Mobile English Learning Application

By

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Dissertation submitted in partial fulfillment of
the requirements for the
Bachelor of Technology (Hons)
(Information & Communication Technology)

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CERTIFICATION OF APPROVAL

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A project dissertation submitted to the

Information and Communication Technology Programme

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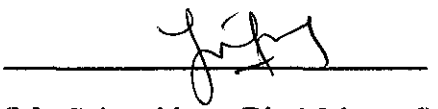
Approved by,



(Mr. Saipunidzam Bin Mahamad)

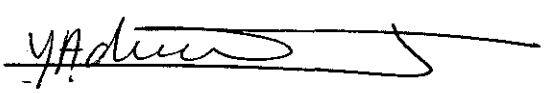
UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

MAY 2011

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.



Bechir Adoum Yakhouba Ibet

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ABSTRACT

Mobile phone is an electronic telecommunication devices connected to a wireless communication network through a satellite transmission which is very important nowadays as it assists reduces time and cost to exchange messages and information from one person to another. The Mobile English Learning is going to be developed with realizing that learning English is very important aspect in a primary school and the early childhood years. The application will develop the children to the technology by making the flash games online. It is aimed to be a mobile learning for primary school in teaching and learning English language by integrating the open mind of student. In developing the application, the scope of study is the mobile English learning in primary school students and teachers. Moreover it also covers the approach and pedagogy applying in the primary school to assure the compatibility with the students itself. The waterfall prototype is the chosen method in developing this application to ensure that the final system will go well with the end users. The result from the studies is converted to the draft design and storyboards of the system are discussed later in this report. In conclusion the application is not only creating a pleasurable learning for the primary school students but also help the teachers in analyzing the progress and language development of their students. This application not only profits the student but also the teachers and management. Via the development of this application, students can fully utilize the usage of mobile phone and it assists reduces education's complexity such as lack of time to do online reading or learning. This is the raison why the development of the Mobile English Learning application was proposed with the hope that it would influenced primary school students' education in a positive way and create excellent education environment.

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

In this world is ingoing an era of technology junction, the mobile phone landscape is expanding fast and furious. The developments of mobile phones have been extensively and dynamically improved from time to time. From the oldest adult to the young students at the primary of as early as standard one has been practicing the use of mobile phones today.

The near the beginning child period is a vital period for human to develop their cognitive, physical, touching, and also the social skill. Thus the early primary school student education is considered as a foundation of all learning. From the early age of 6, many children entered the primary school whereby the children start to learn new things and new knowledge from the activities that prepared by the primary school teachers according to the approach using in the school.

In the world, the primary school level is considered as non-formal education services. For most of the public primary school, the child centered move toward has been advocated since the beginning of twenty century; however, only few primary school teachers in the world have practiced learner-centered teaching. Besides many of the school also applied the incorporated curriculum concept whereby all the traditional subjects areas occurs primarily through projects and learning centers that teachers plan and that reflect children's interests and suggestions. Teachers guide student's involvement in projects and enrich the learning experience by extending student's ideas, responding to their questions, attractive them in dialogue, and challenging their accepted wisdom

Technology has proven its ability to enhance students' interest in learning as well as making them feel more engaged in English. Thus the author would like to take this occasion to develop an application that not only earnings the adult, but the students as well. This application named "Mobile English Learning" the learning tools for primary school via mobile application was produced to provide the education need to develop the learning skills for students before toward the inside second schools.

1.2 Problem Statement

Nowadays, there is a extensive awareness that primary school students would know to read and write before went to school. However, the ;tangible system seems not suitable and effective for them. Thus, Mobile English Learning would be developed because of the following reasons.

1. Actually, students in playschool are likely to memorize letters and words before their minds have developed essential alphabetical. Thus, by this interactively application, MEL would offer functions such as pictures, colours, and way to spell it to assist them will learn faster.

2. Students are having problems to keep in mind the twenty six alphabetical letters information given by teachers in class as their minds are still at early stages where it could not process enormous amount of information.

3. In point of fact systems of education are not interactive sufficient with students. With the development of MEL, author hopes that students will get fast and concentrated education.

1.3 Project Objectives

By using mobile phones as daily stuff to develop this application, it assists to learn faster and easier as it offers several of interactive features as well as learning and allow more suppleness in time and location. The objectives of developing MEL are as follows:

1. To develop a new enhanced Mobile English Learning device via mobile application.

2. To develop progress tracking and monitoring module for primary school students for their quizzes and assignments to check from mobile phones.

1.4 Scope of the Project

The main objective of this project is to develop a mobile English learning which will be used in the primary school student as to teach English language. MEL would be developed to provide the need of primary school students in education which means that to prepare for the future as early introduction to technologies. The scopes of this mobile device project are to achieve the following:

1. To do researches on method and approaches that can be applied in the application in order to capture primary school students' attention.
2. To look for solution on how to overcome the problems encountered
3. To locate and setup the platform for the application as in using J2ME
4. To make useful of MEL accessible in anywhere at anytime

1.5 Feasibilities

The project is moderate technical feasible from the point of the developer view, by taking in to account the familiarity with application and technology, project size and compatibility with the existing way of teaching and learning English in primary school.

MEL would be created mainly for primary school students. The users would be from five years, they would be taught to be passion towards the new system of education as well as learning experience.

As in every primary school, the use of the English subject in learning and teaching process exist and the students are always eager to learn new thing especially about technology. From the perspective of the primary school teacher the application is organizational feasible.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The author has been assigned to develop Mobile English Learning, which is learning equipment for primary school via mobile application. The author had utilized several methods of acquisition information and assembly in sequence pertaining to the preparation of the assigned task such as discussions with supervisor, research on Java which most covers from J2ME and Symbian OS, study deeper on the methods and approaches available in the world nowadays as well as personality-reading on journals, articles available in the internet as well as projects that are related to this project.

Applying education in technology like mobile phone is a good idea in aiding the learning procedure. However, scheming MEL should follow some rules to ensure that it helping not slowing the learning process. Factors like human and technical need to be examined and analysed to achieve this purpose. [1] Choosing appropriate tools is important tool in the learning process of mobile phones. For the primary school students, this MEL can assist them in learning and testing their understanding as well. For this research on Java which means covers on J2ME, study deeper on the methods and approaches available in the world nowadays and journals or articles as well.

The author cannot deny that computer has become part of student lives. The primary school students also start discovering the computer at a very young age nowadays. Most of the parents are also excited to see their children exploring the technology which they can learn and enjoy in the same time. Every student has a particular way of learning English personality which is distinctively different from one to other. They start learning English by using all their senses but at the end something will become more natural than others and can suit them the most.

Some of primary school students may learn well when they observe things, some may like to listen and speak and others may like to learn by doing or writing English. Apart from the group in these three learning styles, students may like to solve problems and calculation, some may like imagination or think intuitively, some may learn English best alone and some others in group.

From the observing the students, and teachers can determine what style is appropriate for the students and as a consequence the activities can be chosen for the students to enhance their way of learning English ability as support by the studies of many researchers. The author studies found that when the teaching English students learning styles, and some of their characteristics, the students tend to have higher achievement.

One of the first projects where mobile phones were used in language learning was developed by the Stanford Learning Lab in 2000 [2]. They basically developed Spanish language learning using both voice that could be played on mobile phones and emails to support the study material. They provided voice for vocabulary practice and pronunciation, word and phrase translation, and quizzes to their students. Their results indicated that voice vocabulary lessons and quizzes had great potential if provided in small chunks suitable for the small screen sizes of mobile devices.

Another project at a Japanese university utilized SMS to deliver English vocabulary and their meanings to their students [3]. They sent short lessons on separate and discrete chunks to their students' mobile devices 3 times a day. Each lesson introduced a couple of new words daily and the new words were recycled in subsequent lessons. Students were tested biweekly and compared to groups that received identical lessons by web and on paper. The results indicated that the SMS students learned over twice the number of vocabulary words as the web students, and that SMS students improved their scores by almost twice as much as students who had received their lessons on paper.

One more project in Japan utilized mobile phones that played short audio clips in English to help with pronunciation for English as a Second Language (ESL) students [4]. The results indicated that the learning content should be in short learning units or sessions. For instance, a unit on language vocabulary would best fit the capabilities of mobile devices for learning in a period, as brief as 5 minutes. Another conclusion that was considered very useful was to provide customization of learning material for individual or group needs and learning experience.

