Travel Guide in Malaysia Mobile Application

by

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Dissertation submitted in partial fulfillment

of the requirements for the

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CERTIFICATION OF APPROVAL

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Approved by,

_____

(A.P. Dr. Halabi Bin Hasbullah)

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

September 2013

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 the original work contained herein have not been undertaken or done by unspecified sources or persons.

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SITI NOOR FATIHAH BINTI POZI

ABSTRACT

Tourist is an uninformative people are having limited access and capability to reach destination with cheapest cost. As a result, they travel with over allocate budget. To fulfill responsibility for society, this paper presents development of an assistive software application that allows them to get access to the facilities and services provided by tourism in Malaysia to reduce cost and limitations faced by tourist. The objective of this project is to provide simple application to help encourage tourism industry and to provide sufficient information and to ensure tourists able travel to the destinations with cheapest cost. This paper study about tourism industry and focus on tourist form local and foreign especially. With this application tourist able to view attractive destinations, attractive accommodation, information travel in Malaysia, and record the favorite destinations address. In terms of methodology, iterative development life cycle is being used to develop this project. In this project, MIT App Inventor will be used extensively to create software application for the Android operating system. The software application will help tourists travel in Malaysia more easily with lesser time.

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Senior Lecturer of Computer Science Department

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ABBREVIATIONS AND NOMENCLATURES

GPS   –   Global Positioning System

ATM   –   Automated Teller Machine

ACS   –   American Chemical Society

iOS   –   Internet Over Satellite

IDC   –   International Data Corporation

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Medical, education, sports, meetings and migrant tourism is emerging markets for Malaysia that will contributes greatly towards its growth in the coming years. Tourism and Culture Minister Datuk Seri Mohamed Nazri Abdul Aziz said programmes such as Malaysia My Second Home would attract long stay tourists. Furthermore, education tourism was another platform Tourism Malaysia and stakeholder could help to develop, he said. In addition, Nazri said, Malaysia being a safe and affordable destination will offer affordable tertiary to international student and at the same time, when they study in Malaysia, they can promote Malaysia to their parents and relatives. There are currently about 230, 000 foreign students in Malaysia, he said.

Mission of this project is dedicated to tourism industry in providing software application to help the tourist travel in Malaysia. This project is committed to create simple application to encourage tourism industry. The problem occurs when they are staying in places outside their usual environment and faced limited cost and limitations to travel in Malaysia with cheapest cost. As a student, to travel within their allocate budget, they use public transportation to reach destination because it is affordable but unfortunately they are less informative about attractive destinations, facilities and services provided by tourism Malaysia and need guide form their local friends.

The main contribution from this project is attractive destinations listing across Malaysia that allows tourists explore the best destination they wish to go. Meanwhile, the output from this function, GPS will show direction from where they are to that location by riding bus, car or walking. This function also show cost if they ride bus and how many

hours take when riding car and how far from current location to destination when they wish to walk.

Secondly, since accommodation is the very important place during travel, tourism Malaysia migrated with tourism industry developed homestay across the country to ensure tourists experience themselves into the culture and lives in Malaysia. The software applications automatically go to the homestay website provided by Tourism Malaysia. This website provide information address, price rental, local activity video and some gallery picture to ensure that tourist feel closer and wish to experienced themselves.

Thirdly, the tourism experience is finally dependant on the useful information. For this purpose, the software application in travel kits function provided information such as basic immigration law and regulation, embassy contact, emergency contact and travel tips information in Malaysia. All this information gathers from tourism industry within variety of scope such as education tourism, migrant tourism etc.

Last contribution from this project is GPS-Remember Me, this function allowing user remark address when do not have a clue where they are standing and also can remark the location when they wish go back to the remember location. The software application uses its location sensor to record the GPS coordinates and address. Later, when the users reopen the app, it shows a map from where user to the remembered location.

This app target will be useful app for target market which is foreign students. The name of this app is Travel Guide in Malaysia Mobile Application, or called iTravel.

The next section will define the problem statement.

1.2 Problem Statement

Nazri said, education tourism was another platform Tourism Malaysia could help to develop, from this point as a student they faced cost and limitation to travel across in Malaysia because insufficient information which can guide them to travel. To fulfill the above general problem, specific problem of this particular research project are:

- Tourists incapable to know facilities and services provided by Tourism Malaysia
- Tourists incapable to reach destination with cheapest cost

1.2.1 Problem Identification

Students travelling on a temporary education visa for studying in Malaysia are considered international education tourists. Usually, most of them are sponsored and have their allocate budget. To travel across Malaysia they need sufficient information to avoid over spending because they are not familiar in unusual environment. As a result, they may not have the detriment their travel at end corner.

Tourism Malaysia provided homestay website to encourage the tourists travel, but after some research about 20 people's international students in UTP. They do not know this website, so as a responsibility this facility will be highlighted in this software application project.

1.2.2 Significant of the Project

This research project is expected to benefit for society such as foreign tourists especially international students. Meanwhile, it also will benefit to local tourists because it will help them strengthen their communities. It will reduce the chances for social segregation on this group of people. In addition, during travel they can experience varied culture festivals and experience the warmth of Malaysian hospitality.

Meanwhile, the main beneficiary of this application, the tourists will get attractive destinations information such as nature attraction or cultural heritage. This software application allowing them to gain access the facilities and services provided by tourism industry may include embassy contact in Malaysia.

In addition, this significant project accordance with the requirements of Tourism and Culture Minister to attract more foreign tourists and include a greater ecotourism, major culture events and activities for the young urban professionals.

The next section will define the objective and scope of study.

1.3 Objective

The main objective of this research project is aimed to provide simple application besides to help encourage tourism industry. To fulfill the above general objective, specific objectives of this particular research project are:

- To provide sufficient information
- To ensure tourists able travel to the attractive destinations with cheapest cost

The project is aim to develop simple application for tourists, foreign students especially by using MIT App Inventor software application. This application is possible to be achieved by applying android operating system and accessible via smart phone mobile device that is commonly available in the market. By using this application, the tourists capable to get sufficient information and travel with cheapest cost.

1.4 Scope of Study

This project will focus in tourism industry such as education tourism, migrant tourism etc, local and foreign tourists and suitable features of mobile application. Besides that, this project also focuses on the attractive destination which is core of this application. This project is suitable for foreign students staying in places outside their usual environment. By using this software application, they will able to manage the budget more efficiency and save time. The project will help them make a good decision on their requirement by using information gave in the application.

The next section will explain about the relevancy and feasibility of the project.

1.5 The Relevancy of the Project

This project seeks to analyses the tourism experience offered by tourism industries that are shaped by Tourism Malaysia by distinct geographical, cultural, social, political and economic conditions. This experience will be analyses, in term of tourists, the community and the tourism destination context. Particular attention will be given to existing attractive destinations across in Malaysia, so it will be potential to tourism participants, especially small and medium enterprises (SMEs) and associations to refine especially islands and beaches. In addition, this will be benefit to the society if the location and destinations has the wellness activities, safe and clean environment.

1.6 Feasibility of the Project within the Scope and Time Frame

The feasibility that will be discussed here is research and development of this project.

The introduction of study will review the expected problem faced by the tourist especially foreign tourists when travelling in Malaysia. From this study it will be opportunity to consider all options for achieving the project objectives. The objective of this project is to provide most simple application and research of the study within tourism Malaysia scope. It will be benefits to the society with good delivery if the software application produced in attractive way.

The tangible deliverables such as literature review is required to meet the scope of study. More research required to understanding about the project. Also, to ensure all information is relevant and related with the objective of the current project. Form this research, the author able to understanding where the project should start. This research can measure level of performance and specification required for this software application.

