

Language Learning Guide Mobile Application

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CERTIFICATION OF APPROVAL

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ABSTRACT

While traveling around the world, a lack of common language is often encountered. This can be a reason of not truly experiencing the country and the people that one is visiting. Thus, knowing even just a little of the local language will be a great advantage for any foreigner visiting or staying in another country. This project focuses on developing a mobile application that would aid any traveller or foreigner here in Malaysia in learning to converse in the local language for a better stay. This project also attempts to find the effective, efficient and interesting ways to learn a language. It is focused in providing the user the basic conversations that a foreigner will mostly/likely encounter while visiting or staying in Malaysia. The application is for foreigners who can speak English and is trying to learn Bahasa Malaysia. The android platform is chosen for the development of the application and coding with Java and Eclipse were used. The research and survey done resulted in the findings that using visual-audio sensory and interactive techniques will provide a more engaging and thus a more effective way of learning. With this implemented in the application, results of the user acceptance test showed that with the mobile application, an increase of the competency of the users' Bahasa Malaysia speaking skills is observed.

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ABBREVIATION AND NOMENCLATURES

M-learning	Mobile Learning
BM	Bahasa Malaysia
SDK	Software Development Kit
IDE	Integrated Development Environment
FYP	Final Year Project
UAT	User Acceptance Testing

CHAPTER 1

INTRODUCTION

1.1 Background of Study

According to the United Federation of Travel Agent's Association (UFTAA) there are nearly 10million tourist arrivals in Malaysia in 2012 and that almost 2million of them are migrant workers and over 90,000 are coming here to study. In Malaysia, learning the national language, Bahasa Malaysia, is required for most companies and universities. In addition, visitors of the country do not feel engage on the nation they are visiting as they lack the language (Vis, KM, 2012). Thus, these foreigners try to acquire the language by taking the language course and other ways. However, learning a language in class or with a book has been held to be not sufficient enough.

Alexander Arguelles, a linguist who has learned over 50 languages, mentioned in his website that the best and fastest way to learn a foreign language is by being regularly exposed with the language over time. Learning a language in class or with a tutor does not immerse the learner to the language in a manner that Arguelles described.

Mobile learning or m-learning which researchers have come up with as a solution for real time learning in which learners can access it anywhere, anytime. A study done in the University of California about mobile learning in rural India, results show a reasonable level of learning and motivation. (Kumar, A., et al.) Researchers and developers have established mobile applications providing more educational opportunities for learning almost anything as well as learning a language.

Mobile applications for learning a language has been being developed since the year 2001 in Stanford University to learn Spanish. (http://en.wikipedia.org/wiki/Mobile_Assisted_Language_Learning) According to

brainscape.com blog, the best mobile application in learning a language latest 2011 is called 'Voxy', currently available for Spanish-speaking English learners only for both Android and iPhone devices. Voxy uses location-based features which feed the user specific phrases that are relevant to only the venues that are nearby. (Cohen, A. 2011)

Moreover, another technology-based solution for learning languages which is the leading language-learning software in the world according to their website is known as Rosetta Stone. It approaches language learning the same way that you first learned a language - using a natural method that teaches new language directly, without translation.

Additionally, as this project is project is conducted in Malaysia, it will be focused in the Bahasa Malaysia (BM). Some existing mobile applications for learning BM are 'Malaysia Survival Language' for Android users and 'L-lingo Learn Malay' for iPhone users. These language mobile applications only feature basic translations of some combination of phrases and sentences of the language. In addition, according from the previous users of the applications there are still important features missing on them. In Google Play website, comments of users of the applications were displayed and some had posted suggestions on how can it can be better. (https://play.google.com/store/apps/details?id=com.railer.survivalmalaysia&feature=search_result#?t=W251bGwsMSwxLDEsImNvbS5yYWlsZXIuc3Vydm12YWxtYWxheXNpYSJd)

Hence, a right method and features has to be considered to make learning easier and more engaging for all the learners. The linguist Arguelles uses his own techniques (which will be mentioned below) to learn languages fast. He does this with books, paper, and a pen. But in this busy and high-technology world, bringing a dictionary, a pen, or a paper is not so convenient. Most of people nowadays use their mobile phones in almost anything they do, check e-mails, browse the web, read a book, etc. There are over 75% of people in the world who have access to mobile phones and 70% of these people are using smart phones. (<http://mashable.com/2012/07/18/mobile-phones->

worldwide/) Thus, in connection with convenience, learning, and technology, this project focuses on developing a mobile application with techniques that would make learning faster and more interesting.

In addition, an android platform is chosen due to the open-source nature of the software development kit and the high number of users in the market. Below is a chart for the mobile usage statistics in 2011:

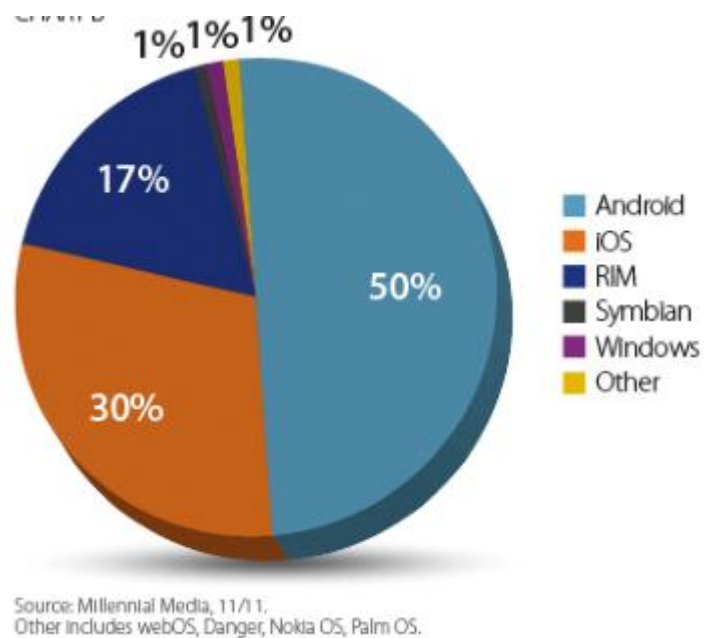


Figure 1 Mobile Usage Statistics 2011

Source: <http://technorati.com/technology/article/android-versus-apple-in-mobile-stats/>

1.2 Problem Statement

1.2.1 Problem Identification

Traveling and meeting new people from different parts of the world is quite exciting and fulfilling. Experiencing other people's cultures and lifestyles are one of the reasons why people visit other countries. However, while visiting these places, a lack of common language is often encountered resulting to less involvement and experience of the said culture and nation.

Here in Malaysia, this situation is generally observed in groups of tourists visiting the country, migrant workers, and foreigners who stay in for studies. A specific example can be seen in international universities in which foreign students have disadvantages in fully experiencing Malaysia and its people. Vis, KM (2012), a foreigner who've visited and stayed in different countries mentioned that with the lack of the local language, one could not truly immerse himself in life of the countryside (in this case in the university). Difficulties in asking questions and getting answers were stumbled upon, Vis added. Knowing or learning a little of someone's language can improve one's engagement and can positively change a big difference in one's stay in a country.

With this, individuals try to learn the local language by taking classes and/or using the internet for translations. But nowadays, mobile phones and mobile applications are widely used and preferred. Several of the mobile applications for learning a language are widely offered now in the android market. Some of these in Bahasa Malaysia will be mentioned later in this paper. Correspondingly, these existing applications are focused on delivering the users direct translations of the list of sentences or phrases. This is somewhat plain and less collaborating. There is none so far that provides guidance in learning the language according to what's important and basic while also giving an interactive learning experience.

As what Arguelles recommend, to be able to be immersed in a language is to live and practice it in motion. This project focuses on developing a mobile application that would guide the user in learning a language with the use of multi-sensory techniques thus engaging the user better for a fast and easy learning. With this application, convenience and immersion can be practiced helping the users to have conversation with the locals in no time and thus getting involved.

1.2.2 Significant of the Project

This projects attempts to develop a mobile application that would guide the user in learning the basics and what matters most in a language in an easy and interactive way. Learning a language effectively can be further enhanced by using multi-sensory techniques in the learning process. This could be a combination of visual and auditory sensory that could help any learner stimulate their minds and capture their attention.

With this mobile application, learners have the mobility freedom advantage thus projecting learning initiatives and encouraging them to access and use the application even more. In addition, with the focused content and multi-sensory techniques, this will allow the user to practice what matters in an interactive way which is believed to be a more effective way of learning faster and easier.