2.2 Java 2 Platform Micro Edition

Java would be introduced in several editions such as standard edition, among them, ME is popularly as well known as micro edition. J2ME is unbelievable functional platform for the mobile application developments such as games can be easily used compare to others platforms. It can be offered less difficulty in developing and testing as well. In the actual project, the author would prefer to use J2ME will be applied in the mobile application as it ropes In this project, J2ME will be applied in the mobile application as it supports the ease of development for mobile phones. Apart from that, due to the existence of user interface, internet connectivity and interactivity, J2ME is so far the best software to use.

2.3 Symbian OS

Symbian OS is a mobile Operating System which is an unfasten and extremely vigorous Operation System for data enabled mobile phones. Symbian was designed to be used in small battery powered devices. As for this project, Symbian will be the Operating System in the mobile phone available as it chains the following requirements:

1- Presentation must be intended to fully maximize the battery life and the aptitude to multitask important tasks which are to produce sound, image, communications and e-learning, such for this project, the author is not able to write about sound and communication so then the author put it in the future enhancements.
2- A compatible Operating System that ensures the Mobile English Learning can work different environment.

2.4 Montessori Methods

There are plenty of methods that can be applied during the development of students' application such as Montessori Method. In Mobile English Learning development, Montessori Methods are applied as a method of see students as they really are and of creating environments which foster the fulfilment of their highest potential spiritual, emotional, physical, and intellectual [5]. Montessori philosophy is always looked up to as lively methods as methodical observations are done repeatedly and purposely for each student. In the world nowadays, many schools have been implementing this method as one of the teaching methods as it instils students' fervour to learn and be creative. Through Mobile English Learning, students' physical, mental and devout needs are met thus exhibiting a wish to learn, assist and care for others and for their environment.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter focuses on the methodology used to develop the project. In this project, waterfall model has been chosen as the most suitable method to be performed for this Mobile English Learning development process. The main reason is that it implements the concept of waterfall method where it involves user requirement, system design, implementation, and testing. Apart from that, system requirements and Gantt chart will also be further explained in the chapter.

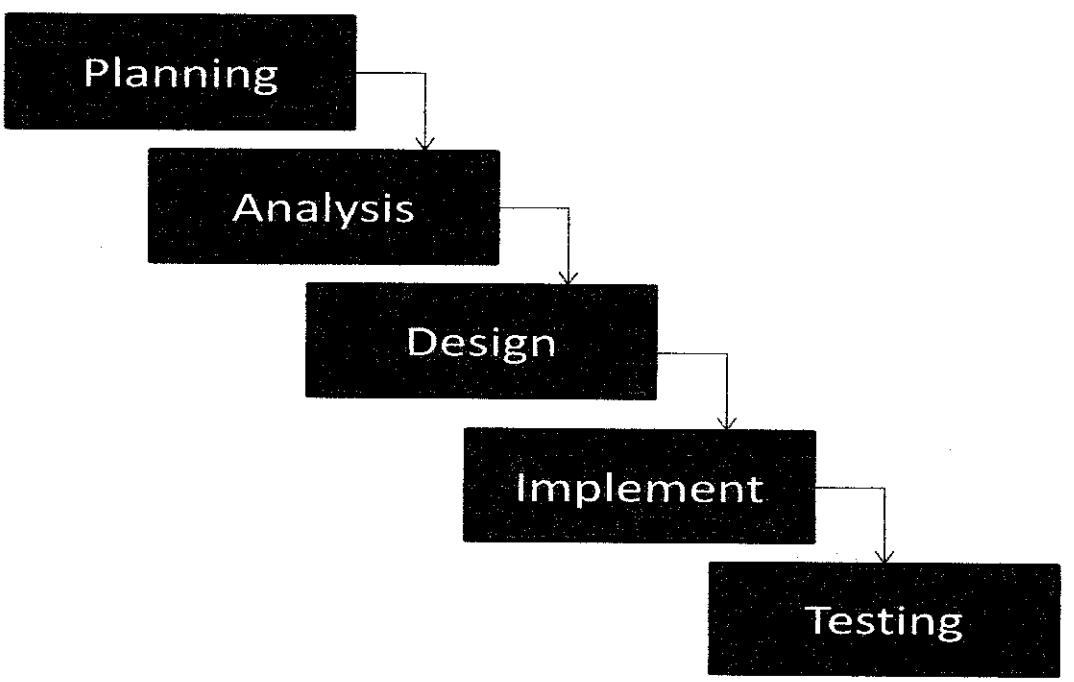

Figure 3.1 Modules of Methodologies

3.2 Planning Phase

The planning module, the problems will be found in order to come out with the best set of the target or aim of this research. The author also, feasibility study will be conducted in order to ensure that research or project is within the budget and time will be fixed. During this module, data gathering from primary school students. As for development tools, in the planning module, was where the author decides the specification of all hardware and software needed for the project.

3.3 Analysis Phase

In the analysis phase, the dilemma will gathering all the information or combine the research from the preview journal in order to come out with a good objectives. Author also would study the feasibility to conduct in order to ensure that the project is on time. During this phase, all data or information should be gathering at same time and might be related to learning tools for primary school students via mobile application. The first task of this phase is for the developer to analyze the requirements of the users which are the primary school students and the teachers thus there will be an information gathering by both doing research from published papers/journals and articles. After understand the as-is mobile application available of the problem then the developer will identify the improvement and develop a to-be application requirement by consulting the students and teachers. The project requirements will be defined based on the standard of mobile application and the author will analyze development tools in order to see whether it is compatible with the application developed or not.

3.4 Design Phase

This stage is the stage where user interfaces will be intended and fashioned, which is the design stage. In the second phase which is design, where user interfaces will be designed and created a pastime for development of this project. Author will determine

the aim of the diversion of interface. There are many aspects to be considered while determining the design as the application focus on main students. The propose would be at ease to use and friendly user to learn more. Author will develop the user interface based on the design accordingly.

Lined up with that, the author will develop the user interface based on the design, accordingly. In order to generate a self-motivated satisfied to it, the author will write programming codes which is mainly through Wireless Markup Language (WML).

3.5 Implementation Phase

In the third phase, where almost to be finished of the application and to be useful in mobile phones to see the compatibility and functionality, the application will be sooner tested in several types after the development. It can show the efficiency and competence, the application will be implementation in the primary school students where the author will check with some teachers to implement the application in their daily education system. In addition to that, the application will then be implement in primary school where the author will talk to with primary school teachers to implement the application in their daily education system and see the outcome and feedbacks from it. After everything is completed, the author will deliver it as a second final product.

3.6 Testing Phase

After all the information gathering and combine research, then proceed with design fixture and create a competition as well, the last phase is about testing which means that author will be demonstrate or he will run the code to fine any errors available and debug. After testing done, the application will be demonstrated to potential users to get their feedbacks before real launching of the research. The application will be tested on end users which are most probable teachers and students who will get hands on experienced on the application. Surveys and questionnaires forms will be delegated in order to gain feedback from end users and overcome any problems encountered. The author will deliver it as a final product.

3.7 Project Timeline

This development is approximate to be completed surrounded by two semesters, January Semester and May Semester. With orientation to the Gantt chart, semester 1 will above all wrap on research and official procedure on developing the application. During that semester, all data and requirements are gathered to which will then be implemented in semester 2.

3.8 Prototype

Once upon a time the development is absolute; the first of many of its kind is inclusive. Though still covering only on basic functions of the system such as logging into the system, generating simple result from minor inputs, and its objective is to deliver the system in its simplest form to see if it is capable of performing as expected. With each development phase, more and more tools and functions are gradually added on to it. In the beginning, it will only have the user boundary for information gathering using buttons which may then display results.

3.9 system

Last but not least the real system is finally complete and ready to be used worldwide. It will truly have served its purposed once it is being deployed in school all over the world and gain recognition for its usefulness.

3.10 System Requirement

For Mobile English Learning to be developed, there will be more specific software and hardware required. In order for this project to be active application as well as provide the entire potential user's aim.

3.10.1 Software

Author will be expected to get some tools required during the development of this application such as WML, and Java 2 Micro Edition, VBB, C++ as well.

