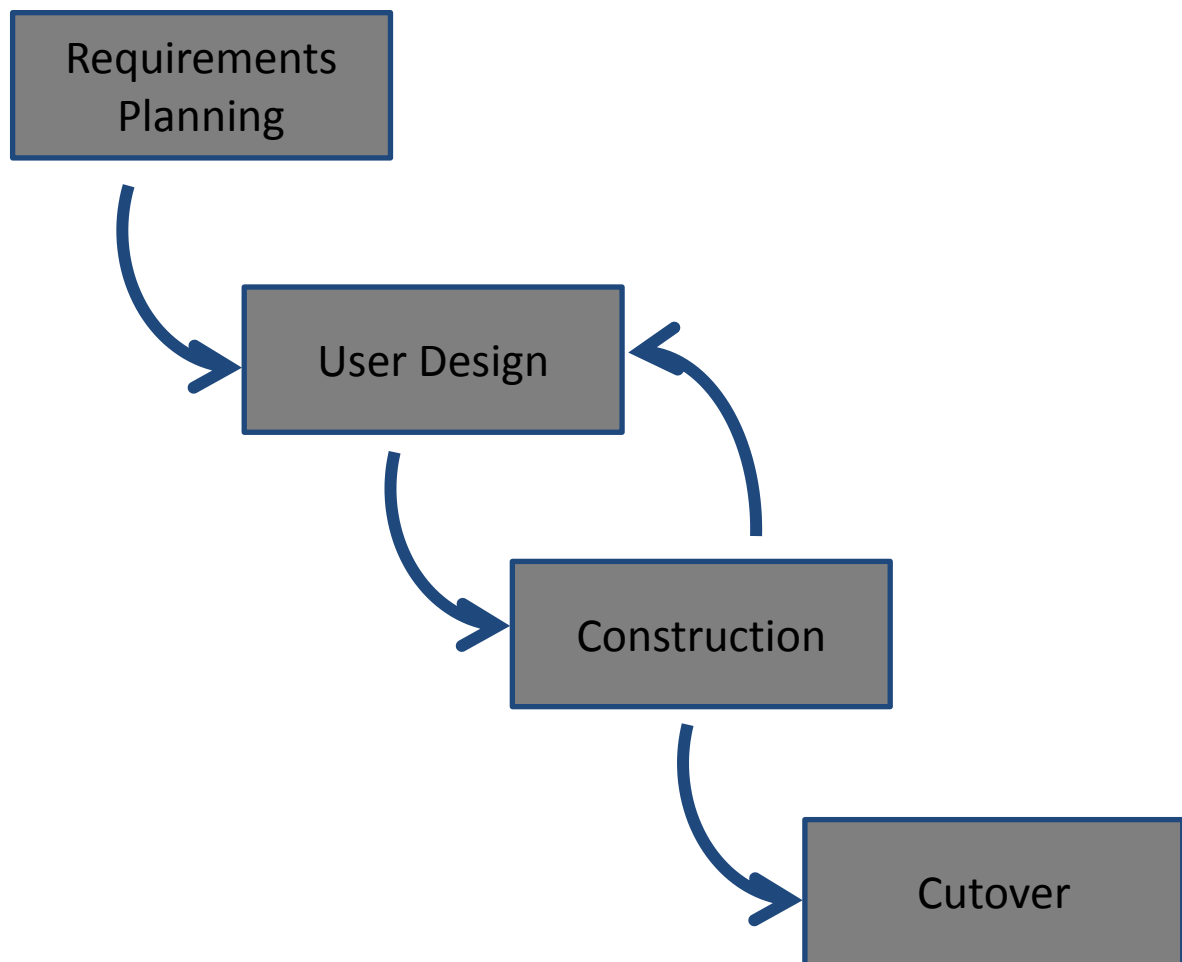


Figure 3.1 Rapid Application Development Lifecycle

3.3.1 Requirement Planning Phase

A requirement planning phase is also known as a concept definition stage [3] that will support and determine system scopes. It is much like problem definition and system analysis. Therefore, RAD relies heavily on joint application design (JAD) sessions to determine the new system requirements needed after each phase is done where it combines elements of the system planning and systems analysis phase like project scope, constraints, system requirements and many

more. For the requirement planning phase, it likes traditional definition and systems analysis. Rapid Application Development relies heavily on Joint Application Design (JAD) sessions to determine the new system requirements. In this phase, the system will planned in order to make it looked perfect and can be run smoothly without any errors. It starts with collect the information that related to the dictionary in mobile that can be the references. Since that dictionary is an English-Malay-English Dictionary, the comparison of the existing mobile dictionary was made.