The methodology is the component to implement tactics of this project in kind of how the project will be carried out. This project use iterative development lifecycle and a well planned **Key Milestones** as in **Appendix 1-1** to implement software application within eight months foreword start from May 2013. The results and discussion will be discussed together with design of application and result from user testing. The critical activities for this project when the software application has been developed, but, next need refined to accomplish demand from user.

The theory of the study will discussed below.

CHAPTER 2

LITERATURE REVIEW

2.1 Background Literature

Nazri said tourist arrivals continued to soar in the third quarter of this year with 18.8 million visitors recorded between January and September 2013, against 18.2 million in the same period last year. The performance of the tourism industry in Malaysia remains promising. He added, industry players such as tourism industry should look into ways to improve tourism receipts and provide value-added products to boost tourist spending in the country.

From this point, tourism industry takes a diversity approach and features a variety of attractions, such as shopping heavens, eco-tourism and developing the smaller and lesser known destinations. Moreover, this project target for foreign students within education tourism scope. At the same time, tourism industry has the opportunity to promote Malaysia by regular visits of their parents and relatives. In addition, Malaysia has been ranked among the top ten tourism destinations in the world for 2014 by Lonely Planet, the popular travel guide.

There is no doubt about Malaysia is the only Asian country to have made the top ten list. Thus, the question here is how we can provide better application for tourists to make easy when their travel. In this chapter, the research on the similar existing apps has been done by selecting the same category apps and existing apps features will be compared with the proposed apps. The advantages and shortcoming of the existing apps will be identified in this research to get a good idea to develop the app, increase the productivity of the app, add and correct the deficiencies of the current project.

Moreover, the percentage of tourist using a mobile device to search for travel related information has gone up from 8% in 2009 to 38% in 2012 for leisure tourists and from 25% to 57% for business tourists (SeekingAlpha, 2013). The research on this mobile device will focus on operating software apps that most of tourists used because smartphone and tablets are impacting very much on travel.

Furthermore, when existing apps have been compared, operating system will be identified, thus the question here is what features should have in the software apps to provide simple application as a main objective of this project. Then, the research will focus on attractive destinations and sufficient information-accommodation would need to develop for this software apps.

2.2 Review and Research on Travel Guide in Malaysia Mobile Application and Existing App

Reviews on other similar existing app features are important to know the app functionality, how that app run and works. This is critical part to get new idea and avoid deficiency of the app. In this project, research will makes on three similar app such are TripAdvisor, PocketGuide and Free Travel & Tourist Guide to compare the functionality point of view.

2.3 Existing Application

The booming of apps required the tourism industry investing for apps to provide optimized facilities prior, during and after a holiday for consumer because smartphone or tablets support more functions and have more capability that allows tourists to leave laptops at home, said Henry Harteveldt which is industry analyst for Hudson Crossing. The existing apps below will be compared with the proposed apps.

2.3.1 TripAdvisor

TripAdvisor is one of the 17 brands TripAdvisor Media Group and aims to serve as directory travel information through e-channel such as website and enhance it through apps for mobile (Stephen Kaufer, Co-founder and Chief Executive Officer). According to its website, TripAdvisor claims to be the largest and popular travel community e-channel in the world, with more than 32 million members and over 100 million reviews and opinions about hotel, restaurants, attractive destinations and other travel related businesses.
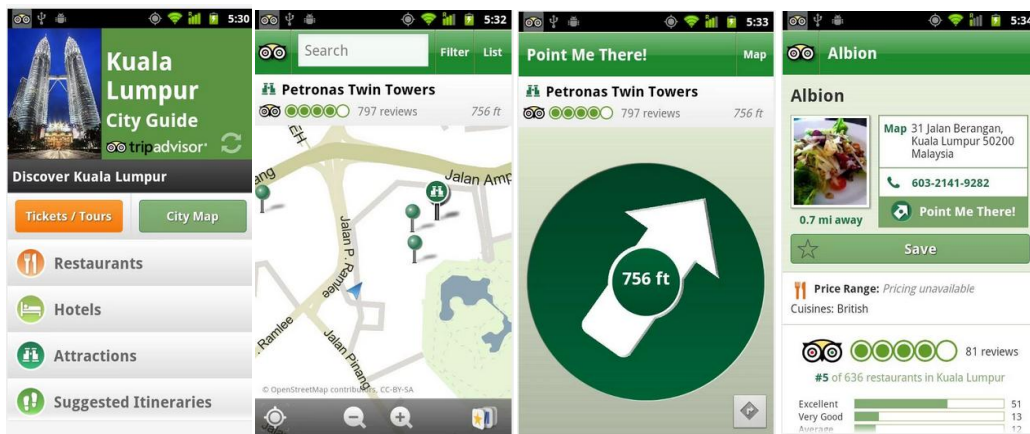
Figure 2.1: Kuala Lumpur City Guide TripAdvisor

Figure 2.1 above shows Kuala Lumpur City Guide TripAdvisor. According to its website "key reasons millions of travelers love this app because of variety reason such are:

- Free – absolute no risk,
- Work offline – no need for a live data connection while using this app, everything is store on phone after do an initial update with no charged for data roaming,
- Restaurants, attractions, hotels – all places listed in this city,
- Thousands of user reviews – over 50 millions reviews and thousands more added daily with fresh, plentiful and honest content,

- Self-guide tours – tripadvisor members and destination experts have handpicked the best itineraries in the city, enabling to explore interesting neighborhoods, famous landmarks and hidden gems,

- Point me there – once user have selected a restaurant or attraction, this app will guide user there using the fun & useful "Point Me There" screen, which uses the phone's GPS and Compass,

- GPS-based – this app leverages the GPS in the phone to show user the best restaurant, attractions etc nearby. The app also uses the compass to guide user to a place once user selected it."

However, this app need to download by city catalog, as instance, if the user wants to travel across Malaysia likes Perak, so they need to download Perak City Guide TripAdvisor and everything about Perak will be stored in user's phone after user does an initial update. All places that are listed on TripAdvisor.com in this city will be uploaded.

2.3.2 PocketGuide

According to its website, "PocketGuide is the world leading audio city guide application that gives user tours by voice, reveal the best stories, insider hangouts and must see sights in close to 100 major cities and tourist destination. This app and previous app has similar drawback which is need to download by package, if user want to explore about Perak, they need to download others package instead of Kuala Lumpur. Meanwhile, PocketGuide launch Kuala Lumpur Audio Travel Guide to explore Malay, Indian, Chinese and Colonial heritage of Kuala Lumpur because is one of the most fascinating cities in the world.
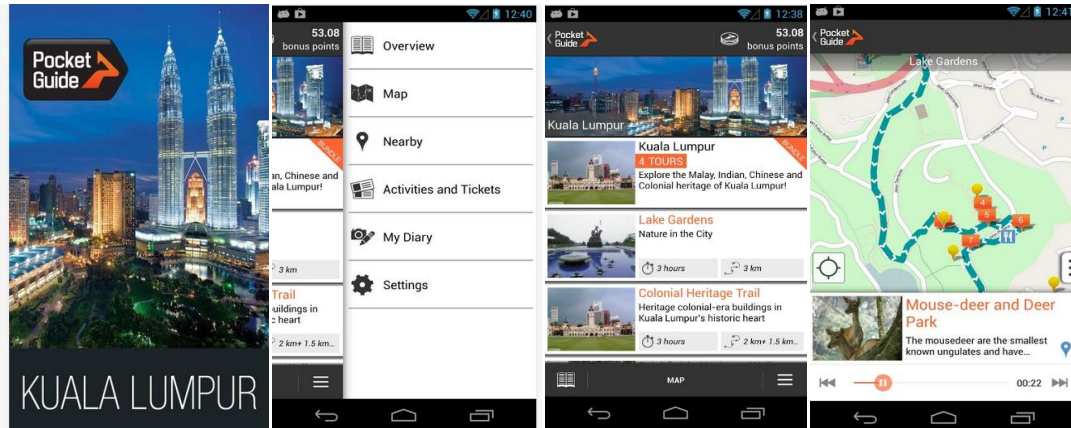
Figure 2.2: Kuala Lumpur Audio Travel Guide

Figure 2.2 above shows Kuala Lumpur Audio Travel Guide published by PocketGuide. According to its website "this is first application that works automatically and guides user through the city by voice, just like a real tour guide." Functionality of this app, it can determine user location and a recording personal user tour guide will describe where they are. Moreover, all the tours are developed by local experts who know this city inside and out. In other hand, this app also can record user trip with amazing 3D video.