3.10.2 Hardware

For this research, the most important hardware is mobile phones, regardless whether it is a smart phone or many mobile phone and personal computer. This application will be expected to perform excellently both hardware. Personal computer will be used mostly during the development phase while the mobile phone will be used during the testing which is the last phase of the application.

3.11 System Architecture

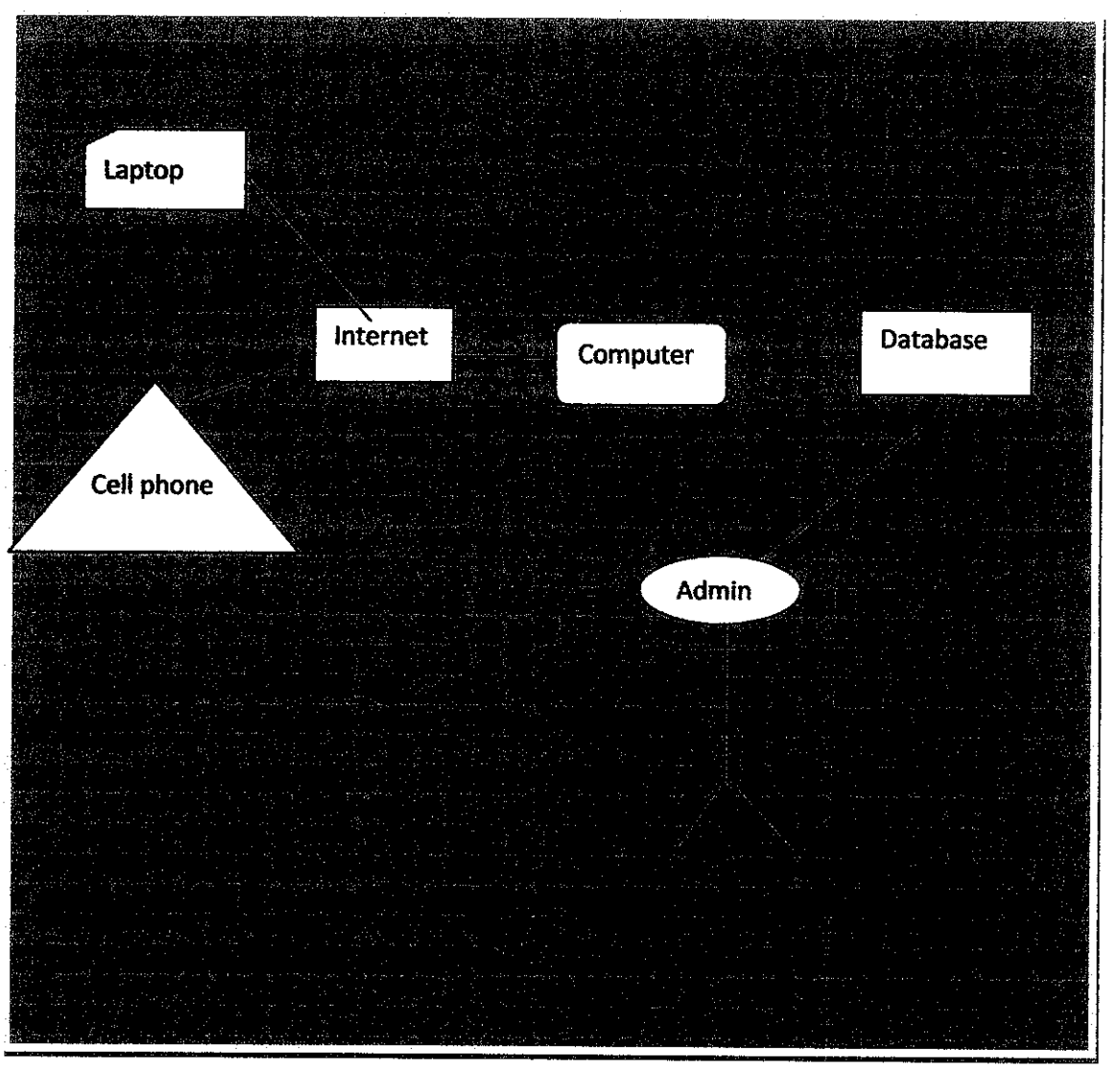

Figure 3.2: MEL system Architecture

The above figure is an illustration of Mobile English Learning application and system architecture where users using mobile phones, connect to the application. When users use the application, a message or send by bolo tooth will trigger the for any new activity updates. For the meantime, users can use Mobile English Learning anywhere even without internet at any time. On a different view, administer will update new modules and activities through database which will then be connected to the server who will prompt users to update their Mobile English Learning.

CHAPTER 4

RESULTS AND DISCUSSIONS

4.1 Introduction

The objectives of this project with Mobile English Learning, the author would like to enhance the education system in the primary school students by developing learning tools via mobile application. For the expectation from the author to take advantages of developing this software are:

1. To encourage interactive learning environment for primary school students.
2. To inspire the enthusiasm towards education by producing enjoyable learning environment.
3. To assist students get early experience to the progress technology as it is now globally used as an average of communication.
4. To apply J2ME and VBB technology for approaches in the application.
5. To promote interactive learning environment for students at early class and different genders

4.2 Survey

An online examination was conducted concerning Mobile English Learning in regards of the present education system. The survey was conducted during the semester break where several parents and teachers were given the link to fill the questionnaires. In addition to that, the survey was also done at UTP's student itself where the number of different age groups was presented.

Mobile English Learning can be considered fewer than three different groups of people which are pre-primary students at the range of 3-5 years old, primary students ranging between 5-6 years old as well as home schooling students. This test was done on several age groups to see if the competency level has major differences

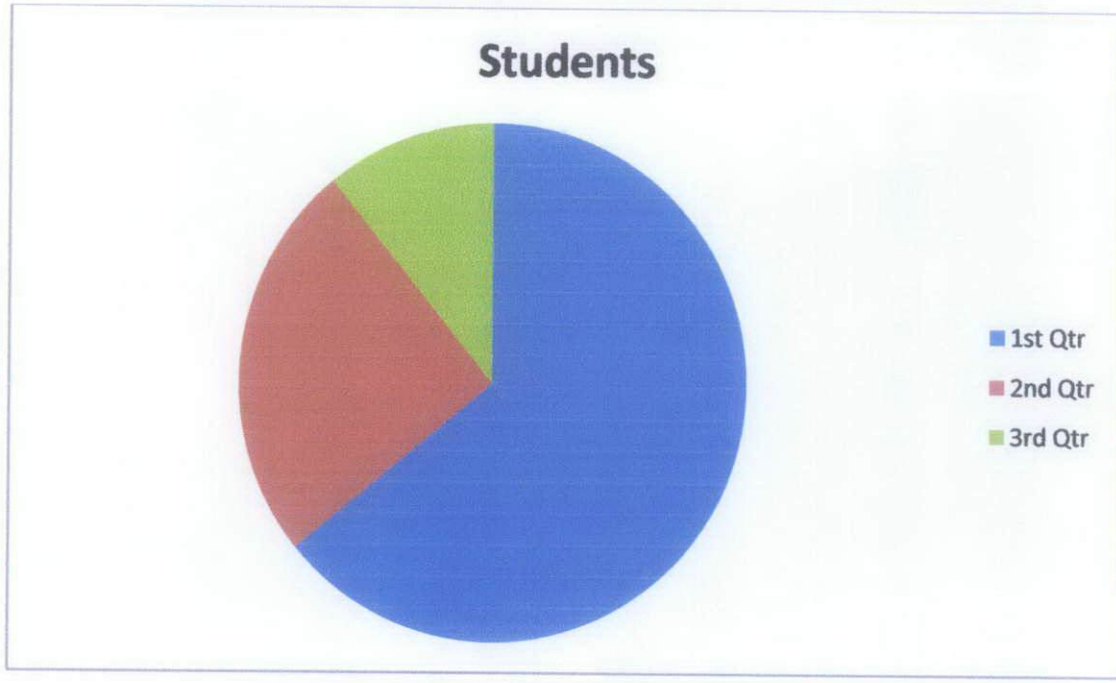

Figure 4.1: Age Range

Bleu stands for 6 years old and above. Red stands for 3 to 5 years old. And Green stands for 5 to 6 years old.