3.3.1.1 Research on Current Situation

For the current situation, the mobile dictionary development is also using Rapid Application Development. This is because this method can make the developer find any weakness of the application and back to the stage before. It differ to waterfall method which caused the system cannot back and finally going to fail operate. The current situation, the Rapid Application Development is choose since the English-Malay-English Dictionary because the application need to review and back to phase before in order to upgrade and maintaining it functionality. Almost of the journal, the developer uses the RAD way to develop the dictionary. It is because the Rapid Application Design is suitable and the development of the dictionary need to always revise back in order to make sure that it connect to the database properly. For this system, in this phase the information was collected likes in references. The information is including the existing systems, the comparisons and

also the software. In this phase, the button, function and interface design was decided to make the development become easy.

The function that decide in order to develop the application is function search which is it will link to the database and the interface also use the coding for functionality.

3.3.1.2 Analyze and Finalize Requirement

English-Malay-English Dictionary is needs interface and platform. Since it develop in mobile, Rapid Application Development is suitable to use. Thus, all the information that get from the journal has help in order to make the development smooth. The information was finalized. At this phase, the information require collected. From the journal, there several things of requirement that can be list for the development of the dictionary mobile. The information that get was analyze in order to know what the requirement needed to develop the application. The requirement is including the software and hardware that will be used to build the application. From the comparison between all the three existing system, the requirement that needed to develop this application is Eclipse Indigo. This is because the application will develop for Android mobile phone platform.

3.3.1.3 Software and Hardware Tools

Computer software, or just software, is a collection of computer programs and related data that provide the instructions for telling a computer what to do and how to do it. In other words, software is a conceptual entity which is a set of computer programs, procedures, and associated documentation concerned with the operation of a data processing system. Software refers to one or more computer programs and data held in the storage of the computer for some purposes. In other words software is a set of programs, procedures, algorithms and its documentation. Program software performs the function of the program it implements, either by directly providing instructions to the computer hardware or by serving as input to another piece of software.

While personal computer hardware are component devices which are typically installed into or peripheral to a computer case create a personal computer upon which system software is installed including a firmware interface such as a BIOS and an operating system which supports application software that performs the operator's desired functions. Operating systems usually communicate with devices through hardware buses by using software device drivers. This phase, the software and hardware was determined in order to make the prototype develop management in order and to avoid any problems. The hardware and software choose

according the essential of developing the dictionary [6].

3.3.1.4 Hardware

From the analyzing the information, the English-Malay-English Dictionary requirement for development is listed. The hardware that uses to develop the English-Malay-English Dictionary is a laptop, mobile phone and network cable. The laptop use to develop the application while the mobile phone is use to test the prototype to check is it can function or not and try to find the error. The network cable is use to connect with internet for the development of the database for word storage. The mobile is needed as the tester since this dictionary was developed for mobile. The English-Malay-English Dictionary was successes if it can run smoothly in the mobile.

3.3.1.5 Software

For the software, English-Malay-English Dictionary need use the SQLite to develop database, Eclipse Indigo to make the interface and the Java EE for coding. All the software need to test before it can use and it also considered whether it suitable to the English-Malay-English Dictionary or not. The software will focused Eclipse Indigo but at the same

time the other software will be considered according to the situation.

3.3.2 User Design Phase

This phase also known as Functional Design Stage. During this phase, users interact with systems analysts and develop models that represent all system processes, input and output. There are several factors that affect system design. The factors are the degree of automation, processing technique, management and control and information system types.

For the English-Malay-English Dictionary, it has several interfaces since it made up from a few menus. This is because the prototype consists of search button. From the search button, user can get the result faster without need to wait. This is because the result is made in pop-up way.