2.3.3 Free Travel & Tourist Guide

According to its website, "Kuala Lumpur Guide & Hotels was published by Free Travel & Tourists Guides, September 15, 2013. In addition, this app helps user find nearby attractions, hotels, most popular restaurants, nightclub, sights, museum, ATM and pharmacy." Moreover, "this application also got Best Mobile Guide 2012 – ACS Award Winner with features such are:

- City attraction list – multilingual description with photo and route on map,
- Weather forecast,
- Place finder with complete information about object (address with map, user rating, route, website, phone number),
- Iterative map of the city
- Event manager with full information about the event,
- Offline currency converter,
- Offline city info and attraction list,

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- Multilingual interface (English, Chinese, Spanish, German, Japanese, Korean, Russian, French, and Portuguese)."
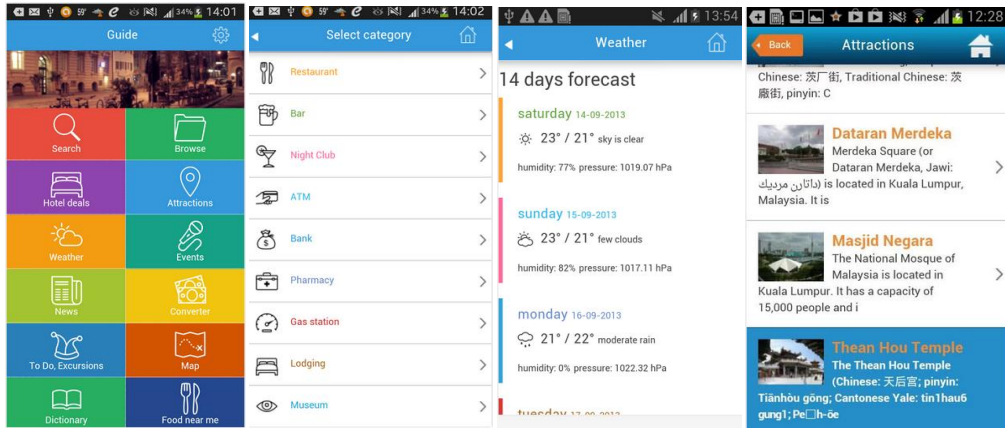
Figure 2.3: Kuala Lumpur Guide & Hotels

This app above also need to download by package compared with proposed app that consists of all state across in Malaysia and it's not focus only for Kuala Lumpur.

2.4 Operating System Application

Existing application above can be used for Android and iOS, which is the famous operating system, have been used by people in the world. Figure 4 below shows the growth of iOS and Android devices from January 2012 and January 2013, this source has been published by Flurry Analytics, Feb 2013.
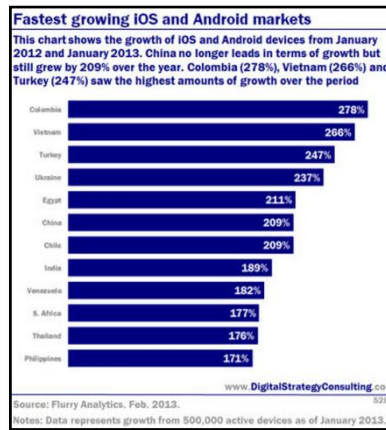
Figure 2.4: Bar chart for iOS and android markets

Moreover, According to Protalinski (2013), Google's android operating system managed to grab exactly 81.0 percent smartphone share in the third quarter of 2013. The latest quarterly figures below come from IDC, which summarized its findings in the following chart.

Top Four Operating Systems, Shipments, and Market Share, Q3 2013 (Units in Millions)					
Operating System	3Q13 Shipment Volumes	3Q13 Market Share	3Q12 Shipment Volumes	3Q12 Market Share	Year-Over-Year Change
Android	211.6	81.0%	139.9	74.9%	51.3%
iOS	33.8	12.9%	26.9	14.4%	25.6%
Windows Phone	9.5	3.6%	3.7	2.0%	156.0%
BlackBerry	4.5	1.7%	7.7	4.1%	-41.6%
Others	1.7	0.6%	8.4	4.5%	-80.1%
Total	261.1	100.0%	186.7	100.0%	39.9%

Figure 2.5: Top four operating systems, shipments, and market share, Q3 2013

As a result, Android moved forward as a whole, and the proposed app will using Android operating system to attract ideal user because it has been proven by July, 2011, 100 million people had began a Android phone. A year later, the number was 500 million and the number will keep increasing (Robinson, 2012).

2.5 Proposed Features

The objective of this research to provide simple application for tourists especially foreign students, the proposed features such are attractive destinations, accommodation likes homestay, useful information about travel kits and GPS could be the simple application for tourists to use when travel. This scope of useful information will be discussed below.

2.5.1   Attractive destinations

Malaysia offers fantastic destinations to those who are travel across in Malaysia with two very distinct experiences which are the peninsula and Borneo Island. "The peninsula is a mix of Malay, Chinese and Indian flavors with an effective and modern capital, Kuala Lumpur. Meanwhile, Borneo has most interesting places in Malaysia with a wild jungle, orangutans, granite peaks and remote tribes" (Touropia Blog, 2013). The

information research below is one of the proposed attractive destinations in Malaysia has been recognized by tourists in the world.

a) PETRONAS Twin Towers

"The PETRONAS Twin Towers in Kuala Lumpur were the world's tallest buildings before being surpassed in 2004 by Taipei 101. The 88-floor towers are constructed largely of reinforced concrete, with steel and glass faced designed to resemble motifs found in Islamic art, a reflection of Malaysia's Muslim religion. The PETRONAS Twin Towers feature a sky bridge between the two towers on the 41st and 42nd floors" (Touropia Blog, 2013). Moreover according to Tourism Malaysia website, "PETRONAS Twin Towers are inspired by Tun Mahathir Mohamad's".

Figure 2.6: PETRONAS Twin Towers

b) Mulu Caves

"The Mulu Caves are located in the Gunung Mulu National Park in Malaysia Borneo. The Sarawak chamber found in one underground cave is the largest cave chamber in the world. It has been said that the chamber is so big that it could accommodate about 40 Being 747s, without overlapping their wings. The enormous colony of colony of Wrinkle-lipped bats in the nearby Deer Cave exit almost every evening in search of food in a spectacular exodus" (Touropia Blog, 2013).

Figure 2.7: Mulu Caves

c) Mount Kinabalu

"Mount Kinabalu is the highest mountain in Borneo. The mountain is known worldwide for its tremendous botanical and biological species biodiversity. Over 600 of ferns, 326 species of birds, and 100 mammalian species have been identified. The main peak of the mountain can be climbed easily by a person with a good condition, and requires no mountaineering equipment although climbers must be accompanied by guides at all times" (Touropia Blog, 2013).