This is definitely an interesting outcome as there seems to be deciding factor when using Mobile English Learning where some prefer modules with spelling as well. Thus, Mobile English Learning developer could try to produce more variations of modules to cater the need of most students at variety of standard as well as increasing market value.

Time and location for Mobile English Learning User

Mobile English Learning can be used either in primary school or at home schooling students. It can be seen that by using mobile application, learning can be practiced anywhere not specifically in school as it offers mobility characteristic. Fortunately, this adds to a positive feedback in a sense that Mobile English Learning should not be constrained to time or location situation as the students may want to wait to do it with their parents at home during the night after revising homework for the next day. Developer must always be aware and make sure that all modules are up to primary school level's standard in order to avoid any misconception or misuse of the application.

4.3 System Functionalities

Mobile English Learning will be developed based on researches and studies on students and the current primary school education system. The author's hope was to fully utilize all the technologies existed in the modern world nowadays and apply it to the education system so that students will get early exposure to it. Mobile English Learning will consist several functionalities such as teaching students' alphabets and numbers, different types of shapes and animals generate and will also touches on spelling.

4.4 System Modelling

System modelling is methods to communicate imagines analyzes and transform the architecture of the system. A system model is the skeleton model of a system where it may consist of components, hardware components or both and the connections between these components.

4.4.1 Flowchart

Below is the flowchart for Mobile English Learning application where it shows the flow of the program from start, which is when user opens the application until user end.

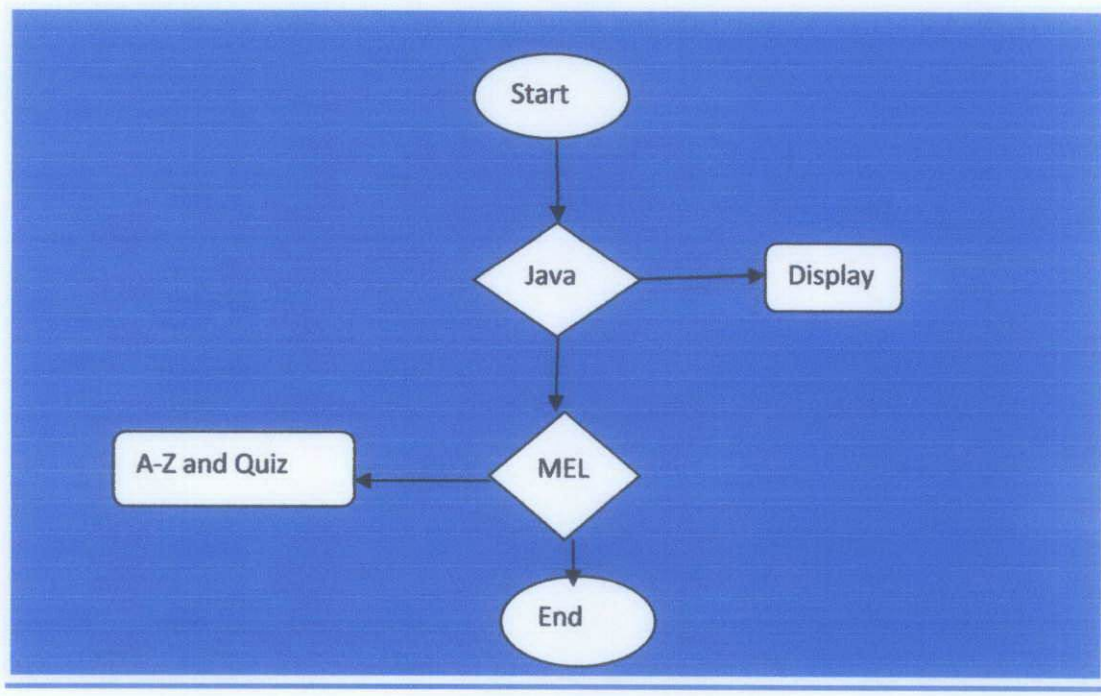

Figure 4.2: Flowchart

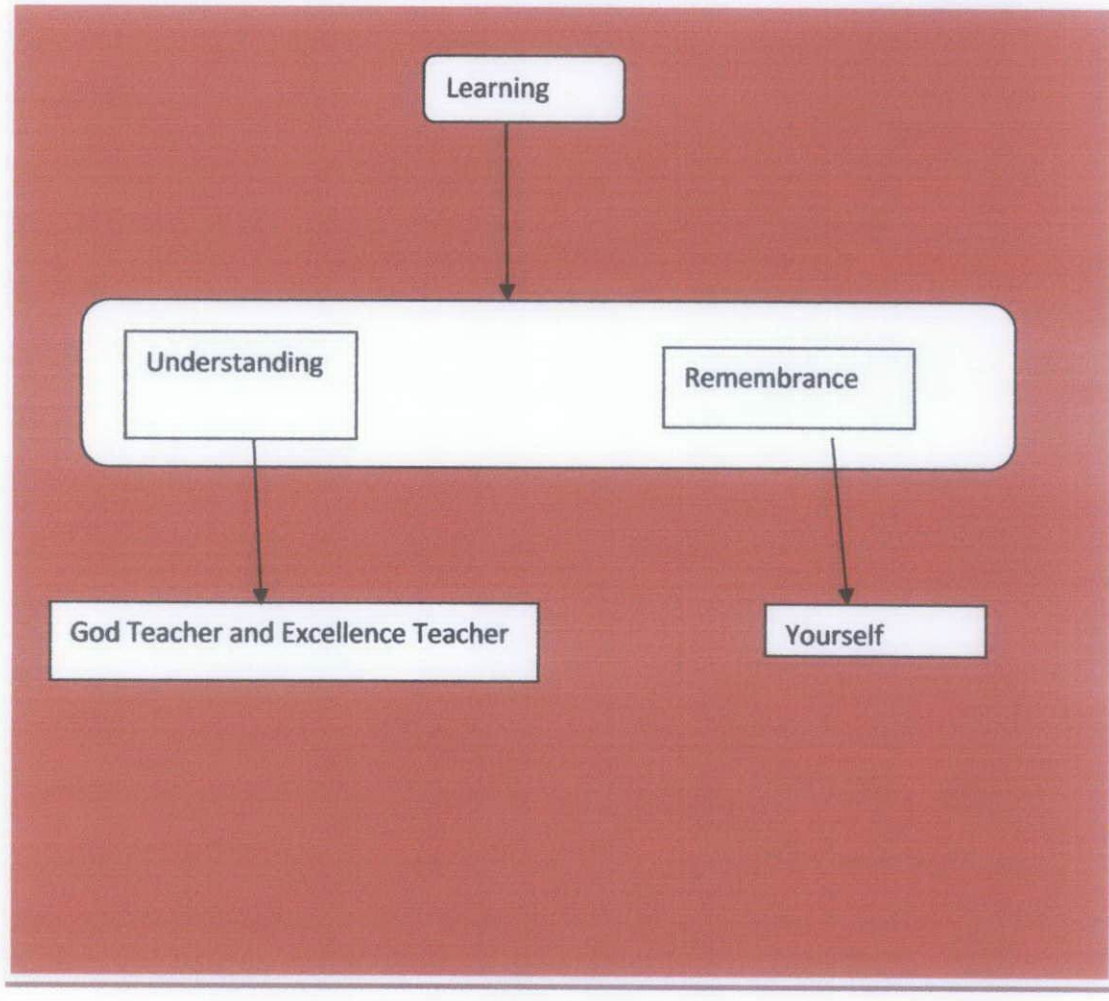

Figure 4.3: Flowchart for Teacher

4.4.2 UML Diagram

The Unified Modelling Language (UML) is a graphical language for visualizing, specifying, constructing, and documenting the artefacts of a software concentrated system. UML offers a standard way to write a system's blueprints, including conceptual things, such as business processes and system functions as well as tangible things such as programming language statements, database schemas, and reusable software mechanism

4.4.2.1 Use Case Diagram

Use case diagram is a diagram that describes the functionality of the system, complete with actors, its tasks and relationship between one another. It is the use case diagram for Mobile English Learning application where there exist three main actors, the

teachers, the administrator and lastly the most possible user, the student, specially the primary school students.