The interface will connect to the database in order to find the words and make the English-Malay-English Dictionary function properly. The design of interface will decorate and make it looked interesting. It is for to avoid the user feel bored when they used the dictionary. The interface was based on user-friendly concept which is simple in order to make the user easy to use the dictionary without give any burden to them.

The figure below show the storyboard of the Intelligent Dictionary:

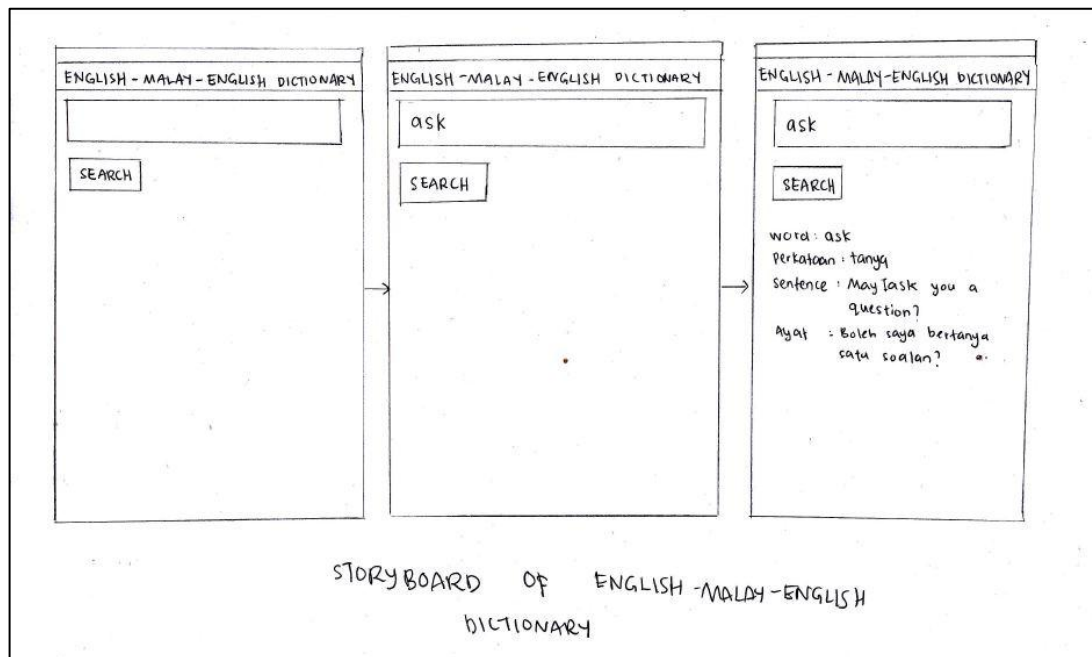


Figure 3.2: Storyboard

3.3.3 Construction Phase

At Construction Phase which also known as the Development Stage, the system will complete the construction of the physical application system, builds the conversion system, develops user aids and implementation work plans. According this Rapid Application Development, the English-Malay-English Dictionary will continue to the construction phase after the user design phase finish in it part.

For the initial prototype, it consists of screens, forms reports and other element of the user interface. The underlying logic also added to the prototype only after the user interface is stabilized. Since

the English-Malay-English Dictionary is a mobile application, the construction also considered how the application connects to the database and the interface should be friendly to the user. At this phase, all that is needed by the English-Malay-English Dictionary will be developed like the interface, database, connection and also the software and hardware that will be used is collected.

The English-Malay-English Dictionary will start development with the interface since it is needed to put coding to make sure of its functionality. When the interface is done, the next part is the database. The database will keep all the words that the system supports. When the database and the interface are done, it will continue to the next part which is to connect the interface and the database together.

The dictionary will be developed with the interface before connecting it to the database. It is to make sure that the database is suitable to the dictionary.

3.3.4 Cutover Phase

The cutover phase is similar to the traditional implementation phase. Implementation is the process of completing the system and turning it over to the user. At this phase, it includes the site preparation, document preparation, personnel training, system cutover and also the system release. The user can also test the English-Malay-English Dictionary at this phase in order to know any parts that need to be implemented to achieve the goal. Rapid Application Development also needs an upgrade and the documentation about the English-Malay-English Dictionary will be finished up at this phase. The

user manual or guideline will provide to ensure the user can use the system without any problems.