Figure 2.8: Mount Kinabalu

2.5.2 Accommodations - Homestay

Everybody love their home, same goes to foreign students, but they cannot compare their home with Malaysia home because it is very huge different. So, when travelling accommodation chose is very important. Homestay is the best accommodation to discover by tourists to find out soul of destination. Below is research information about

one of the attractive homestay collaborating with Tourism Malaysia which is Homestay Relau.

- Homestay Relau

According to go2homestay website "Homestay Relau which began in year 1999 is known at international level like Japan, South Korea, Asian countries and also Europe, it becomes the attraction to local and foreign tourists who wish to experience village lifestyle. Furthermore, tourists could experience playing Malay community traditional games such as kite and congkak".

Figure 2.9: Homestay Relau

2.5.3 Travel Kits - Public Transportation

According to 'The National Safety Council' estimates that riding the bus is over 170 times safer than traveling by automobile. Statistic shows that, trips on public transportation result in 200, 000 less deaths, injuries and accidents than similar trips made by car. Moreover, economic believes the more traditional methods (such as the bus system) are more functional and cost-effective (Currie, 2005).

In 1971, Atlanta received federal transportation department funding referenced in the case study. Atlanta voters chose buses as the mode of rapid transit improvement with commutes from residential to work areas as the target of research by Dajani, Egan, and McElroy (1975). Meanwhile, at India with economics of commuting as the primary reason for selecting a different mode of transportation, buses were also found to be the only viable solution for traffic congestion in India, Virma and Dhingra (2005).

Many passengers riding bus rather than others public transport this statement defends by the U.S. Department of Transportation, according their research the average public transit vehicle in the U.S. operates with more than 80% of its seats empty. Energy consumption per passenger mile is now greater for buses than for private cars, and much greater than for car or van pools.

2.6 Summarization

Literature review had been conducted to discuss the concept of Travel Guide in Malaysia Mobile Application. Besides that, the research on several existing app like TripAdvisor also has been done to get the advantage and disadvantage about the functionality and how app work. This information may serves as a reference to help in developing the propose app.

The conceptual of methodology will discussed below.

CHAPTER 3

METHODOLOGY

3.1 Research Methodology

The methodology proposed for project Travel Guides in Malaysia Mobile Application is iterative development lifecycle. The Travel Guides in Malaysia Mobile Application will be known as iTravel. This methodology requires for requirements gathering, flowchart activity and use case diagram to develop the application. By applying this methodology, a series of prototype have been developed. Every version of new prototype will be scaled down to meet the characteristic of the final version of the mobile application.
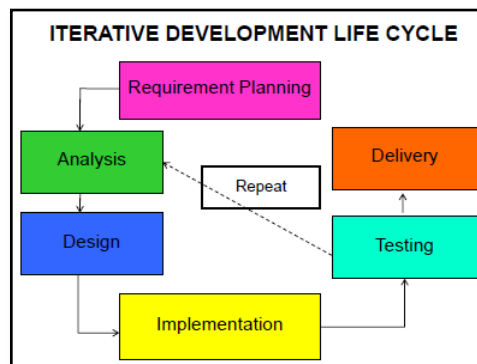
Figure 3.1: The Iterative Development Lifecycle

3.2 Flowchart Activity
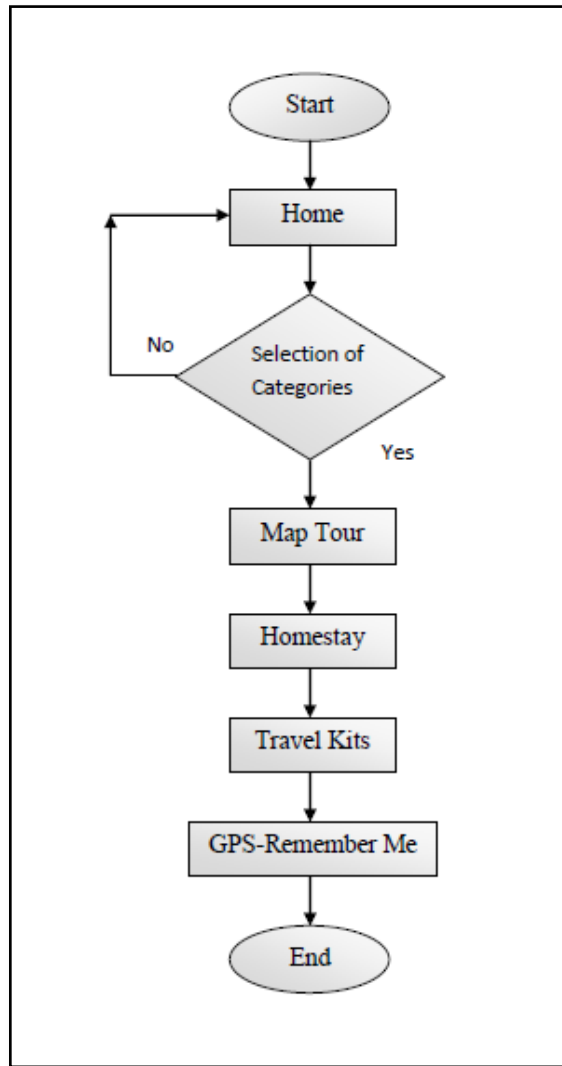
Figure 3.2: Flowchart activity

Figure 3.2 above shows the interactions between the user and Travel Guide in Malaysia Mobile Application. User can start the flow by open the home screen of the app. The user can choose either to select categories that have the four features or going back to home screen.

3.3 Use Case Diagram
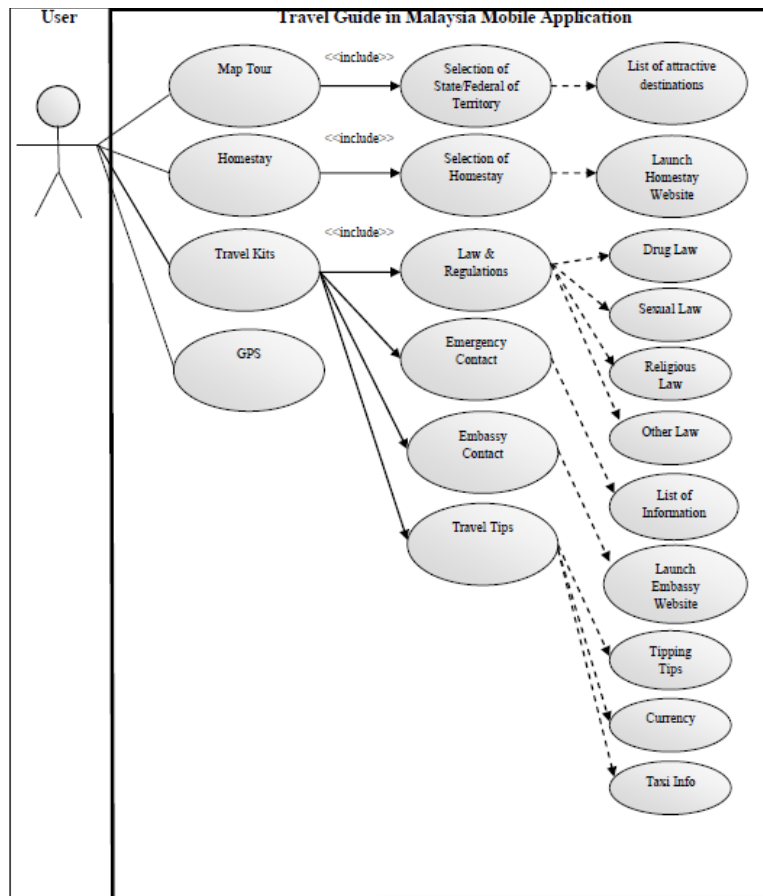
Figure 3.3: Use case diagram

Figure 3.3 above shows the use case diagram when the user triggers any of four features offered by this app. If the user, trigger button Map Tour, list of state/ federal of territory will be appear, and the user need to chooses attractive destinations they wish to go. When the user aim for destination, the user will look for accommodation and Tourism Malaysia provides go2homestay website to attract more tourists. The app automatically linked to that website. In other hand, after destination and accommodation aim, the user need to basic information in Malaysia. Then Travel kits offer some of the useful information such are law and regulations, embassy contact, emergency contact and travel kits that has tipping tip, currency tip and taxi tip. Other than 3 features above, GPS-Remember me will located your current location and mark location.