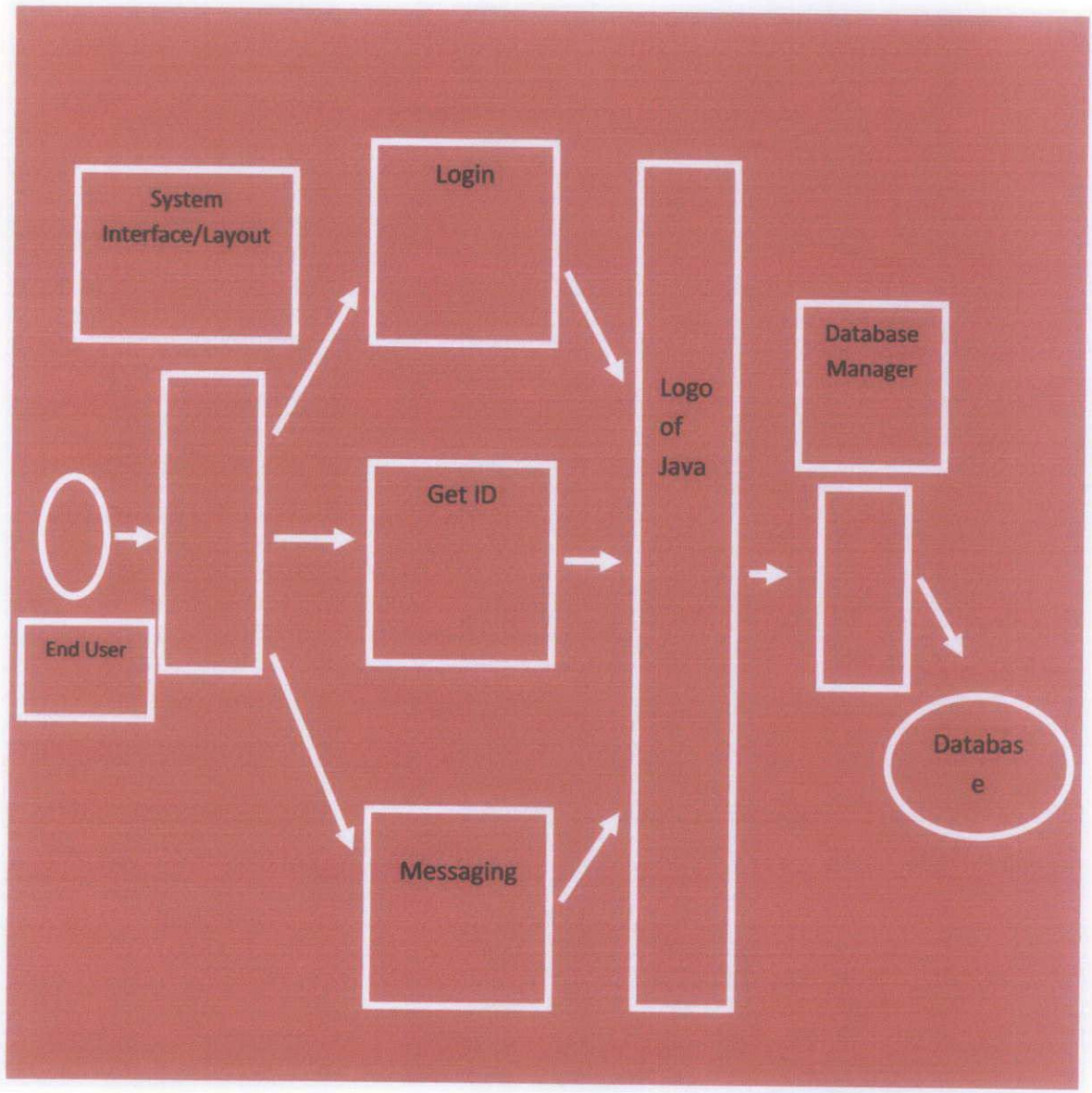

Figure 4.4: Use Diagram for MEL application

4.4.2.2 Activity Diagram

Below is the activity diagram for Mobile English learning application which basically shows the flow of activity occurs in the system. The movement shown focuses from the basic application menu while configuring with J2ME up until the menu for modules in the mobile phones itself.

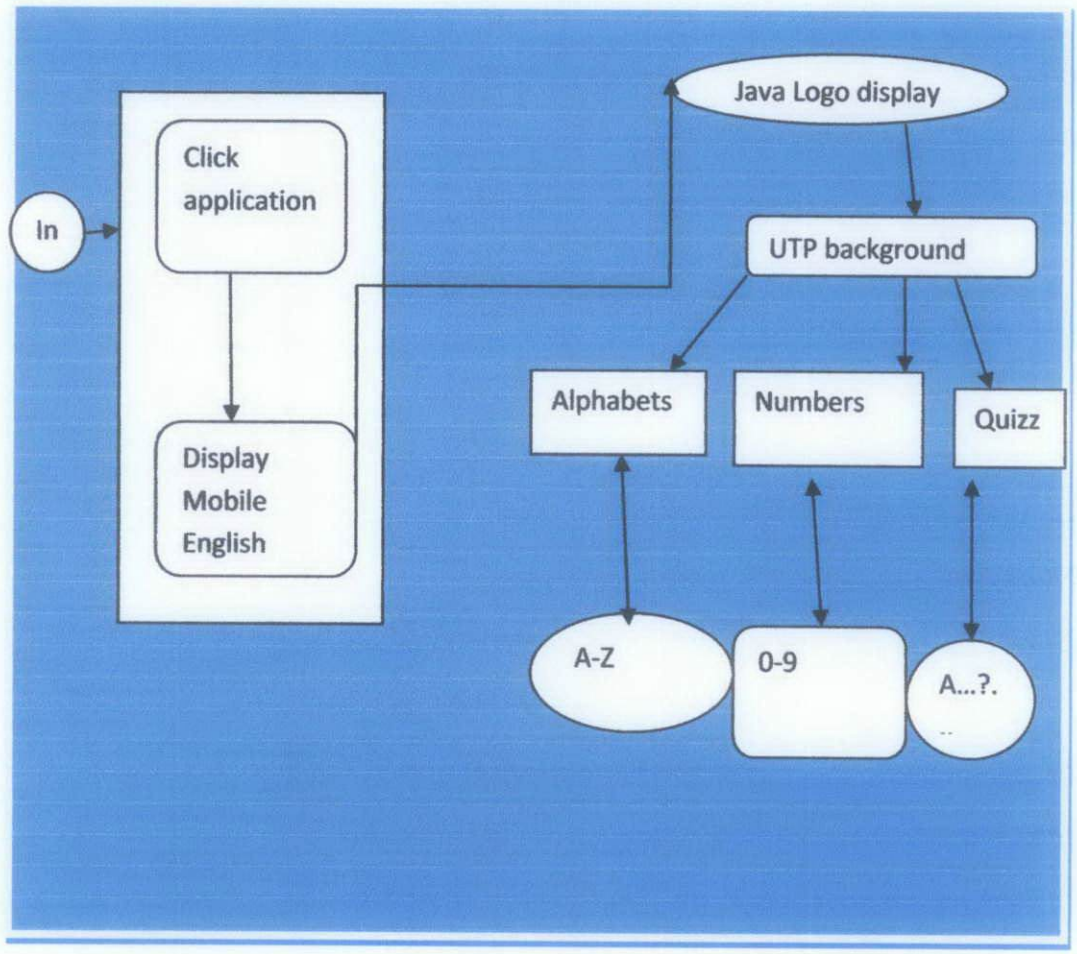

Figure 4.5: Activity Diagram for MEL Application

4.5 Interface Design

Mobile English Learning will be developed as interactive as possible as its main target for user will be among students at primary school. This is because students tend to learn through observation. Mobile English Learning focuses on developing student's brain as it contains interactive features that will assist them learn quicker and more successfully.

Mobile English Learning focuses on students at the age between as low as 3 years old to 10 years old. Mobile English Learning offers seven modules for user, mainly the primary school students to play. The modules consists of learning alphabets A to Z, numbers 0 to 9, time from 1 o'clock to 12 o'clock, days from Monday to Sunday,

month from January to December, animals different types and last but not least quizzes A...?...