The learners will be exposed to audios (auditory) and images (visual) corresponding the translations in Bahasa Malaysia. Evaluation of the user's progress will also be provided. The application also features an interactive way of learning in which all users can interact with each other in real time with the use of chat room. With these, the user is expected to be immersed into the language thus learning and coping with it faster and easier.

In focused, with the help of the mobile application that this project is concentrated in developing and with the implementation of the mentioned techniques, it will be

easier and faster for any user to learn what should be learned in Bahasa Malaysia thus improving their engagement and involvement in the society they are experiencing in.

1.3 Objectives and Scope of Study

This project is focused in developing a mobile application for android users with the implementation of techniques that were mentioned above. Additional features related to adaptive learning that provides instantaneous feedback for better learning are also included.

Below are the listed objectives for this project:

- To research on a suitable model for learning a language faster and more interesting.
- To develop a prototype of the mobile application in learning to converse in Bahasa Malaysia.
- To conduct user acceptance test on the developed prototype.

The scope of this study is divided into categories:

Target Group:

- Tourists, migrant workers, international students here in Malaysia.
- Target location for user testing would be international universities around Perak.

Focus topic:

- Discovering the best model in learning a language with a mobile device.
- Design and develop a Bahasa Malaysia-English mobile learning application that attempts to help foreigners start conversing with the language.
- Application is for learners trying to learn Bahasa Malaysia who can speak English.

1.4 Relevancy of Project

The Bahasa Malaysia Language Learning Guide mobile application will help learners absorb the language Bahasa Malaysia and be able to converse with it. This project discovers the best methods and techniques for learning a language effectively in a fast and effortless way.

1.5 Feasibility of Project

1.5.1 Technical Feasibility

The main platform that would be used to develop this mobile application is:

- Eclipse Integrated Development Environment with Android SDK

1.5.2 Schedule Feasibility

The time given for the completion of this project is 28 weeks whereby it is divided into two phases. The first phase is carried out in the first semester which includes the research and data analyses. The second phase falls under the second semester where the development of the application, the prototype, user acceptance test and implementation of the project takes place.

1.5.3 Economic Feasibility

There will be no operational cost for the android platform development as Eclipse is open source software. It can be downloaded free from the Internet.

The mobile devices to be used for testing of the developed prototype and application would be obtained from the developer.

1.5.4 Operational Feasibility

The application developed from the open source SDK would have usability testing performed on students in UTP and other international universities. Once users' needs and expectations are met, the application will be launched into the Android market.

CHAPTER 2

LITERATURE REVIEW and/or THEORY

2.1 Foreigners in Malaysia

The number of foreigners and visitors here in Malaysia has been increasing due to its higher economy compare to other Southeast Asian countries and beautiful tourists spots. Foreign workers from Indonesia, the Philippines, Myanmar, Thailand, Nepal, Indian, and others are coming here to get jobs. Moreover, the number of international students in universities in Malaysia is increasing as well. Many students from other countries all over the world are coming here in Malaysia to pursue their tertiary studies. Below is a table of the number of international students here in Malaysia in the year 2010.

Table 1 Top 10 sending places of origin and percentage of total international student enrollment 2010

	Place of Origin	Number of Students	Percent of Total
1	Iran	11,823	13.6%
2	China	10,214	11.8%
3	Indonesia	9,889	11.4%
4	Yemen	5,866	6.7%
5	Nigeria	5,817	6.7%
6	Libya	3,930	4.5%
7	Sudan	2,837	3.3%
8	Saudi Arabia	2,252	2.6%
9	Bangladesh	2,041	2.3%
10	Botswana	1,911	2.2%
	All Others	30,343	34.9%

Source: <http://www.iie.org/en/Services/Project-Atlas/Malaysia/International-Students-In-Malaysia>

The United Federation of Travel Agent's Association (UFTAA) mentioned in their website that there are nearly 10million tourist arrivals in Malaysia in 2012 and that almost 2million of them are migrant workers and over 90,000 are coming here to study as what also the above table showed on international students. In Malaysia, learning the national language, Bahasa Malaysia, is required for most companies and universities. Thus, these foreigners try to acquire the language by taking the language course and other ways. However, learning a language in class has been said to be not that effective. Hence, finding another ways to learn is expected.

In addition, speaking the language here would be a total advantage as less Malaysians can converse in English. Even though English is the second language of Malaysia, according to Wikipedia, there is only 20% total of Malaysians around the world who can speak English. With this figure, one can say that difficulties in communication with most Malaysians will exist especially if you are a traveller or a student conversing with locals. Thus, learning the language would be a better way to a more convenient stay here in Malaysia.

2.2 Advantages of Learning to Converse the Local Language

The best thing about traveling is being able to explore the amazing beauty of various countries and to partake in their festivities. However, the experience will never be complete until the history of the place and a little about the local language is recognized. Many people believe that the English language can be used wherever one may go. Some considers that learning a foreign language has no use. However, according to some travellers this kind of perception is false. Knowing something about the language of the country being visited offers great benefits. This can be personal and experience advantages and/or business advantages in the country you are going.

Vis, KM (2012) mentioned that lacking a common language means you remain outside of the people's lives no matter how much hospitality you receive from them and no matter how many laughs you've shared. Thus, Vis pointed out that when you try to

speak the local language, you will have an in depth conversations about life and culture with this particular group of people which Vis considered as fascinating, great, and eye-opening. In short, the people, the culture and the country as a whole will be more explored and experienced.

Learning to converse in the local language will also assist you in having a more convenient traveling. With the knowledge of the language, the signs on the roads, the menu in the restaurants, and the communication with the locals will no more be a problem.

Moreover, it is believed that the relationship with the locals is very important especially when one is staying in a foreign country for quite some time whether for studies, business, or personal reasons. According to a note posted by Jacobsen, M (2010), foreigners are utterly dependent on the local people. Jacobsen reasons that foreigners are not the main actors in this country, they are a bewildered guest, and their success hinges on the strength and quality of their local relationships. Jacobsen have confidence that speaking the local language could be one way to develop this relationship thus gaining more advantages in the foreign country you are in.

In addition, learning to converse in the local language is also very useful in work related situations. Works that requires talking with clients with diverse nationalities will have an advantage if the foreign languages are renowned. Knowing another language can also be the reason for relocation to that country or even a promotion. Just like here in Malaysia, the learning of the local language has been made compulsory for all foreign students and migrants as the ministry believe that this would make the communication at ease. (Noorazam, N., Cameet, S. 2012)

2.3 Mobile Learning and Education

Advanced technology is booming in the world today, and mobile learning is booming right along with it. The ability to leverage on various kinds of mobile technologies and

to use them almost instantaneously to tackle several tasks is one of the strengths of this generation. (Menkhoff and Bengtsson, 2011)

As Quesinberry(2011) stresses in his article about mobile learning, a recent e-Learning survey reports that 70.2% of respondents are using their personal mobile devices to learn; browsing the web, connecting to social networks, making purchases and playing games. The same survey found that the percentage of companies planning to do m-learning has increased from 38.5% in 2007 to 51% in 2011. In addition, it is also observed that using mobile devices for learning shows a positive impact. In a journal by Huizenga et al. (2009), they mention that using mobile devices in education combines situated and active learning with fun in a potentially excellent manner. The study was about a mobile game about history used by pupils. Results showed that those pupils who played the game are engaged and gained significantly more knowledge about history compare to those pupils who received regular project-based instructions.

Moreover, Schuler (2009) listed in his research that mobile devices enable a user to have the flexibility to collect, approach, and process information outside the classroom. Schuler encourages learning in a real-world context and it helps in making environments more fun and closely related.

In relation with mobile language learning, a study conducted aiming to investigate the effectiveness of using multimedia messages via mobile phones in helping learners in consolidating vocabulary. Analyses of quantitative data showed that using mobile phones had positive effects on student's vocabulary acquisition. The result suggests that mobile phones offer great potential for providing learners with supplementary opportunities to decontextualize, recycle, and consolidate vocabulary of the language they are learning. (Saran, M., Seferoglu, G., & Cagiltay, K. 2012) Another study by the same authors (Saran, M., Seferoglu, G., & Cagiltay, K. 2009) states that the literature on foreign/second language acquisition highlights that in general in-class activities are not sufficient for effective language learning and that learners should also have input and output opportunities outside the classroom. This holds true for learning pronunciation as

the literature suggests that just classroom instruction has a negligible impact on oral production of learners. With their widespread use and their features such as mobility, localization, and personalization, mobile phones offer a great potential for out-of-class learning. Yet, there is scarce research on the use of mobile phones in language learning contexts or any on using mobile phones to improve learners' pronunciation. However, there are several existing mobile applications for language learning today.