3.4 Planning

In this requirement planning phase, the planning of developing the application will be discuss based on a given time period before staring towards the development for iTravel. The problem statement, objectives, project scope and the significance of the project for developing this application is determined and listed down to make the target of this project to be clear and easy to develop. It is important because it can help and provide guidance in the accomplishment of this project.

A systematic planning will also be conducted to ensure the activities that carry out during developing this project will be in systematic manner. Therefore, in this phase, the activity planning and working progress tables named Gantt chart were developed as a guideline for this task. Each task is assign a time period and each of the tasks must be completed in time gave before proceeding to next task. **Gantt chart** as in **Appendix 1-2** is important since it can gave a clear image to app developer on the activities progress and milestone for each phase to be achieved and it will also help to scheduled the project completion on time.

- **Questionnaires**

As part of this research project, the study collected primary and secondary data from a variety of sources. It is important to discuss the method of data collection that has been used in this project. The questionnaire is a simple and less costly of retrieving the information. In addition, through this method, statistical data can be provided. The questionnaire has been distributed among expected user which is foreign students in UTP as in **Appendix 1-3**.

3.5 Analysis

Analysis phase is start with the activities like researches, fact findings and analysis of related application. In this phase, the information and app requirement will be collected through the researches from the similar existing app had been selected to be compared to generate more ideas and function on developing the project app.

The analysis of similar existing app in market can help to find out how their app function, what feature their app have and what is their app limitation. Thus, the app will able to provide a simple application with better performance than other app that had been study.

Besides that, the Flowchart Activity and Use Cased Diagram of the iTravel will also been created in this phase. The Flowchart Activity is developed to show the data flow from one process to another while Use Cased Diagram will use to represent the interaction between user and application.

3.6 Design

Design phase activities involve the overall description structure of the app which includes the app interface design, flowchart activity and use case diagram. The design will not arrive at a finished design immediately but develop the design interactively. As the app is develop for formality and detail will be added with the constants backtracking to correct earlier designs. The interface of iTravel include home screen and four features which are map tour, homestay, travel kits and GPS. The activity of the app was designed carefully so it is compatible with the input and output designed in the app interface. This design will be use as a guideline when implement the prototype.

3.7 Implementation

Implementation phase is part of cutover task including data conversation, testing, changeover to the new app, and user training. This phase will takes longest time to complete compare to other phases. The project implementation will be conducted based on the use cases diagram and the application behaviors designed in the previous phase. The application will be built using open sources tool which is *MIT App Inventor* where the design result gets from design phase will be used as a guideline in the process to implement iTravel. When the prototype of iTravel is done, it will be evaluated by user, if the prototype not meets their requirement, app developer will makes changes from the analysis, design, implementation and testing phases. When the user is satisfy with the prototype that have built, then that prototype will become the final app.

3.8 Testing

The iTravel that had been finished implement will goes through this testing phase. Testing will occur to correct the result and user feedback to verify the acceptability and discover what improvement can be make to satisfy user requirement, the purpose of testing is to show that an app does what it is intended to perform and discover app deficiencies before put the app into use.

In this project, there are two type of testing will be conducted. The first testing is functional testing which is conducted to check whether the app contains error and bug in the app. Functional testing will focus on requirement that can be traced directly when inserting the inputs. Test case and test plans for iTravel will be generate at this phase to test whether the app will produce expected output that is requires and check all the possible app behaviors at the meantime. The errors and bug will determine and correct based on the result gets from the test cases and test plans.

The second testing is user acceptance testing which is conducted to ensure that the app meets its objectives and the performance of the app is satisfying the users. The questionnaire will distribute to user that have test iTravel to gain their feedback and suggestion. The feedback and suggestion collected will be analysis and use to enhance the app.

3.9 Delivery

In the delivery phase, the mobile application will be submitted for evaluation and grading purpose after the testing phase is completed and the application is improved and error-free.

3.10   Key Milestones

*Please refer to **Appendix 1-1***

3.11   Gantt Chart

*Please refer to **Appendix 1-2***

3.12 Hardware Requirement

The minimum hardware requirement that is needed to develop the iTravel is as following:

a) Personal Laptop (Dell Inspiron 14)
b) System Type: 64bit Operating System
c) Professor: Intel® Pentium®
d) Memory (Random Access Memory): 2.00 GB
e) Smartphone: Samsung Ace Plus

3.13 Software Requirement

The software that required in developing iTravel is listed as below:

a) Window 7 Home Premium operating system
b) Web Browser (example: Internet Explorer, Firefox and Google Chrome)
c) Microsoft Word 2007 (Documentation)
d) MIT App Inventor

3.14 MIT App Inventor

The software that is used to produce the intended engaging application is MIT App Inventor. App Inventor is free and open source software that develops applications and it uses a graphical interface. It allows the author to do development testing for the android operating system (OS).
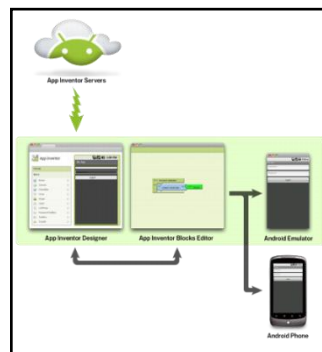
Figure 3.4: MIT App Inventor process.

3.15   Summarization

This chapter thoroughly explains about the evolutionary prototyping model which is the methodology that used in developing iTravel. The iTravel will be developed accordingly based on the phases in evolutionary prototyping and each phase will be carried out as the timeline that have been planned in the Gantt chart. This methodology is effective method. The iterative process during the development allows the changed in the app and will continue until develop a final app that can fulfills user requirement. Although it does not provide all the function that user needed at the beginning, as the iterative processes repeat, a better version of app will be produced. The last prototype will become the final app.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Introduction

App interface design is important in guiding the implementation process and good interface design will give the impression to the users. The process of design provides a clear image on how the app looks like and medium for the interaction between user and app. Besides that, app interface produced must meet criteria like ease to use and user friendly.