4.5.1 Main Menu

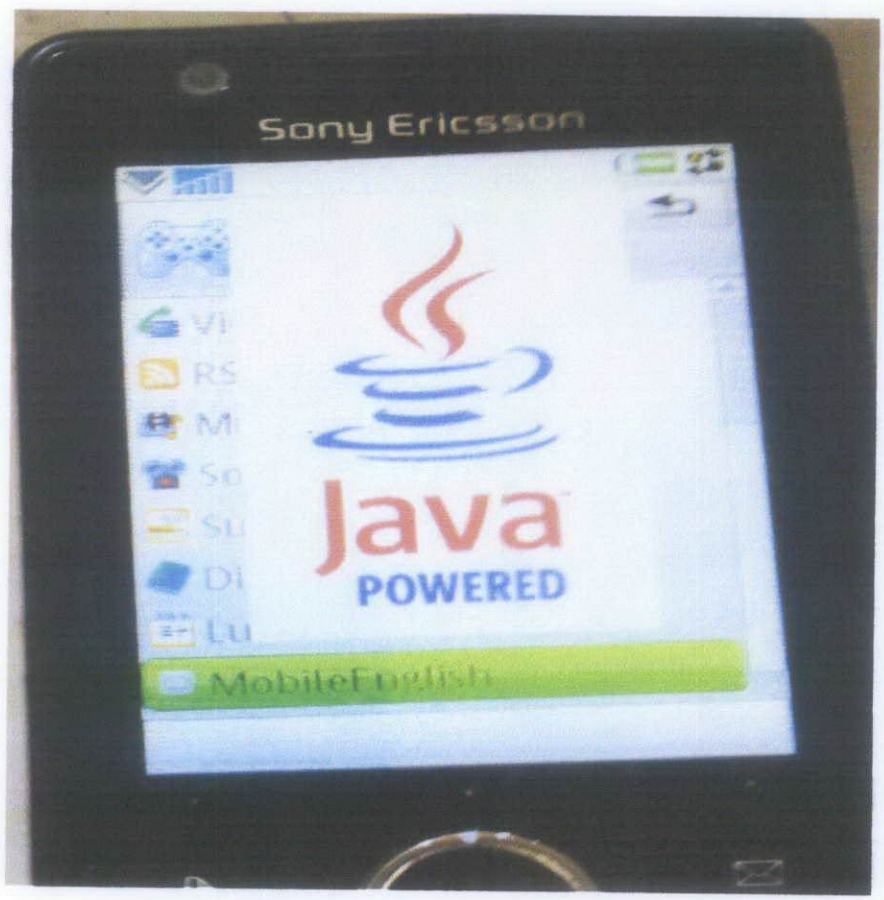

Figure 4.6: Start up menu

Shows the start up menu for Mobile English Learning site. There are java powered notes as images for users and if the user scrolls down, they can choose from one menu options in the index page, there which are about J2ME and let's play.

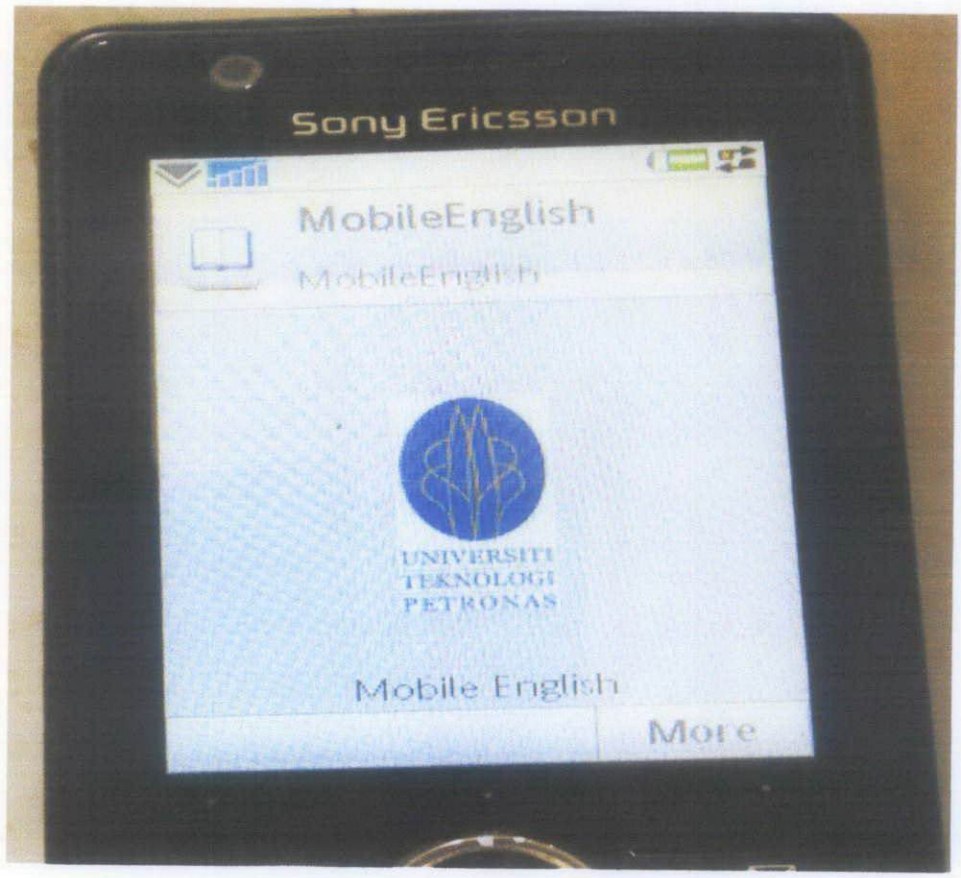

Figure 4.7: About UTP Logo

About Mobile English Learning: brief shows some information about Mobile English Learning, its logo before which is entering to learn for the next page. User can click on any desired after the UTP logo for the next page to choose the modules he/she wants to play.

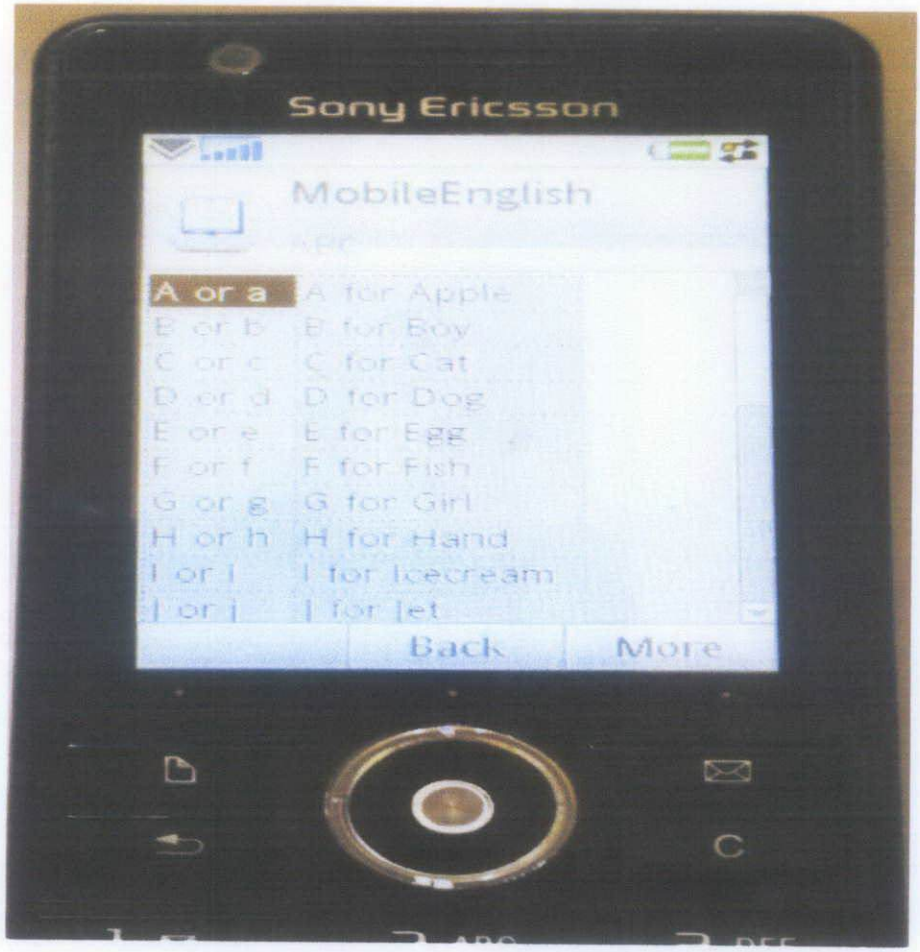

Figure 4.8: Let's learning Alphabet

The first module is the ABC as shown in the above screen, where students learn alphabets in and its spelling. Apart from that, there will also be spelling of A stands for Apple, and B stands for Boy till Z stands for Zoo. Mobile English Learning not only have that, students can also spelled one by one which makes spelling more easier.