2.4 Existing Bahasa Melayu-English Mobile Applications

Three of the existing Bahasa-melayu English mobile applications will be mentioned and examined here. First is the L-Lingo Learn Malay mobile application which is designed to turn learners into fluent users. The Malay lessons cover all aspects of living, working, socializing and traveling in Malaysia. It uses relevant images and bites of native speakers to hook Malay words or phrases with the use of multimedia content to accelerate the learner's language. It includes thousands of words and sentences all visualized with images. In the Google Play website which it is advertised and sold, there have been no reviews from any user. It is also stated in the website that the application cost USD\$19.23. Below are some screenshots of the application from Google Play:

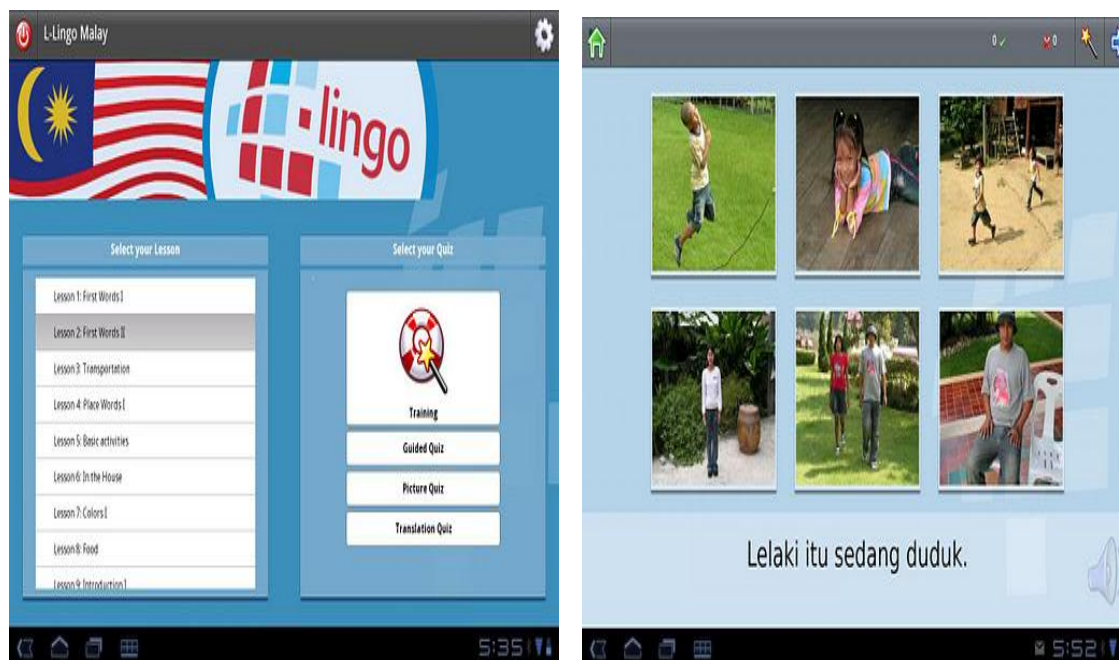


Figure 2 L-Lingo Learn Malay Screenshots

Source: https://play.google.com/store/apps/details?id=air.com.lingo.mly_165_tab_pro&hl=en

L-Lingo Malay uses the method that immerses the user in the sight and sounds of the Malay language, rather than just the written word. It uses the multi-channel Bahasa-Melayu learning approach that is believed to achieve results quicker than traditional textbook approaches. (<http://l-lingo.com/en/learn-malay/index.html>) In addition, L-lingo Malay is not for free and is only working if the user's mobile phone has internet connection. This concern relates to convenience for any user as not all mobile phone users have access to internet.

Furthermore, the Malaysia Survival Language is another mobile application for learning the Bahasa-Melayu language. Its description in Google Play website states that it is a simple and easy to use language guide that contains conversations and essential words and that also allows users to add or delete phrases and words. It contains 1000 phrases and words.

Most of the user's review comments on Google Play states that the application is good and easy to use. They mentioned that the search option is a good feature. However, other users also mention some negative side of the application. Several users posted that the application can be better with some additional features like audios and regular update. With these additional features, it will be more interesting and fun to use the application. (<https://play.google.com/store/apps/details?id=com.railer.survivalmalaysia&hl=en>) Below are some of its screenshots:

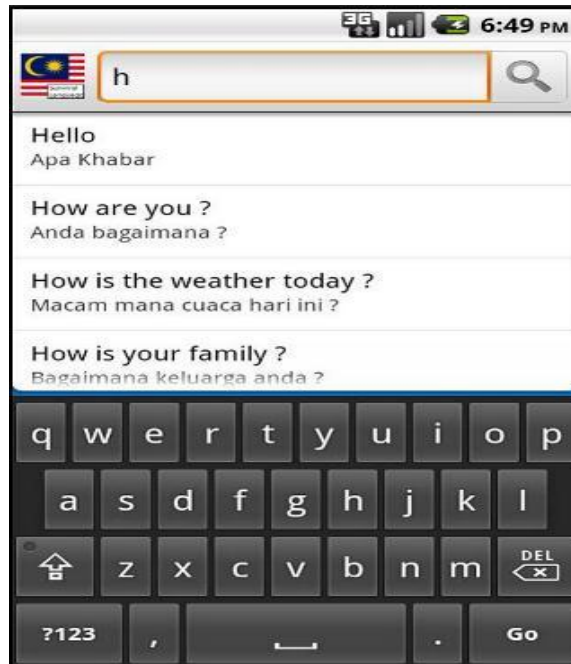


Figure 3 Search option of Malaysia Survival Language

Source: <https://play.google.com/store/apps/details?id=com.railer.survivalmalaysia&hl=en>

There is also few existing Bahasa Melayu-English dictionaries mobile application such as LIVE Dictionary, MeDict, RadiomSoft that provides translations and meanings of the words in Bahasa Melayu just like a dictionary. These mobile application dictionaries only provide for each word only one variant of translation. (Devaraju, et al.)

As of today, the mentioned mobile applications above are the ones existing and being used. Nevertheless, there are other mobile applications that are being used by many but are still not available in Bahasa Melayu. There are also techniques of learning a language fast according to the linguist Arguelles but are still not implemented into mobile applications or related technology.

2.5 Approaches to Learning with A Language Fast and Engaging

Voxy as mentioned above is so far the best mobile application for language learning according to the study. From an article by Kessler (2011) Voxy has two main components. The first is a news feed that pulls in current articles from the Associated

Press. It distills each article to passages of about 100 words that are appropriate for the user’s language level. Then it adds links that, when clicked, translate phrases and offer the option to add them to a personal vocabulary list. As the user catches up on news that she is interested in, the articles and vocab phrases that she reads are saved in a separate section for review later.

The second main component changes depending on where the user is. Visiting the grocery store, for instance, pulls up a list of “vocabulary,” “things you hear” and “things you say” appropriate for food shopping.

Essentially, the app adds context to what otherwise would be a stack of flashcards. “When you go back to study you are studying basically scenes from your life,” CEO of Voxy Paul Gollash said. Below is a screenshot of Voxy:

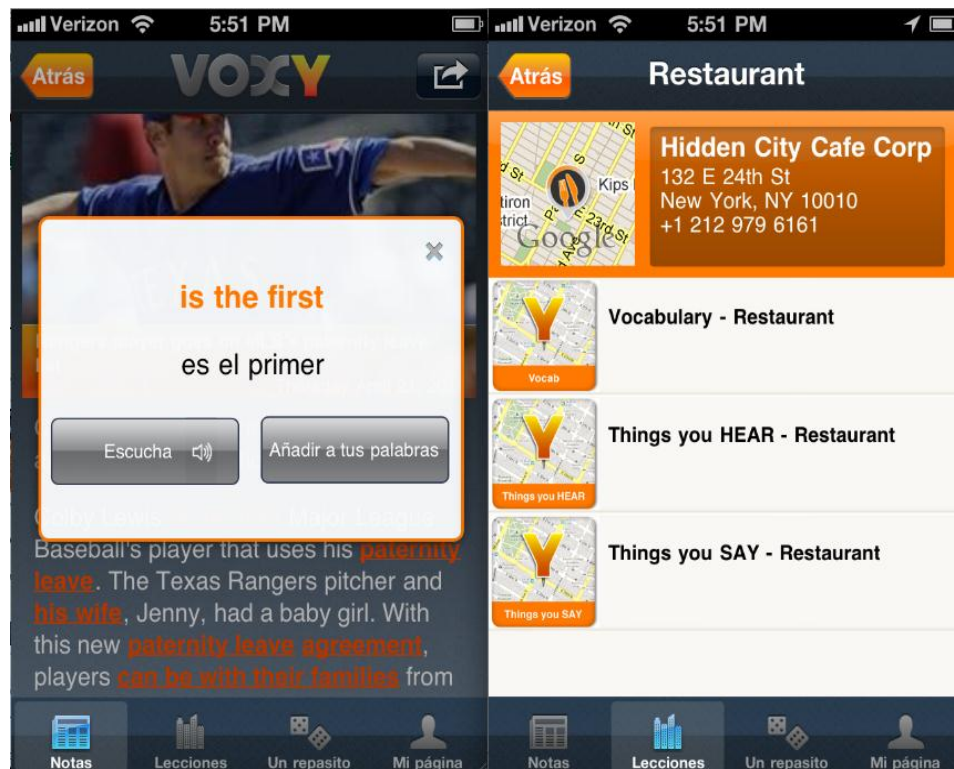


Figure 4 Voxy Mobile App Screenshot

Source: <http://mashable.com/2011/04/26/voxy/>

Moreover, the linguist Arguelles believes in his two (2) techniques which he uses to learn a language fast. The (1) shadowing technique which is done by moving around while pronouncing the words of the language and (2) the scriptorium technique which involves reading the sentence aloud, write it, and then read it again as the learner have written it. With this, Arguelles believes that this would immerse the learner into the language and would help them learn it faster. These techniques involve active immersion and encourage active participation thus ensuing to mastery. (http://foreignlanguageexpertise.com/foreign_language_study.html)

Below is a diagram to summarize the cycle learning technique.

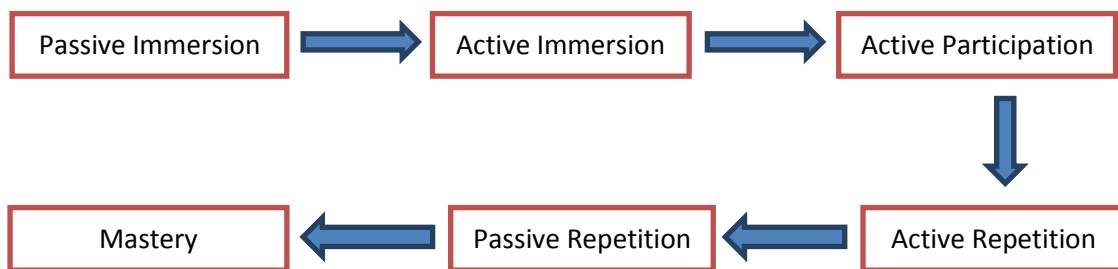


Figure 5 Learning Cycle

Source: <http://l-lingo.com/en/learn-malay/index.html>

CHAPTER 3

METHODOLOGY

3.1 Research Methodology

Rapid Application Development (RAD) is used as the research methodology in this project. This methodology is chosen due to the rapid prototyping nature where development of the application could be done in the early stage and user's needs and expectations could be addressed at the development phase. RAD is a concept that products can be developed faster and of higher quality.

In addition, the time constraint is another important contributor to the choice of RAD model. With the use of RAD method, application development speed could be enhanced and quick results could be produced. RAD methodology has the advantage of increased speed of development since developers can quickly deliver parts of the application to the users. Quality of the product is also increased because of the involvement of users in early stages of development.

There are four main phases in RAD model:

- Analysis and Quick Design Phase
- Prototype Cycle
- Testing
- Deployment/ Implementation

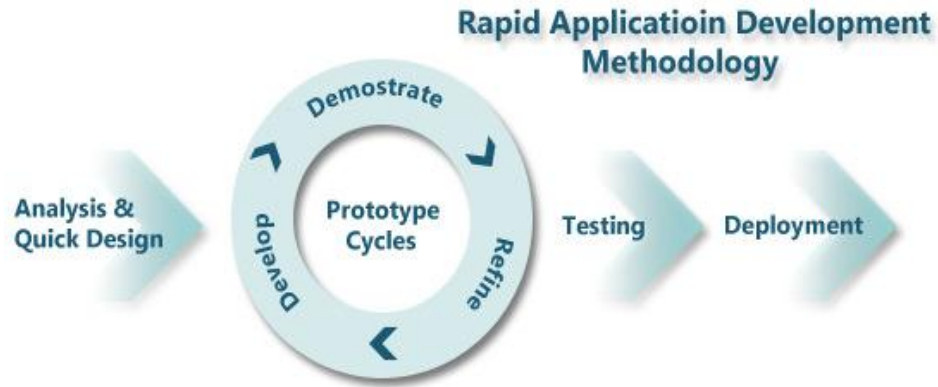


Figure 6 Rapid Application development model

Source: [RamSoft Consulting. Retrieved December 11, 2012 from http://www.ramsoft.com.au/methodology.php](http://www.ramsoft.com.au/methodology.php)

3.2 Prototyping-based methodology

The analysis, design and implementation phase will be performed concurrently. After the first prototype is completed, it will be delivered to users for comments. Based on feedback from users, re-analysis, re-design and re-development of the second prototype will be performed. The process is then repeated and all these three phases are performed concurrently until the system is completed. Users will be provided with the system very quickly to interact with and will involve in the development of the system development process.

Below are the detailed processes of each phase:

Analysis

In this stage, the developer carried on research about current situation of learning a language with a mobile application. The main deliverable for this stage is the literature review, which states out the research related to the topic. Additionally, in this stage, developer attempted to understand the users' requirement by gathering information via survey with target users. It is necessary to realize users' requirement before starting developing this application.

Design

Design phase is the stage which will decide how the system will operate in the future. For this stage, the developer prepared the application framework, the diagrams (Activity Diagram, Use Case Diagram) and Application interfaces as the deliverables.

Prototype Cycle

This phase is the initial development of the prototype to have a tangible view of the design. The prototype is demonstrated to the supervisor and some target users for feedbacks and ideas for changes and improvements. It was also be demonstrated to few foreigners here in Malaysia for responses and comments. From the comments and feedbacks, the prototype will be refined based on them. It will be updated and improved to meet the possible user's expectations.

Testing

This is the testing phase of the developed prototype of the application. A usability test or user acceptance test was conducted with the target users. This determined whether the application fulfill the established performance requirements. Testing also helped in determining problems of the application.

Implementation

This is the final stage which involves the actual construction and installation of the application. It refers to the final process of moving the solution from development status to production status .In this stage, the application is installed and the application is in the

steady-state production. Also, this stage covers the maintenance of the application and any further updates in the future.

Since RAD methodology is used in this project, the prototypes will be given to users to ask for their feedbacks. System will gradually be completed based on users' recommendation.

When the system was successfully built, User Acceptance Testing was performed. This type of testing gave the developer the confidence that the application produced meets the user requirements. Thus, a user acceptance testing result and a summary assessment are required at the end of the process.

3.3 Tools and Software involved

3.3.1 Eclipse Integrated Development Environment (IDE)

Eclipse is an open source, extensible, multi-language software development environment, comprising an IDE (Integrated development environment), a Java EE support, a graphical HTML/JSP/JSF editor, database management tools and a library of plug-ins for programmers to develop their program.

3.3.2 Software Development Kit (SDK)

The kit was used as the guide for the development. As the developer did not have any background on android development. It comprises with documentation, samples, SKD Manager and provided the android environment for the development.

3.3.3 Laptop

A Samsung RV14 laptop was used in developing the project. With Eclipse and SDK installed.

3.3.4 Android enabled devices

A Samsung Y mobile phone was used for the testing of the developed application. However, the application will soon be tested with other android devices such as Tablets, Nokia with android, etc.

3.3.5 SQLite Manager and Mozilla Firefox

This is used to manage the database manually. The Database manager only works in Mozilla Firefox.

3.4 Project activities

3.4.1 Installation

Before the design and layout can be started, the installation of the needed software should be done first. The instructions from the android website have been followed. The Eclipse software and the SDK manager were downloaded and installed.

3.4.2 Preparation

To have the basic knowledge on how to develop an android application and how to use Eclipse, video tutorials and articles has been viewed and read. YouTube is one of the sites that have been a great help for the fulfillment of this goal. The SDK Manager which offered few samples was also the source of some ideas in the development of the application.