Moreover, the user interface is designed to guide the user to navigate the app. The main interface in the iTravel is home screen and four features such are map tour, homestay, travel kits and GPS. The interfaces in Figure 4.1 below shows the home screen and main screen of the app which user will seen when open Travel Guide in Malaysia Mobile Application.
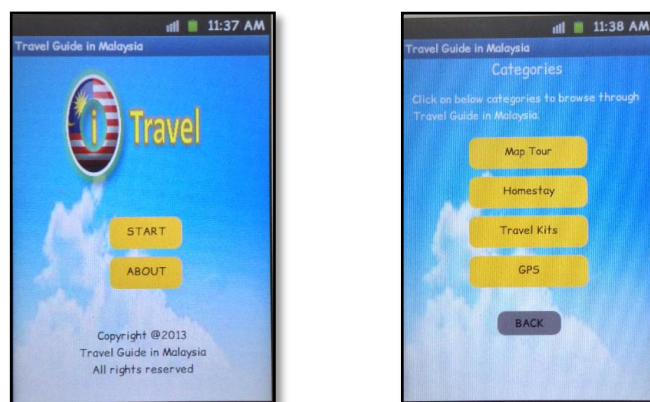
Figure 4.1: Home screen and main screen of iTravel

4.2 Prototype and Experimentation Modeling

Figures 4.2 below shows the interface design of map tour features. To travel across Malaysia, user need to trigger button that represents state and federal territory in Malaysia, and all attractive destinations will be list to tourist and the app will show that place. If the user chooses to use public transportation such as taxi or bus, they can choose either one car or bas and GPS will show the best route they will use to reach destination either to ride car or bus.
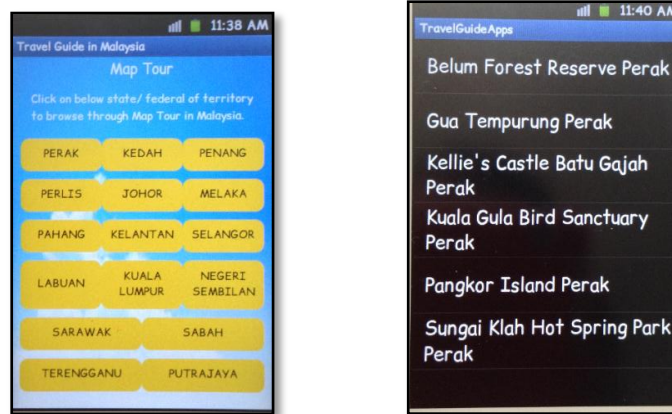
Figure 4.2: Map Tour features

Meanwhile, the screen below will show how app developer use back end process during development of map tour features.
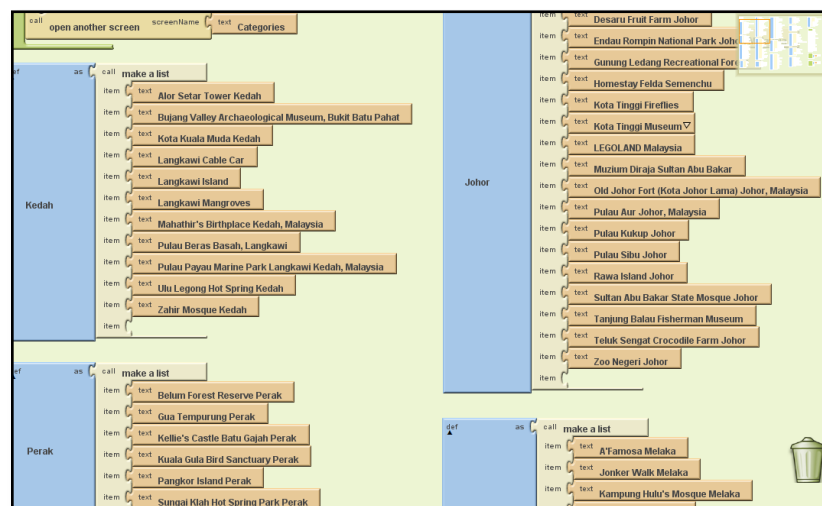
Figure 4.3: Attractive destination listing
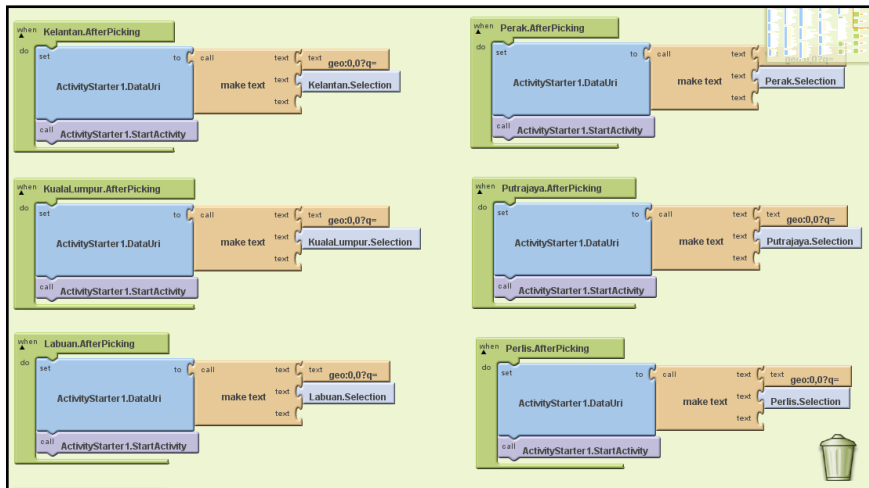
Figure 4.4: Attractive destination linked with Google maps
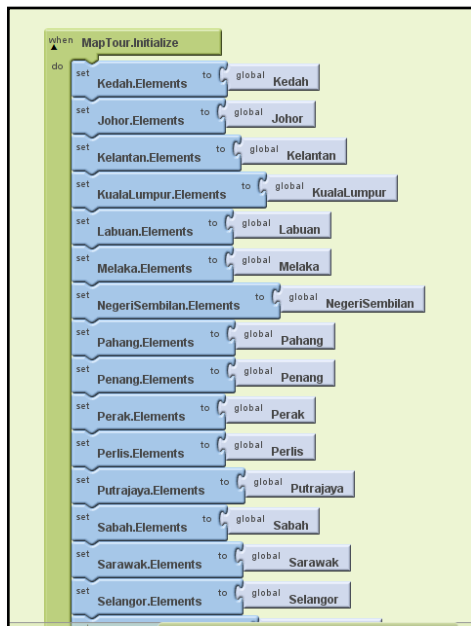
Figure 4.5: Once button attractive destination triggers, maps will show the location

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Figure 4.6: List of homestay in Malaysia

Figure 4.6 above shows list of homestay in Malaysia. Once the user trigger button Kelantan Homestay as example, then the app will launch go2homestay Kelantan website. The user will experience into the culture, lives of Kelantan, local activity and views gallery picture to get more interested about super experience previous tourists. Moreover, figure below will shows back end process during development of homestay features.
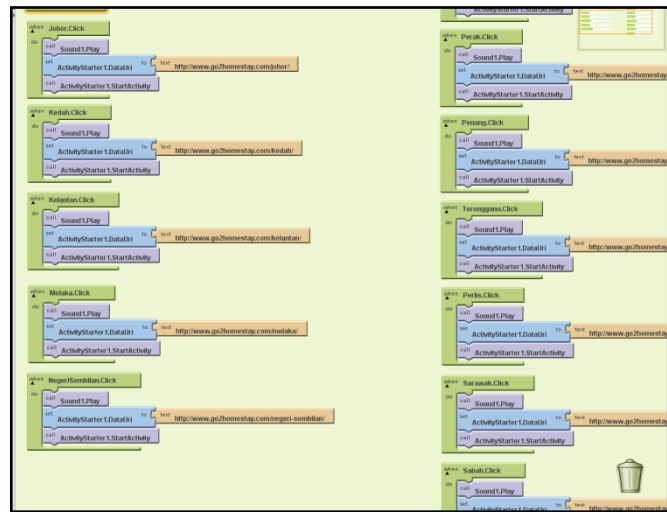
Figure 4.7: Once user trigger button Kelantan homestay, the app automatically linked to go2homestay website
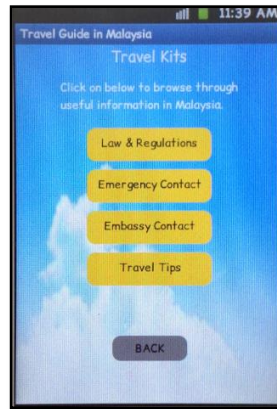
Figure 4.8: Travel kits listing