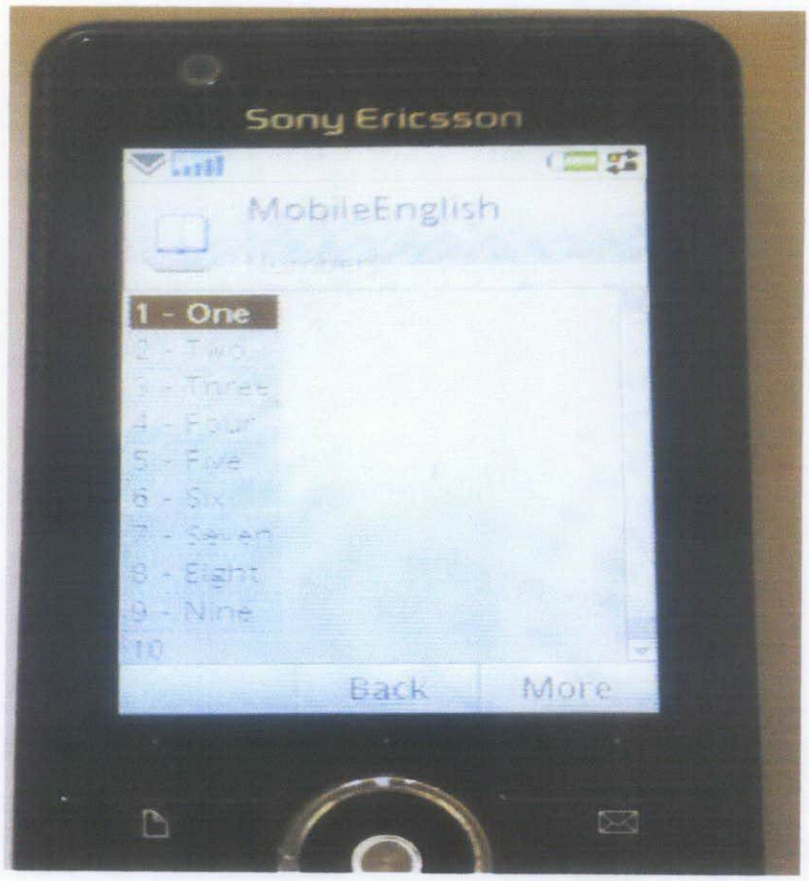

Figure 4.9: Let's learning numbers

On the above shows the main page for 123 which is the second module available in Mobile English Learning. 123 is basically to teach students basic number concept through counting and numberings. User can play 123 by clicking the numbers and they will be leaded to a page.

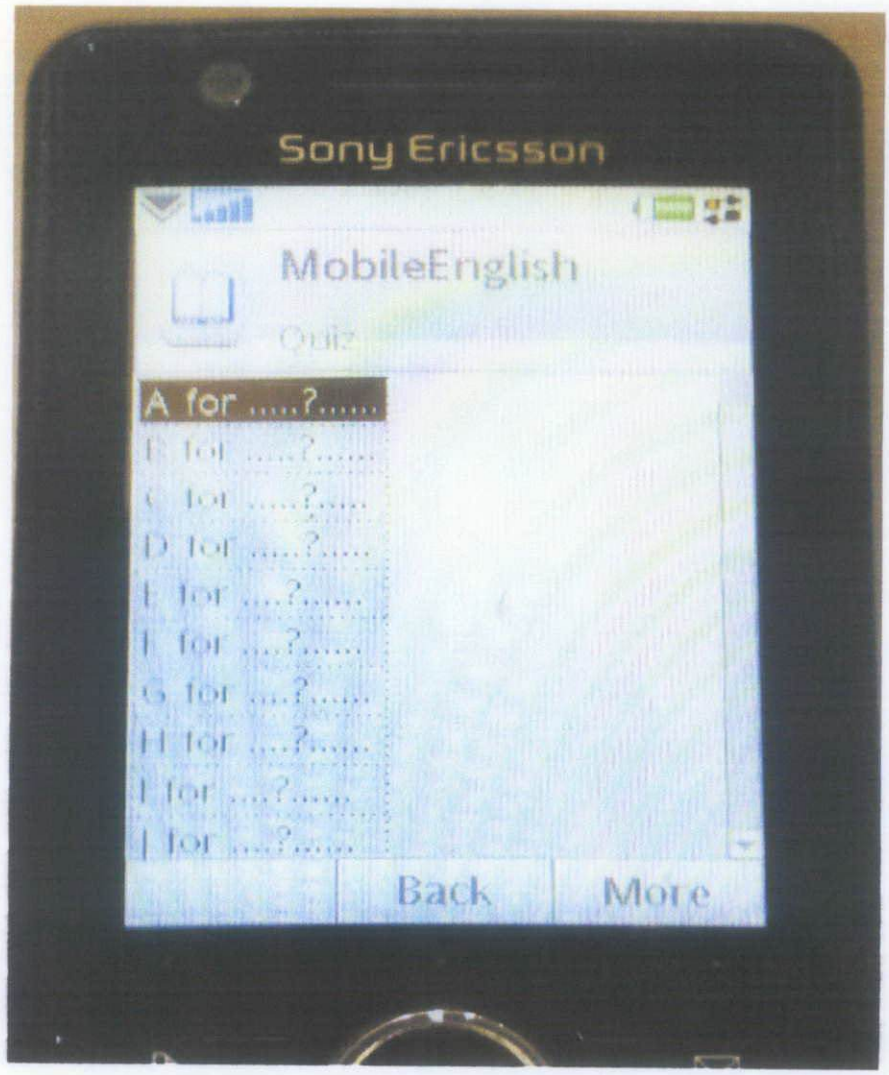

Figure 4.10: Quiz Time

Next as shown, there is a shape module where students will be taught on the basic shapes around them such as quizzes. To begin to know they have quiz by clicking on the option of quiz then they will play it.

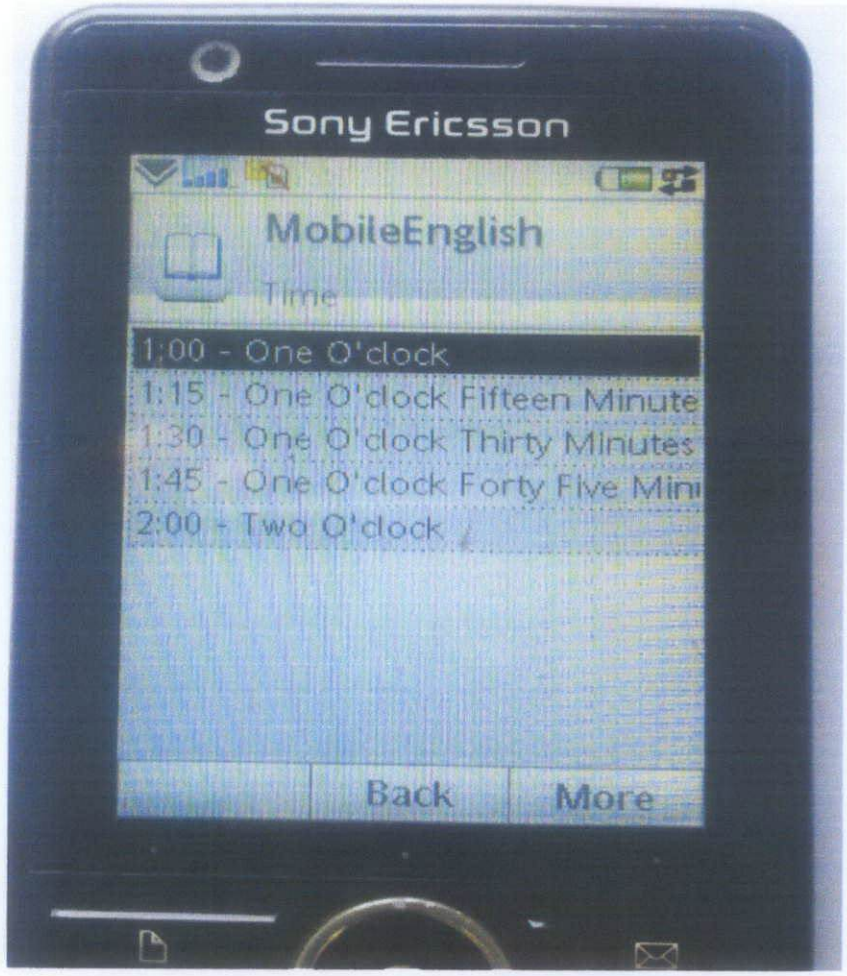

Figure 4.11: Let learning Clock

As for each of the shape or module, a new page will be appear such as this about time when user clicks, there are only clocks to see in the above screen and to know the main utility.