The user manual will provide or teach for the first timer user. This is for reference to the user because the dictionary was an application that develops in mobile that contain English-Malay-English Dictionary.

3.4 Design

The design of the interface and also the coding that use will be explain in next chapter which is Chapter 4.

CHAPTER IV

IMPLEMENTATION

The purpose of this chapter is to discuss the development process of the system. All the main function's coding used in the system to achieve the system objective will be explained.

4.1. System Interface

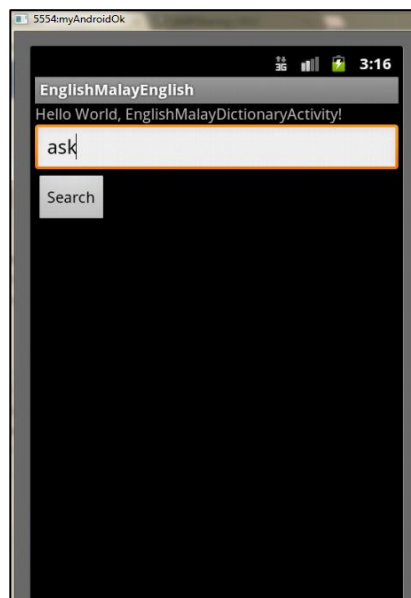


Figure 4.1: Activity Interface

From the interface, it can be seen where the dictionary has text box for user insert the alphabet. The search button will use to help the user search the

word that they want. For the search, below show the coding that use to search the word:

```

package com.fidayusof.englishMalayenglish;

import java.io.IOException;

import android.app.Activity;
//import android.database.Cursor;
import android.database.Cursor;
import android.database.SQLException;
import android.os.Bundle;
//import android.widget.Toast;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class EnglishMalayDictionaryActivity extends Activity
{
    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.main);

        final DatabaseHelper myDbHelper = new
DatabaseHelper(this);

        try {

            myDbHelper.createDataBase();
            Toast.makeText(this, "Database Created",
10).show();

        } catch (IOException ioe) {

            throw new Error("Unable to create database");

        }

        try {

            myDbHelper.openDataBase();
            Toast.makeText(this, "Database
Open",10).show();
        }catch(SQLException sql){

            throw sql;

        }
    }
}

```

```

//button calling
    final Button button1 = (Button) findViewById(R.id.button1);

    button1.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            EditText et1 = (EditText) findViewById(R.id.editText1);
            String haha = String.valueOf(et1.getText().toString());
            callingSomething(haha, myDbHelper);
        }
    });

}

public void callingSomething(String haha, DatabaseHelper
myDbHelper)
{
    //---get a title---
    myDbHelper.openDataBase();
    Cursor c = myDbHelper.getTitle(haha);
    if (c.moveToFirst())
        DisplayTitle(c);
    else
        Toast.makeText(this, "No title found",
            Toast.LENGTH_LONG).show();
    myDbHelper.close();
}

public void DisplayTitle(Cursor c)
{
    TextView tv = (TextView) findViewById(R.id.textresult);

    tv.setText( "Word: " + c.getString(1) + "\n" +
        "Perkataan: " + c.getString(2) + "\n" +
        "Sentence: " + c.getString(3) + "\n" +
        "Ayat: " + c.getString(4));
}
}

```

Figure 4.2: Activity Coding

The coding above show how the search function will run behind the application in order to get the words according to the tourists or users want.

While for database, the figure 4.3 will show how the database was called and read.

```
public Cursor getTitle(String rowId) throws SQLException
{
    String cari = "%" + rowId + "%";
    Cursor mCursor =
        myDataBase.query(true, DB_TABLE, new String[] {
            KEY_ROWID,
            KEY_WORD,
            KEY_PERKATAAN,
            KEY_SENTENCE,
            KEY_AYAT
        },
            KEY_WORD + " like " + cari + " OR "
            + KEY_PERKATAAN + " like " + cari,
            null,
            null,
            null,
            null,
            null);
    if (mCursor != null) {
        mCursor.moveToFirst();
    }
    return mCursor;
}
```

Figure 4.3: Database Activity

CHAPTER V

RESULT, DISCUSSION AND CONCLUSION

This chapter briefly discusses the result, discussion and conclusion for the project.