Figure 4.8 above shows travel kits listing, it has useful information such are law & regulations, emergency contact information, embassy contact information and some travel tips in Malaysia. Once, the user trigger above buttons, the app will call another screen to shows the information. Figure below shows back end process during development of travel kits features.
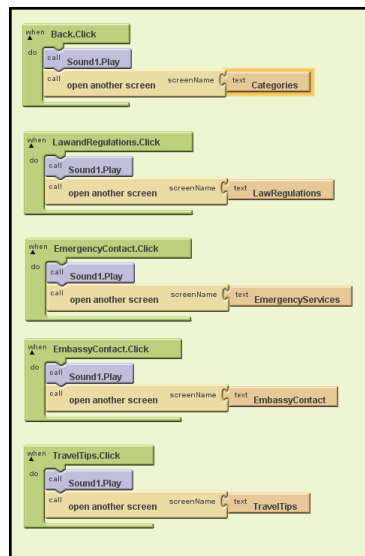
Figure 4.9: Once, user trigger the above button, the app will call another screen that has the kind of information
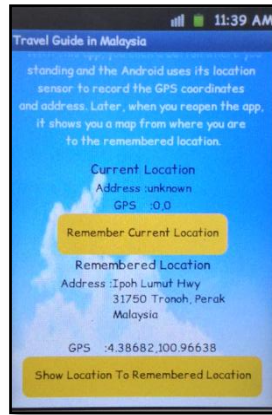
Figure 4.10: GPS-Remember Me

Figure 4.10 above shows GPS features, that funtionly for user to mark location when do not have clue where they are. This features really interesting and very useful for user. For instance, they mark PETRONAS Twin Towers and going back to hotel. One day later, if the user wish to go back, the user reopens the app and click on show location to remembered button, the app will linked to Google maps, this maps will point where the user standing to remember location which is PETRONAS Twin Towers. Meanwhile, figure below is the back end process during development of GPS features.
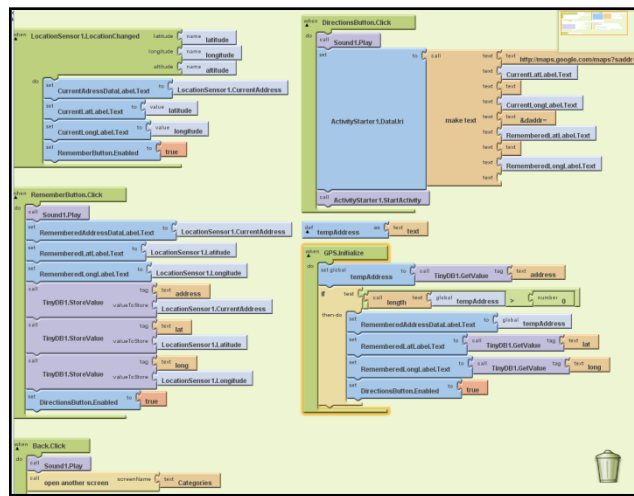
Figure 4.11: The back end process of GPS features

4.3 Discussion of findings/results

Survey form were circulate to 32 respondents with seven simple questions have been asked during second testing which is conducted to ensure the app meets its objectives and the performance of the app is satisfying the users. The questionnaire will distribute to user that have test iTravel to gain their feedback and suggestion. The feedback and suggestion collected will be analysis and use to enhance the app.
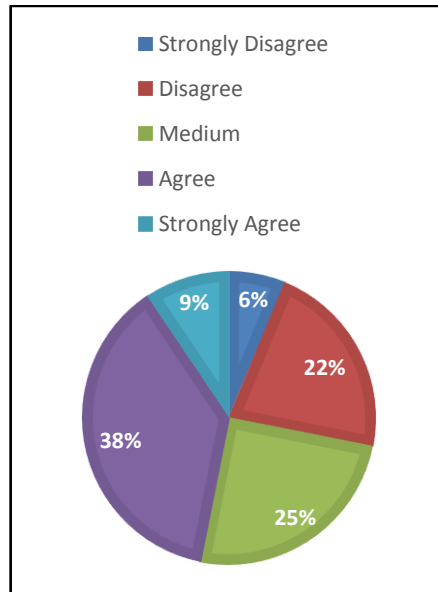
Figure 4.11: Question 1-Do you have the difficulty to get information in new environment when you travel?

Figure 4.11 above shows the result of the respondents about the problem arises when travel, 38% respondents said Agree that they have the difficulty to get information in new environment whiles travel, while 25% respondents give medium result about this problem. 22% disagree with this problem because everything information only one touch in their hand but they lack of information about attractive destination. Other respondents said disagree about this matter.
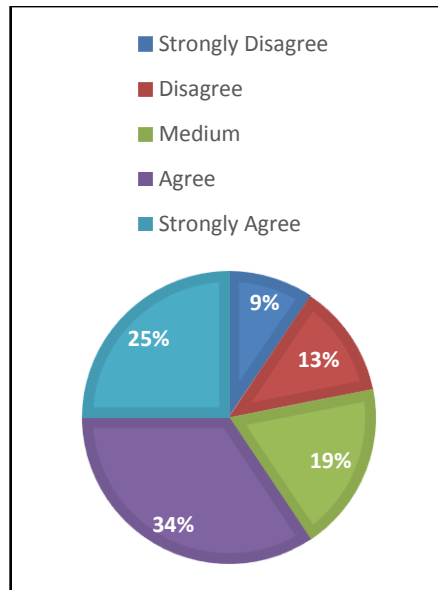
Figure 4.12: Question 2-Do you face difficulty in cost and limitation when you travel in other country?

Figure 4.12 above shows the results from the respondents about the difficulty in cost and limitation when they travel in other country. The highest respondent which is 34% agree this problem is the common problem when travel over their capital. This problem need to construct carefully before go to other country. Most of the respondent's complaint about the tourism industry of each country does not provided specific activities for the young urban traveler that going to expose about the extreme experience. Meanwhile, 25% respondents strongly agree about this matter especially students that having limited budget when travel. The rest respondents not faced this problem.
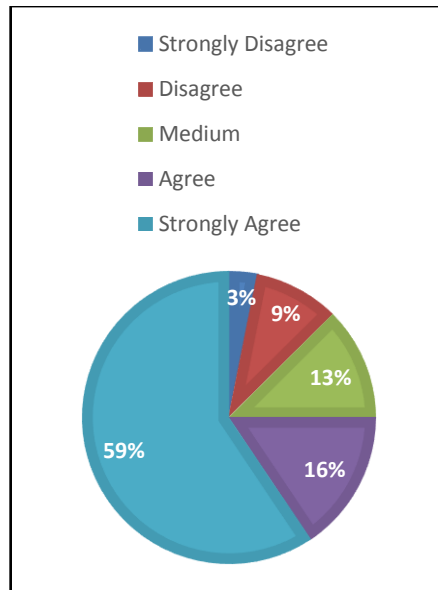
Figure 4.13: Question 3-Do you need simple application to assist when you travel?

Figure 4.13 above shows the result from respondent about their need of simple application to assist them when travel. Most of the respondent's which is 59% strongly agree they need the simple application for travel. With simple application that able for the mobile phone is the best thing to them, because most of the respondent using mobile device or smartphone in their daily life. If simple application able to develop, they without hesitate will use that app if it is relevant and useful.
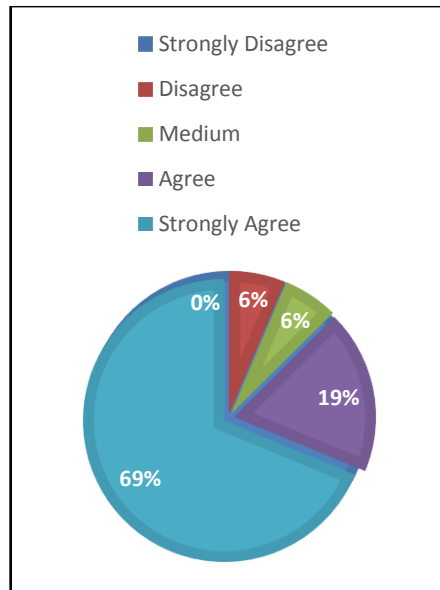
Figure 4.14: Question 4-After you use the application, do you think this it is useful information?