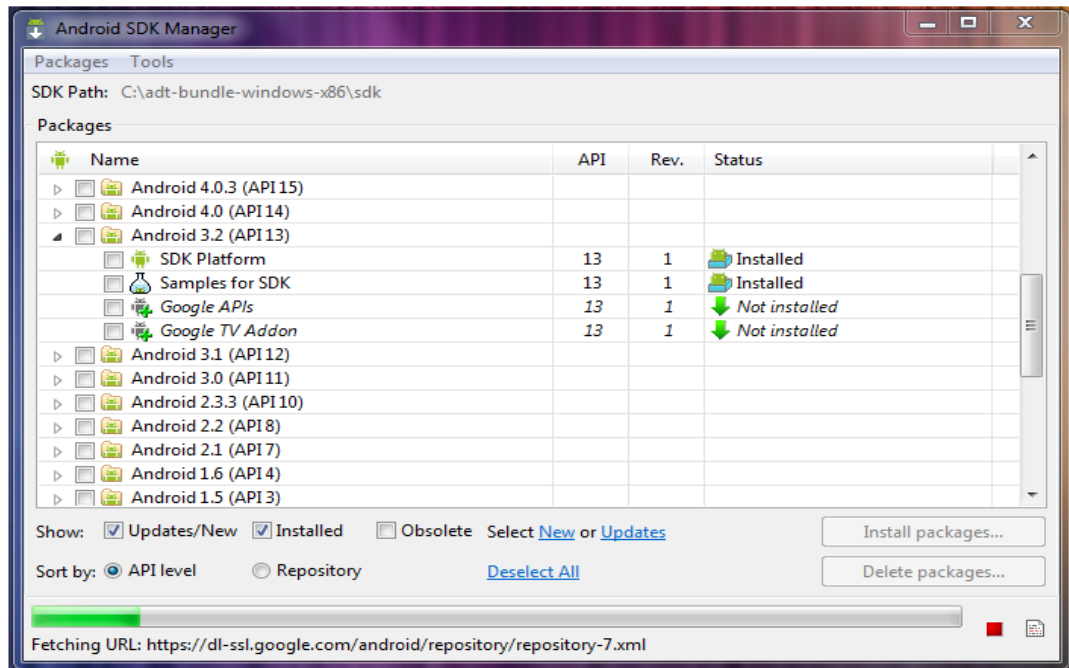


Figure 7 SDK Manager

3.4.3 Design and coding using Eclipse

The storyboard has been first created with the use of paper and pen. It includes the sequence of drawings representing the interface of the application with each of its functions and purposes. With the use of Eclipse, it is easier to view the outcome of the layout. Below is an example in which you can see the graphical layout of some samples from the SDK.

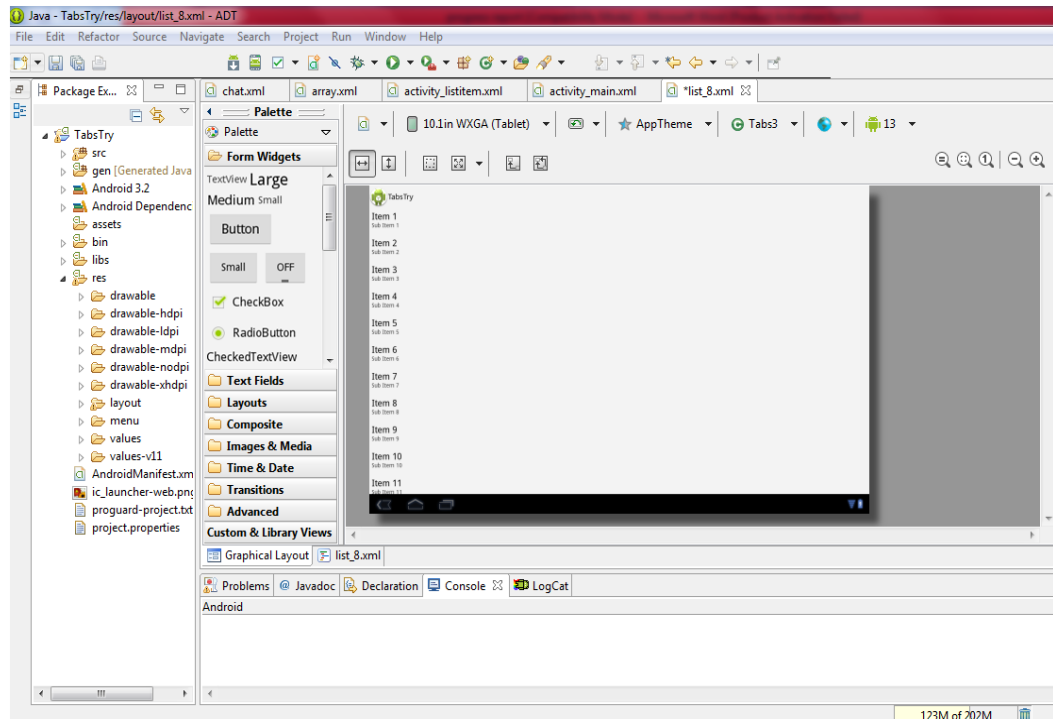


Figure 8 Graphical Layout with Eclipse

In the coding, the main activity comprises with a tab in which “TabHost” was used. Under each tab, “intent” was used to call each class for a new activity.

```
intent = new Intent(this, Airport.class);
this.startActivity(intent);
```

OnClickListener method was used. This is used for when the submenu is clicked.

```
public class Browse extends Activity implements OnClickListener{
```

In addition, the images and audios used are saved under the drawable folder and is just called in the database. This is to minimize the waiting time since it is not suggested to save the images in the database. Class diagram for this database will be mentioned in Chapter 4.

3.4.4 User Acceptance Test

Since the nearest and available possible users are the foreign students here in Universiti Teknologi PETRONAS, the user acceptance test was conducted in the university mentioned.

The test was informal and was implemented in several places in which depended where the participant was seen. The test comprises of two parts: (1) learning BM in the traditional way and (2) learning BM with the mobile application developed. Two batches of 5 international students were given papers with sentences and phrases in English with the translations in Bahasa Malaysia. (Check Appendix A for a copy of this paper.) The students were given 30 minutes to familiarize the phrases. After that, they were given papers with situational conversation in Bahasa Malaysia (Appendix B) based on the first paper provided. The students have to answer the conversation in Bahasa Malaysia. There scores were recorded.

The second parts, with the same batch of international students were given 30 minutes to use and explore the application under a specific topic. After that, they were given papers with situational conversation in Bahasa Malaysia (Appendix C) based on the topic explored using the application. The students have to answer the conversation in Bahasa Malaysia. There scores were recorded.

3.5 Key Milestones and Gantt chart

Figures below show the gantt chart and key milestones of the project for FYP1.