5.1 Introduction

This mobile application can be used by all the tourists or any people that use Android mobile phone.

5.2 Result

The result for this project is to make the mobile application that can help the visitor or tourist when they come to visit Malaysia. This application hopefully can run smoothly since it connects the database for storage the information or data.

The application can search the word that insert by the tourist and also the sentences that always use by the villagers. The interface designed for this application is user-friendly format since this application needs to use by the user. The data in the database cannot be change since it has limited words of dictionary.

For the interface, the user can insert the word that they want likes eat or buy and the result will appear with the translation and the sentences. The

interface will link to the database in order to read the word from the storage. This is for to make the user feel happy to use this application and to avoid it from be complicated and give the user problems when they use it.

The interface will come out with the color that suitable for the user. Since it in mobile, the size of font will large to make sure that user can see the meaning or the sentences. The application also will make the suitable platform to make sure that all users can use it whether in Smartphone or not. This is hopefully can be used to all type of mobile.

For the result, it can be used by the tourist and the word can give the exactly meaning in order to help the tourist. This is a way to help the tourism of Malaysia which is to attract the tourist come to Malaysia and understand the dialect that will be saying by the villagers or residents.

The development of the English-Malay-English Dictionary will comes out with the success application that can be applying to the mobile and consequently can be used by all people around the world. The reason English language was choosing because English is international language. Since this application's target is tourist from abroad, therefore English language is applied. The Malays choose because Malay is first language in Malaysia.

From the research, there are several journals that show the development of the mobile application. All the application just contains the English and Mandarin language. From the reading, the dictionary that had developed was used by the Chinese people for them to understand well the English. That means, for English-Malay-English Dictionary, this is for the tourist that comes to Malaysia.

5.3 Discussion

This application can go to further since the Android development nowadays is really fast. There are so many types of Android Operating System (OS) such as Android Gingerbread, Android Honeycomb and for the latest Android which is Android Ice-cream Sandwich. Since that, for the further study, it is really hope that this application is compatible to all types of android. This is for to make sure that everyone can use it without any problem.

5.4 Conclusion

From this project, there are many things that had been learned. It is include the knowledge how to find the journal, how to propose the good project and also more knowledge on the mobile application. By have this English-Malay-English Dictionary, it may teach the tourist about the Malay language. This project had been developed without any problems and can be used by all people.

For the future, there are hopes that the English-Malay-English Dictionary can store more data or words in database and also can have Dialect language.

This English-Malay-English Dictionary has some advantages where it is mobile application. That mean the user do not need bring dictionary in books because there are heavy to bring and will give burden to the tourist. Furthermore, this mobile application can get easily and differ to the dictionary in book where they need go the book shop and find the dictionary.