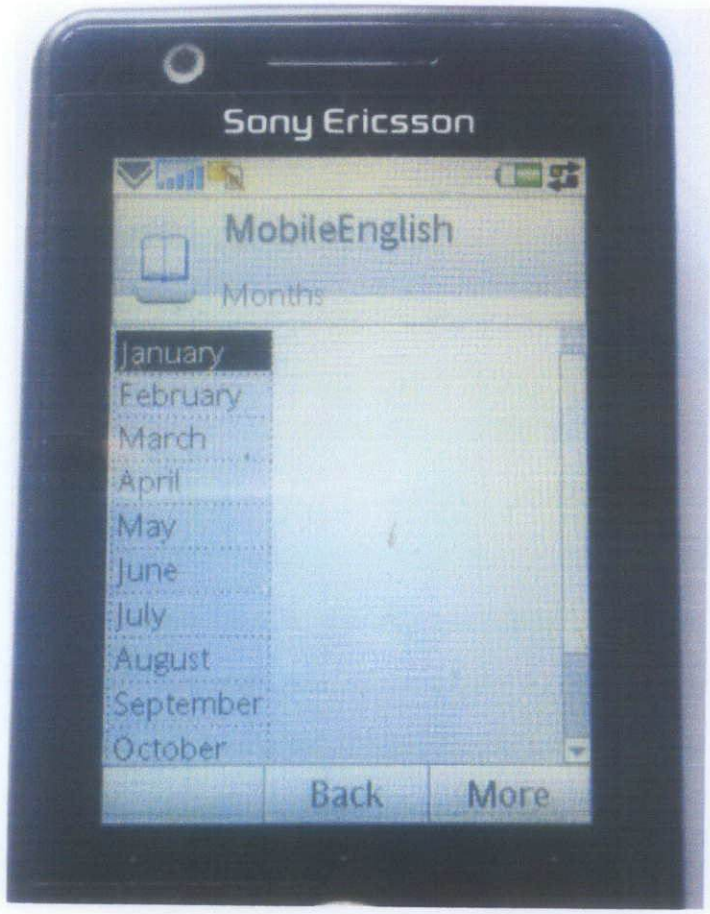

Figure 4.12: Monthly of the year

This module about all month, starting from January till December, but user can click each button then the month will come out as in the screen will be displayed.

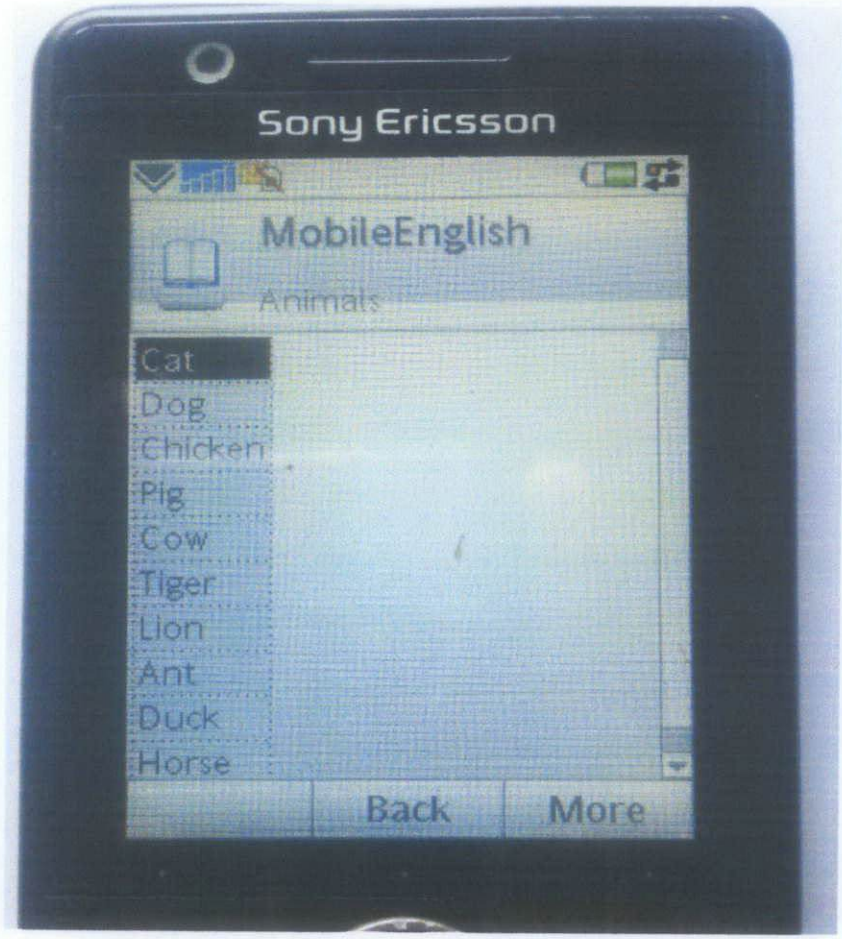

Figure 4.13: Animals

This is the final module called animals' choice. Where it contains collectible of different animals name, students not only can choose by alphabets but also in different might be started from W to A or B to Z. It is an option for users.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATION

5.1 Conclusion

Mobile English Learning will certainly income students from primary school in Malaysia and in my country as well and especially in the urban area by providing everything they need in a package at hand. Primary school can learn alphabets and numbers easily and much more convenient as they can bring it anywhere they like it. Furthermore, the application assists them learn on basic shapes around them as well as relate it to what it resembles in their surrounding, for instance A presents Apple. The feature also makes it suitable to home school students who usually do not pledge to any local wireless network and learning without time limitation.

The author has been putting a great deal effort in this project by making use of and humanizing available tools, techniques and methodology in current wireless application development. However, the project is not basically written on the flat programming. On the other hand, it deploys the intelligent Montessori methods in the learning techniques.

The most important accomplishment of the project is an interactive Mobile English Learning tool for students at young period, specifically the primary school students. In terms of the system design, it makes way for customization and with the installation put together ready, Mobile English Learning is believes to be sold to the market.

5.2 Recommendation

Underneath are several extra characteristics that they can be added in the future to make Mobile English Learning more suitable and better in the future are:

1- Accent application

At this time application is fixed in Mobile English Learning phone directly. Thus, additional enhancements can allow the application to be voiced as normal such as A till Z louder so then students can listen and understanding. For the numbers always can be by voice then students capture easy and more useful in the future.

2- Voice quizzes

As for the current application, it allows students to learn how to spell, and pronounce by following the teacher. However, as an enhancement for the future, the modules can be improved by developing quizzes voice and test voice as well. Students can go for each module. For each quizzes there will be marks for how many marks they scored.

3- Additional multilingual support

The current Mobile English Learning applied the usage of English language which is the second language in Malaysia entire module. Further enhancements on the application can include other means of languages such French, Spanish. Later improvements should both recommend the language and allow teachers or parents to adjust their language preferences for each student.

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[5] http://www.montessori.edu/method.html/

Appendix

Final Year Project 2

No	Details	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Progress report														
2	Pre-EDX														
3	Dissertation														
4	Viva														
5	Technical Report														

No	Detail / Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Proposal														
2	Extended proposal														
3	Defense Proposal														
4	Interim Report														
5	Technical Report														