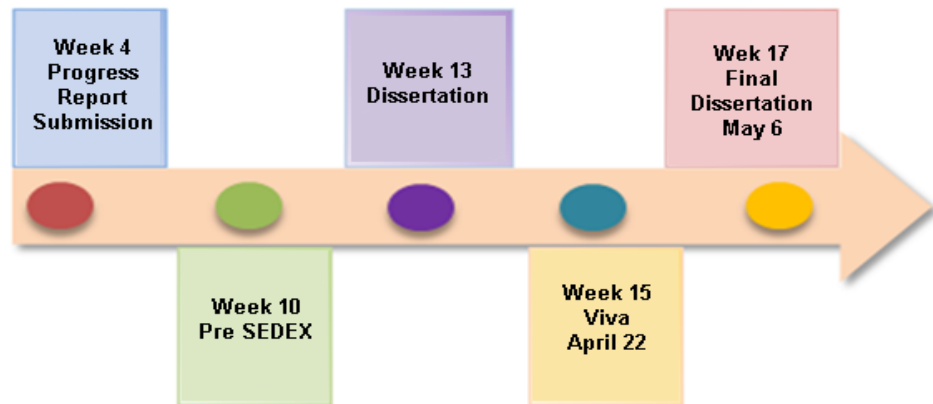


Figure 9 Key milestones

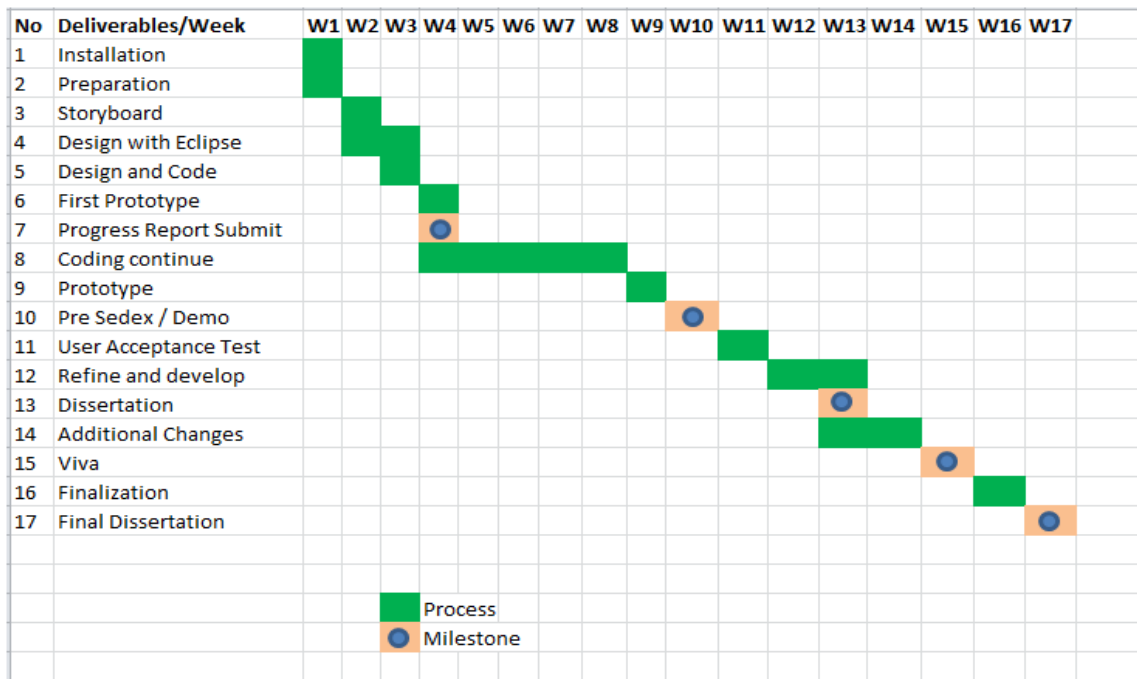


Figure 10 Gantt chart

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Prototype

4.1.1 Running the Eclipse Project

There are two ways in running the application with the use of Eclipse. First is with the android emulator in which has to be added in the virtual devices using the SDK Manager. Below is the sample of the emulator:



Figure 11 Emulator

Another way is to run it on an android device. In this project, an android Samsung Phone was used for testing. The next images will be the screenshots from this device.

4.1.2 Screenshots

The prototype provides the user the ability to view images and phrases with translation and listen to the pronunciation in Bahasa Malaysia. With the prototype, the user can also chat with other users under the “Chat” tab.

Below you can see the launcher of this application - Learn Bahasa:

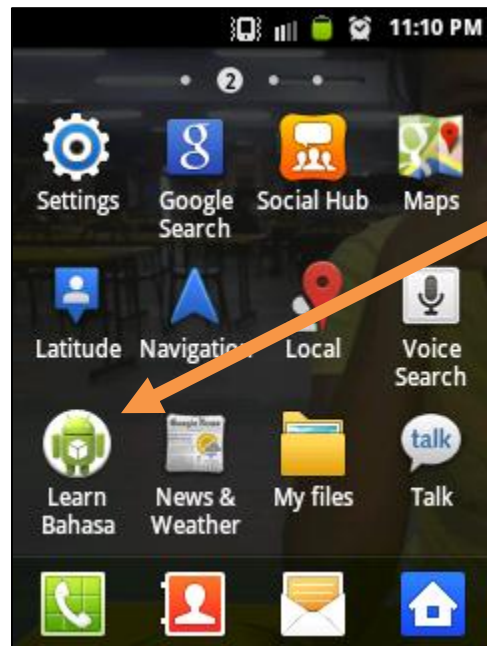


Figure 12 The Application Launcher

This is the launcher that the user will see in the list of the phone’s applications. Clicking this launcher will start the application. Below is the first page that will be shown after clicking the launcher.

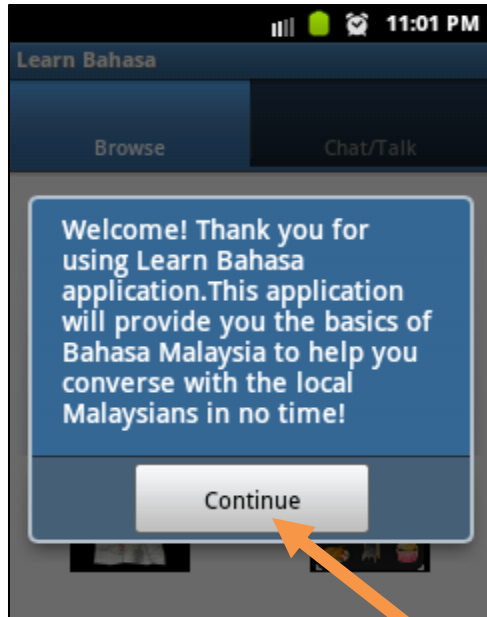


Figure 13 First Page

An alert box will be shown that lets the user know what does the application offers and what it is about. A 'continue' button is provided which will lead to the main page of the features of the application.

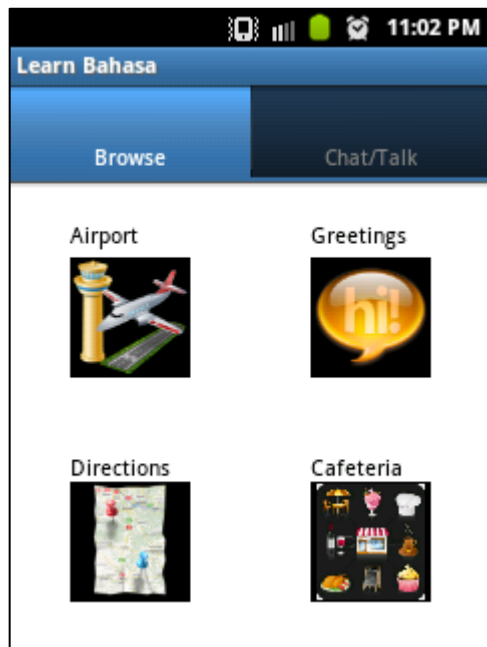


Figure 14 Main Page

After clicking the 'continue' button, this page (Figure 14) will be shown – the main page. The main page comprises of 2 Main Tabs, the Browse and Chat/Talk Tabs. The user can click any of the 2 tabs. Here, the Browse will be first tackled. In the Browse tab, another submenu will be shown which basically is the grouping of the content based on the place or subject. For example, the user is in the airport, the user can click the menu "Airport" and the application will provide the user the most and common phrases and sentences that are spoken in conversations in the airport. These

phrases and sentences are shown in both English and Bahasa Malaysia. An audio on its pronunciation is also provided. This function is also the same with the other submenus – Directions, Cafeteria, Greetings.



After clicking a submenu, in this case the Airport submenu, the page in Figure 15 will be displayed. In the top left of the page is where the sentences/phrases appears. Beside it, on the right is the audio button which plays the audio for the sentences when clicked. In the middle of the screen is the image of the corresponding sentences of phrases. In the lower section of the screens lies the switcher of the images with the phrases and the audio. The user can also search the content using the search box to easily find the phrase or sentence being find. However in this screenshots the search box was not included. These features under the Browse tab are implanted in all the submenus – Airport, Greetings, Directions, and Cafeteria.

On the next page, the detailed diagram on the actions and functions on the particular page of the application is described.

The part of the page in which the phrases is displayed. When the user clicks this, the translated phrase into English will be shown. It will turn back to Bahasa Malaysia if the user clicks it again. See Figure 16.

Here you can see that the phrase is translated to English after it has been clicked. In this change, only this part is affected and all the others remain the same.



Figure 15 Content of 1st Submenu (BM)

This is a button that when clicked will produce an audio sound of the pronunciation of the displayed sentence/phrase.

A bigger image is displayed in the middle section of the page. This image will change (together with the phrases and audio) when the user slide through the image switcher below it.

This is the image switcher that when slide through (either to the left or to the right), the images will switch from one to the next. The user can also click any image in the image switcher to show the corresponding phrase and audio.



Figure 16 Content of 1st Submenu (English)

The described functions on the previous page are applied in all the content of each submenu (Airport, Greetings, Directions, Cafeteria) on the Main tab – Browse tab.

The second tab ‘Chat/Talk’ is a feature of the application that lets the users converse with other users of the same application. Nevertheless, due to the time constraint of this project, this feature has not been fully developed. However, below is a sample screenshot of this feature.