REFERENCES

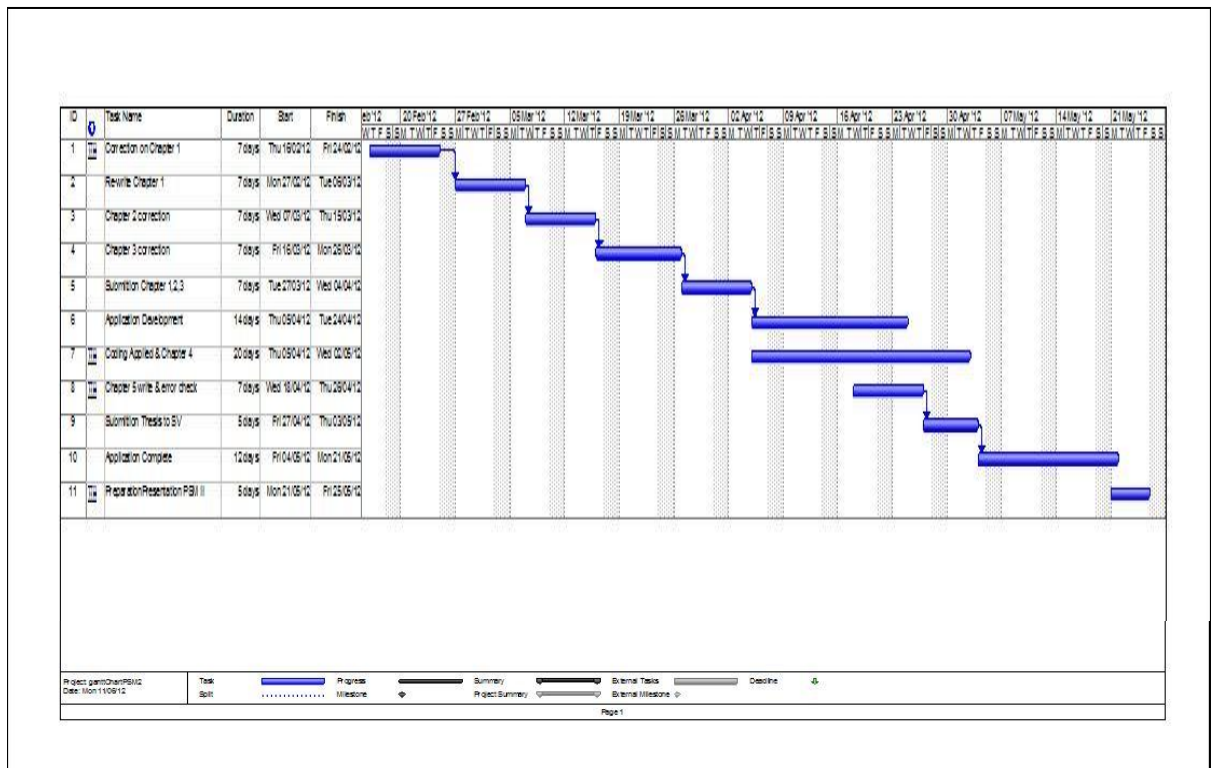
- [1] <http://en.wikipedia.org/wiki/Dictionary/> retrieved 14/10/2011
- [2] <http://www.tourism.gov.my/> / retrieved 14/10/2011
- [3] <http://en.wikipedia.org/wiki/Malaysia/>retrieved 14/10/011
- [4] YuXiang Li, Lijun Cao, Hongkui Yu, Cao Cheng, Shendong Li. *The development of dictionary tools on Window Mobile Platform*. In the International Conference on Computer Engineering Technology 2010, IEEE Press, pages 728-732.
- [5] Jia Yu and Min LIU, Secondary development on Android Intelligence Mobile Phone Platform, 2010
- [6] John Greer Elias, Townsend and DE, *Multi-touch gesture dictionary*. IEEE Press , 2007.
- [7] <http://en.wikipedia.org/wiki/IOS/> retrieved 14/10/2011
- [8] Abdullah. *What is Rapid Application Development?* Copyright 1997-2000 CASE Maker Inc.Computer Science, Volume 6018, pp. 201–214, 2010. © Springer-Verlag 2010.
- [9] http://en.wikipedia.org/wiki/Rapid_application_development/
Retrieved 27 November, 2011.
- [10] Mike Gunderloy, Joseph L. JordanMastering Microsoft SQL Server 2005[M].John Wiley & Sons, 2007-2008

- [11] Zhang Dawei Translate. Microsoft Mobile Mobile Development Baodian[M].Peking : Tsinghua University Press, 2008-03
- [12] Herawan, T. *Soft Set-based Decision Making*. Wiley Publishing Company, San Fransisco, 2011.
- [13] Google Android SDK Documentation.
<http://code.Google.com/android/documentaion.html/> retrieved 19/10/2011
- [14] Google General Mobile Development.
<http://www.codeproject.com/kb/mobile/> retrieved 19/10/2011
- [15] Jeffrey A. Hoffer, Joey F. George, and Joseph S. Valacich. *Modern Systems Analysis and Design Fifth Edition*. Pearson Education Inc., 2008.
- [16] Ivo Salmre. *Writing Mobile Code*. Addison Wesley Pearson Education.
- [17] <http://www.hit.ac.il/staff/leonidm/information-systems/ch32.html/> Retrieved 27 November, 2011.
- [18] <http://www.haz-map.com/ssdiscus.htm/> retrieved 10/12/2011
- [19] Dr Steve Easterbrook *How Theses Get Written: Some Cool Tips*, Dept of Computer Science, University of Toronto/ retrieved 10/12/2011

- [20] Amiya Bhattacharya Sajal K. Das *LeZi-Update: An Information Theoretic Approach to Track Mobile Users in PCS Networks*, Center for Research in Wireless Computing (CReW), North Texas / retrieved 14/10/2011
- [21] Gregory D. Abowd, Christopher G. Atkeson, Jason Hong, Sue Long, Rob Kooper and Mike Pinkerton : *Cyberguide: A mobile context-aware tour guide*, Graphics, Visualization and Usability Centre, College of Computing, Georgia Institute of Technology, Atlanta,USA/retrieved 14/10/2011
- [22] “Statistic Tourist in Malaysia”
http://corporate.tourism.gov.my/research.asp?page=facts_figures /retrieved 17th May 2012
- [23] “Word Dyname Translator”
[http://translate.reference.com/translate?_utma=1.2128919649.1337247640.1337247640.1337247640.1&_utmb=1.1.10.1337247640&_utmc=1&_utmz=1.1337247640.1.1.utmcsr=google|utmccn=\(organic\)|utmcmd=organic|utmctr=\(not%20provided\)&_utmv=-&_utmh=17399993](http://translate.reference.com/translate?_utma=1.2128919649.1337247640.1337247640.1337247640.1&_utmb=1.1.10.1337247640&_utmc=1&_utmz=1.1337247640.1.1.utmcsr=google|utmccn=(organic)|utmcmd=organic|utmctr=(not%20provided)&_utmv=-&_utmh=17399993) /17th May 2012
- [24] “Android Wikipedia”
[http://en.wikipedia.org/wiki/Android_\(operating_system\)](http://en.wikipedia.org/wiki/Android_(operating_system)) /retrieved 17th May 2012

APPENDIX

1. Gant chart



Page1

2. Software requirement

- Eclipse Indigo for development
- SQLite for the database

3. Data

I. Statistic Tourist that visit Malaysia

TOURIST ARRIVALS & RECEIPTS TO MALAYSIA		
YEAR	ARRIVALS	RECEIPTS (RM)
2010	24.6 Million	56.5 Billion
2009	23.6 Million	53.4 Billion
2008	22.0 Million	49.6 Billion
2007	20.9 Million	46.1 Billion
2006	17.4 Million	36.3 Billion
2005	16.4 Million	32.0 Billion
2004	15.7 Million	29.7 Billion
2003	10.5 Million	21.3 Billion
2002	13.2 Million	25.8 Billion
2001	12.7 Million	24.2 Billion
2000	10.2 Million	17.3 Billion
1999	7.9 Million	12.3 Billion
1998	5.5 Million	8.6 Billion

II. The words:

- **BASIC PHRASES**

Hello

Goodbye

My name is

What is your name?

What time is it?

Thank you

You're welcome

Have a nice day

Pleased to meet you

Pardon me

- **TRAVEL WORDS & PHRASES**

Take me to the airport

Take me to the hotel

Where is the Taxi stand?

I am on vacation

I am here on business

How much are the rooms?

What does this cost?

I am from the United States

Where are you from?

These are my bags

- **FOOD & RESTAURANT PHRASES**

I would like a table for two

I would like to make a reservation

Do you serve breakfast?

Do you serve lunch?

Do you serve dinner?

What dish do you recommend?

What do you have for dessert?

Can I see the wine list?

May I have the check please?

I am allergic to shellfish

- **TIME AND PLACES**

What time is it?

What day is it today?

Where is the nearest restaurant?

Where is the nearest metro?

Where is the nearest train station?

Where is the nearest bank?

Where is the nearest hotel?

Where can I find a taxi?

Where is the toilet?

Is this the bus stop?

- **COMMON VERBS**

Ask

Buy

Drive

Drink

Eat

Give

See

Sleep

Walk

Work