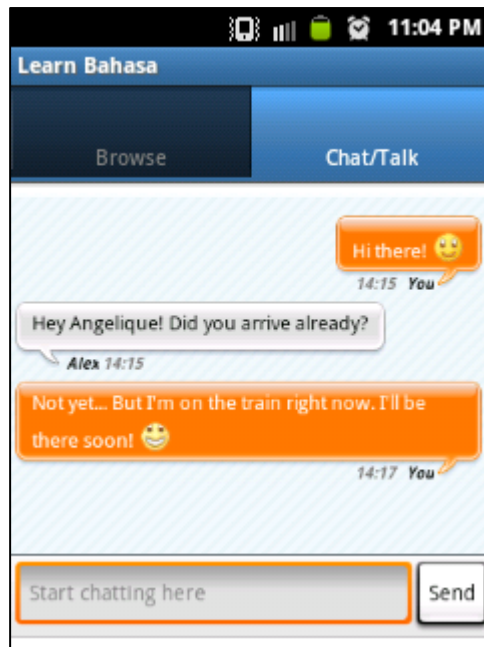


Figure 17 Chat Tab

4.2 Findings

As the application has not been fully developed, the application used in the first testing was the unfinished application. The objective of the user acceptance test was to see how effective the mobile application is in learning the language faster and easier. It is to answer the question: will it really help in improving one’s conversation’s skills in Bahasa Malaysia?

The first part of the user acceptance test was to see how effective the traditional learning is. The participants were given a piece of paper with sentences and words in Bahasa Malaysia and English. The participants were given time to remember or study these phrases. After that, a questionnaire based on that first paper was given and answered by the participants.

The second part of the test participated by the same students were done by letting the students use the mobile application for some time and after that giving them a piece of paper with a different set of questionnaire. The questionnaire is now based on the focused topic that the application offered.

Below shows their result:

Table 2 User Acceptance Test Part 1 Result (Batch 1)

Name	Score	
	Traditional learning (10)	With the mobile App (10)
Participant 1	5	7
Participant 2	7	9
Participant 3	6	8
Participant 4	8	7
Participant 5	6	8
Participant 6	3	5
Total	35/60	44/60

This result shows that there is an only 58% correct answer. This can be interpreted that learning using the traditional way is not sufficient enough. The factor that these participants have been here in Malaysia for quite some time also affects the result. The longer the year, the better the result is.

From this result, it shows that there is an increase of 15% in the learning of the participants. Even though some of the participants had a lower score in the second part, the overall change is positive. We can conclude from this that the conversation skills of the participants have improved efficiently with the use of auditory and visual techniques and also with the interaction that the application featured.

4.3 Data Gathering and Analysis

There are two types of data gathered: primary data and secondary data. Primary data refers to the data gathered to support the objectives of the project. It has not been previously published elsewhere yet. Data is observed and collected directly from the source of information. The primary data will serve for our own purpose of research.

Secondary data, on the other hand, is the data which already exists. This data is not originated from the researcher but collected from other people/sources. This type of data usually comes from newspaper, magazines, articles, books, reports, journals, and so on. The main advantage of this type of data is the relevance of it. Secondary data can be obtained easily and conveniently. Also, it can save time and finance for data gathering. However, since this data is not developed based on our own requirement, it is very difficult to find secondary data which exactly fulfills the needs of the current research. Thus, relevant information were only extracted to serve the research.

Primary data: a survey is carried out to understand target users' needs and requirements. The survey was distributed to international students here in Malaysia via e-mail. The result of this survey has been analyzed and was reported in FYP1 interim report. Additional data from the users were also gathered during the user acceptance test which was mentioned above.

Secondary data: information gathered from the research about related projects. Relevant information was mostly from online articles, scientific journals and other papers both online and not.

4.3 Modeling

4.3.1 Activity Diagram

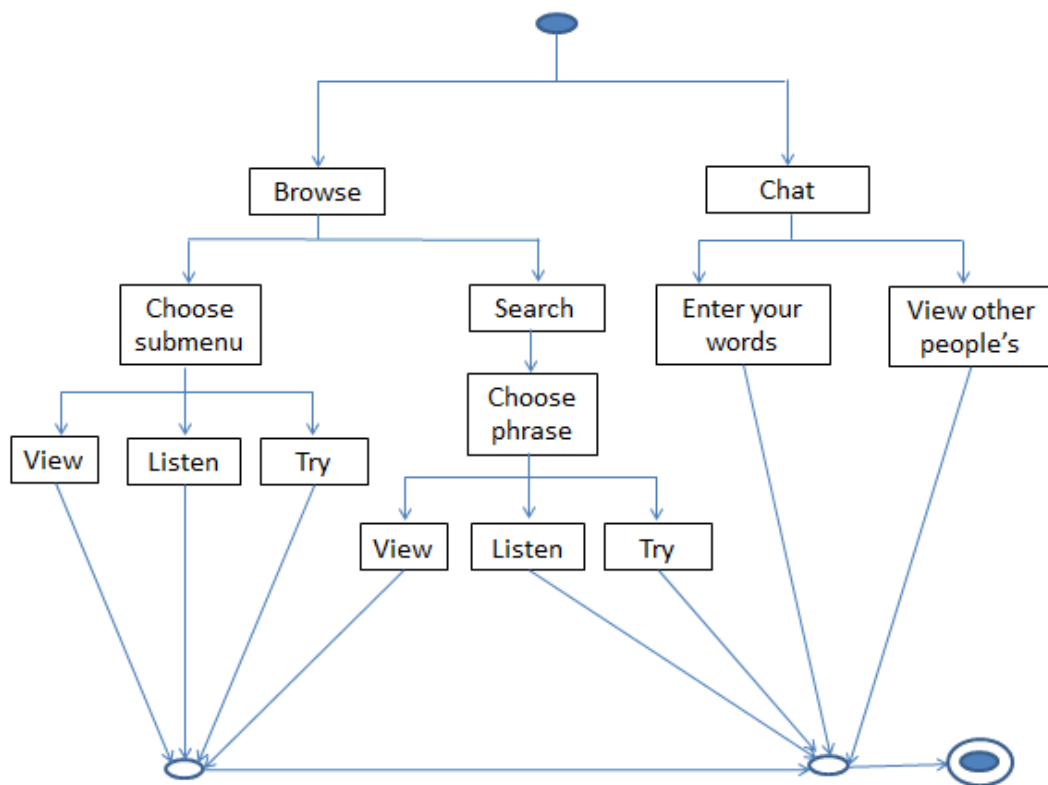


Figure 15 Activity Diagram

For this application, the activity starts when the user clicks on the application. The first default page that will show will be the 'Browse' page. The application comprises of two main tabs – Browse and Chat/Talk. Inside the Browse tab, there will be thumbnails shown as the submenus. The user can browse from the different sub menus or locations provided depending on the user's preference. In

the same tab, the user can also search on the search box provided upon click. The user can either (1) search the location in which the system will respond by showing all the possible conversations on that specific place or (2) search the phrase of which the user wants to see the translation. The user can either choose to just read the translation and view the images or listen on how the phrases are pronounced or read. In the Chat tab, the user can chat with other foreigners/users for a more real time conversations and translations from other users as well.

4.3.2 Use Case Diagram

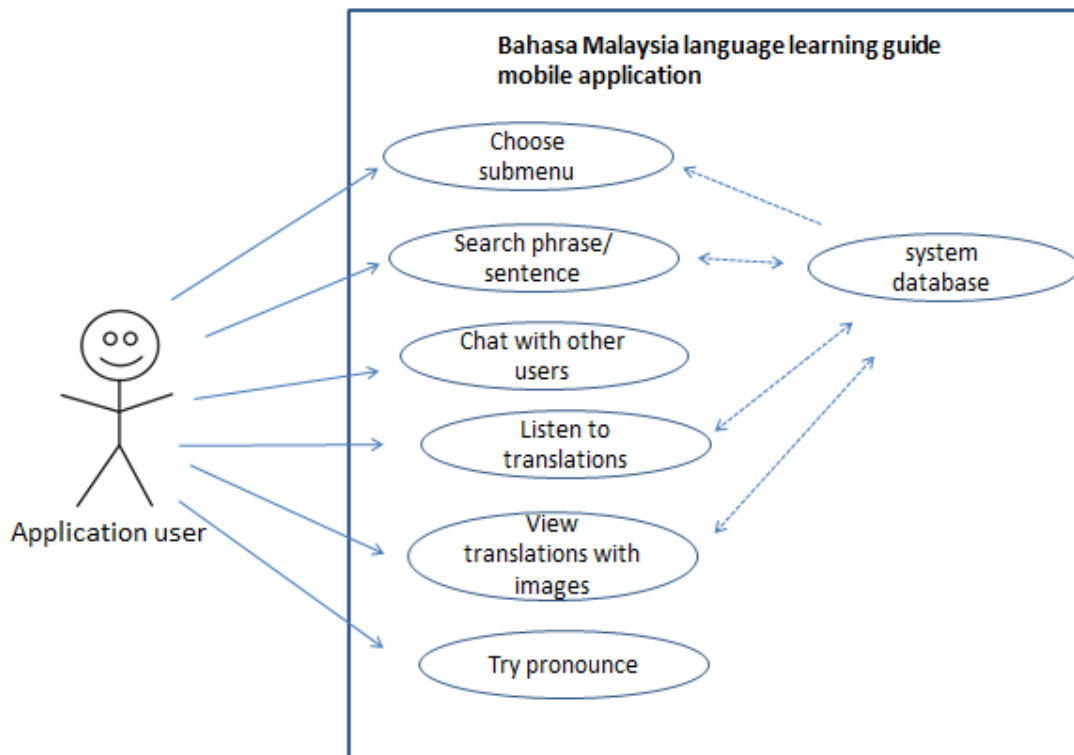


Figure 16 Use Case Diagram

4.3.3 Class Diagram (Sample)

The tables have no relationship. The tables are independent and are similar. Each with 4 columns. These tables are used for the organization of the translations corresponding with each images and audio.

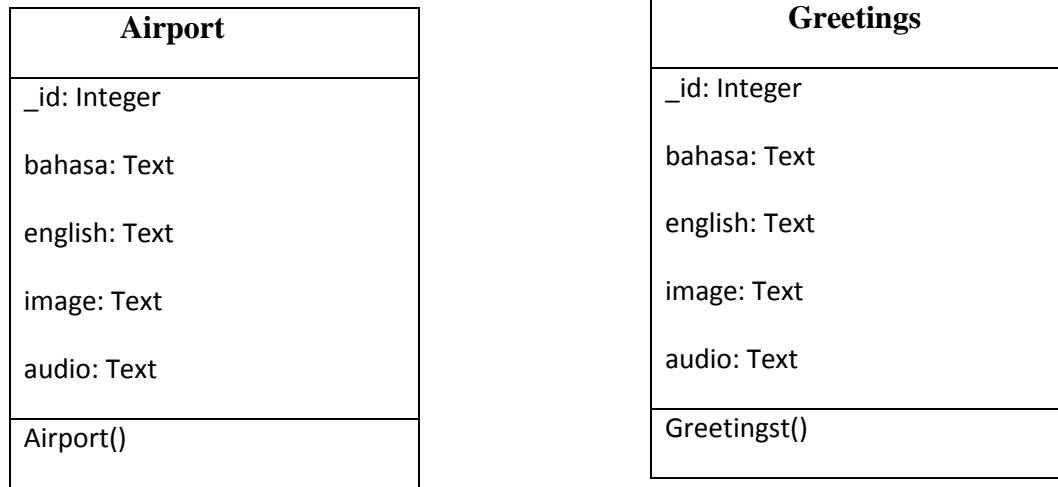


Figure 20 Class Diagram

Other tables are not shown.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

It can be concluded that learning to converse in the local language of Malaysia will offer a better stay and an advantage for all the foreigners here in the country. The focused and audio-visual sensory feature of the developed application will provide any user the most and often used conversations in the language. With that, any user will be able to start conversing the local language in no time, fast, easy, and engaging. It is important that learning the basics should be considered as it is the starting point and core of the learning. From the researchers and linguists' point of view, mobile learning is one of the best ways to learn a language fast and easy. There are already existing mobile applications for language learning, nonetheless, these mobile applications does not provide a focused subject or structure of learning and are not engaging enough for the learners. With the use of auditory and visual techniques with focused on the basic learning, the experience will stimulate the mind and capture the user's attention hence immersing the user to the language. Moreover, the real time interaction with other users is an addition to make the learning more fun, more interactive, more satisfactory. With more research and user acceptance test, this project will eventually meet the objective of developing an application for a fast and easy way of learning a language thus improving one's experience in the foreign country.

5.2 Recommendation

- Add a feature in which the user can speak with an avatar and it responds correspondingly with the use of artificial intelligence just like 'cleverbot'.
- Wider range of participants in the UAT for a more accurate result. For example, the travelers or visitors in the country.

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APPENDIX

Appendix A: Translated English-BM Phrases

ENGLISH	BAHASA MALAYSIA
Good morning.	Selamat pagi.
Good afternoon.	Selamat petang.
How are you?	Apa khabar?
I'm fine.	Khabar baik.
No	Tidak
Yes	Ya
You	Awak, kamu
Where	Mana
Where are you going?	Dimanakah kamu?
Eat	Makan
Go	Pergi
I, me	Saya
Where are you from?	Kamu berasal dari mana?
I'm from Indonesia.	Saya berasal dari Indonesia.
Do you like our food here?	Adakah kamu suka makanan disini?
I don't like spicy food.	Saya tak suka makanan pedas.
What do you want to eat?	Kamu nak makan apa?
Nice meeting you.	Selamat berkenalan.
Also, as well, too	Juga
Good bye	Selamat tinggal.
Rice	Nasi
Fried	Goreng
White	Putih
Chicken	Ayam

Appendix B: Questionnaire Based on Appendix A

Situation: You are going to the cafeteria and you passed by your friend Rick who is with another friend. Rick introduces his friend to you. (Please answer in Bahasa Malaysia.)

Rick: Salam. Apa khabar?

Your answer: _____

Rick: Mike, ini adalah (your name).

Mike: Selamat berkenalan (your name).

Your answer: _____

Rick: Dimanakah kamu?

Your answer: _____

Rick: Adakah kamu makan seorang?

Your answer: _____

Rick: Jom makan bersama-sama.

Your answer: _____

Mike: Kamu berasal dari mana?

Your answer: _____

Rick: Adakah kamu suka makanan disini?

Your answer: _____

Rick: Kamu nak makan apa?

Your answer: _____

Rick: Kamu bagus dalam pertuturan.

Your answer: _____

Now you have to go. How are you going to tell them?

Your answer: _____

Appendix C: Questionnaire Based on A Topic in the Application

Situation: it is afternoon and you are in Kuala Lumpur and you want to go to Ipoh but you don't know where to take the bus. You saw a woman and ask her where to take the bus. But first greet her. (Please answer in Bahasa Malaysia.)

Your answer: _____

Woman: Hi, selamat petang.

Now ask her how to go to the bus from where you are and thank her after she answer.

Your answer: _____

Woman: Kemanakah kamu hendak pergi?

Your answer: _____

Woman: Kamu sepatutnya mengambil LRT dulu. Selepas itu pergi ke stesen pasar seni.

Your answer: _____

Now that you are in the bus station, you talk to a man (ticket cashier) ask him which bus should you take to Ipoh and how much should you pay.

Your answer: _____

Man: Kamu sepatutnya mengambil Plusliner. Pukul berapa kamu lebih suka?

Your answer: _____

Man: Adakah kamu mempunyai RM20? (Let's say you have rm20.)

Your answer: _____

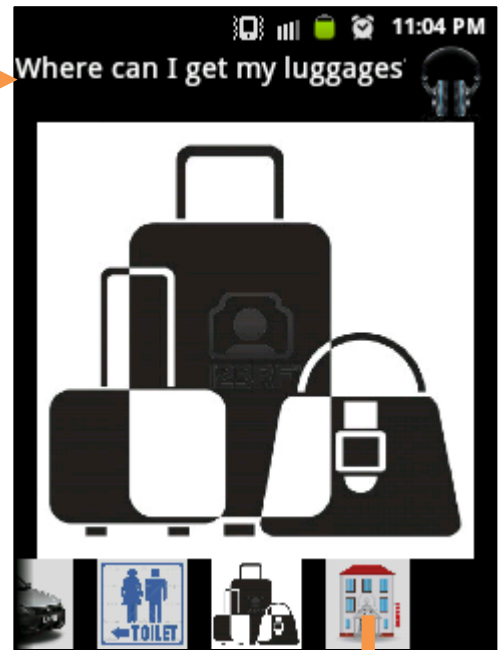
The man gives you the ticket and change. Now you ask him where you should wait for the bus.

Your answer: _____

Here in Malaysia, they usually say thank you after someone answers them. How do you say thank you in Bahasa Malaysia?

Your answer: _____

Appendix D: Screenshots of the Learn Bahasa Mobile Application



Slide through the image switcher to see next.