Figure 4.14 above shows the result from respondent about usefulness of information in this application. 69% respondents strongly agree this app was able to meets their requirement as a tourist. If, app developer able to twist more about the interface app, the app became more attractive, it is because relevant content with the attractive interface able to attract more user to use it. This respond, is one of the feedback of user respondents. The rest of respondents also agree to this question.
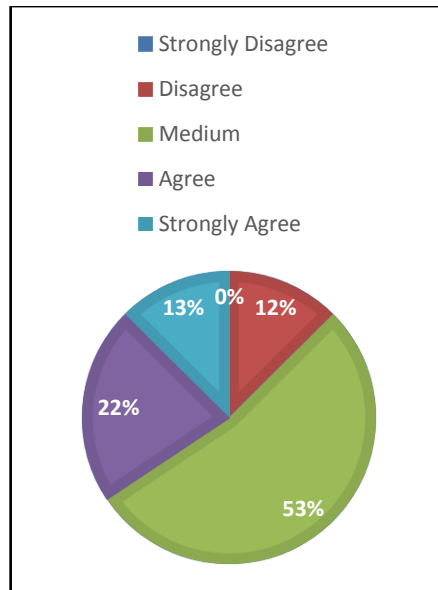
Figure 4.15: Question 5-Do you think interface application attracts your attention?

Figure 4.15 above shows result from respondents about the interface application. As mention above interface and relevant content is much related to attract more user. As a result, 53% respondents give medium for this result. The interface should be more interesting to be commercial. By the way, 22% respondents agree the interface application attracts their attention because of great combination color.
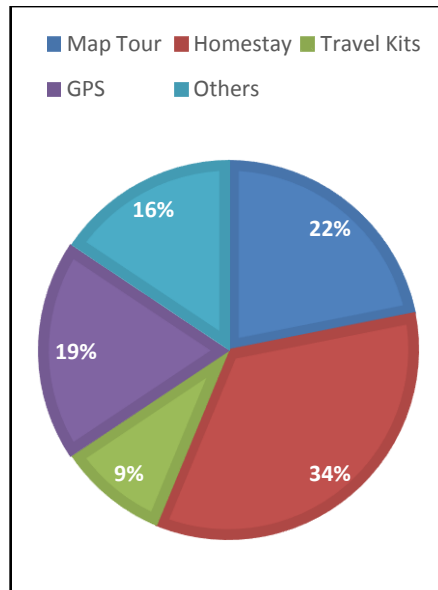
Figure 4.16: Question 6-What parts of the features in an application are important to you when travel?

Figure 4.16 above shows the result from respondents about the important features in this proposed app. Most of the respondent which is 34% chooses that homestay is important, actually from the respondent respond, they really excited about this accommodation and most of them does not know this existence of website. When the author talk and approach them to get involved with the local activities they so exciting and will choose stay at homestay rather than hotel. They want to experience themselves about the culture of Malaysia. Meanwhile, 22% students choose map tour as important to find attractive destinations in Malaysia.
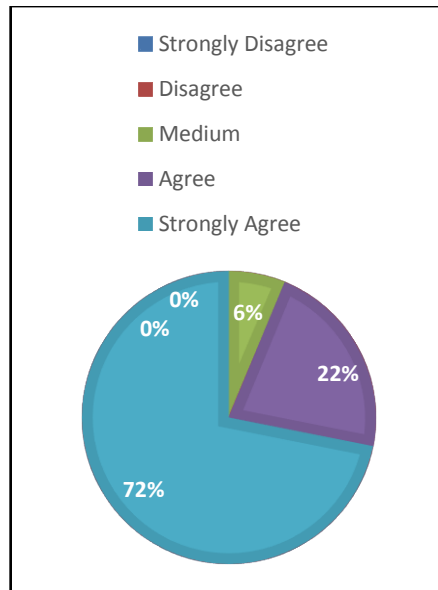
Figure 4.17: Question 7-Would you like to use this application in the future?

Figure 4.17 above shows the result from respondent that likes this app and will be use in the future. 72% respondents strongly agree and recommended to use this app when this app launch. And the rest if respondent also agree with use this app in the future uses.

4.4 Summarization

This chapter discussed how the system was developed based on requirement defined on previous chapter and thoroughly tested based on the test plan. Therefore, Travel Guide in Malaysia Mobile Application is reliable and provides functionality to the user.

CHAPTER 5

CONCLUSION & RECOMMENDATION

5.1 Conclusion

The objectives of the research project is defined clearly in the methodology process to conduct the whole process to solve the problem arise. The objective is to build simple mobile application guide to foreign students which are expected tourist, else, to provide sufficient information and ensure tourists able travel to the destination with cheapest cost. To enhance this objective, the author also researched about the most based devices that user in daily life, from the information gathering shows that the most based devices used by user is Android.

The author uses this lead to use MIT App Inventor to take advantage of automated tools and techniques to restructure the process of building mobile application. This process replaces hand-design and coding process and give some advantages to the author whiles build this app because is more capable process. These tools enable the author to drag and drop generated code.

After, the software has been selected to use, the author need to create diagram because diagram are used to represent planning information, overview of app, data models and details design. Before diagram created the author need information to interpret the problem. Survey form has been circulated to a few tourists and they give responses to complete the form. The rationale of this form is to narrow down the scope of study where the application is for tourist.

Moreover, review had been conducted to discuss the concept of Travel Guide in Malaysia Mobile Application. Besides that, the research on several existing app like

TripAdvisor also has been done to get the advantage and disadvantage about the functionality and how app work. This information may serves as a reference to help in developing the propose app.

Totally, to archive objective of this project thoroughly explains about the evolutionary prototyping model which is the methodology that used in developing iTravel. The iTravel will be developed accordingly based on the phases in evolutionary prototyping and each phase will be carried out as the timeline that have been planned in the Gantt chart. This methodology is effective method. The iterative process during the development allows the changed in the app and will continue until develop a final app that can fulfills user requirement. Although it does not provide all the function that user needed at the beginning, as the iterative processes repeat, a better version of app will be produced. The last prototype will become the final app.

5.2 Recommendation

As for the future enhancement and improvement of this application, all of the opinion from user will be take seriously to commercial this app. The app can be enhancing to be more dynamic in the aspect of its compatibility with the devices screen size and resolution. As for the time being, the application is best running using smartphone. By building the application to be compatible with the various screen sizes and resolution as well as adding more features, the application will become more competitive and is able to grab potential user attention to use it.

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GooglePlay.
<https://play.google.com/store/apps/details?id=hu.pocketguide.bundle.KualaLu mpur_lite>

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

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APPENDICES

KEY MILESTONES   APPENDIX 1-1

No		Task	Month																																				
			5				**6**				**7**				**8**				**9**				**10**				**11**				**12**			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1		**Travel Guide Mobile Application**																																
2		**Stage 1 - Proposal Approval**																																
3		Endorsement on the project topic	■	■																														
4		Project proposal submission			■																														
5		**Stage 2 - Research and Development**																																
6		**Phase 1 - Requirement Planning**																																
7		Research on selection topic				■																												
8		Completion of questionaire					■																											
9		Collection primary data						■																										
10		Collection secondary data							■																									
11		**Phase 2 - Analysis**																																
12		Analysis on current mobile application								■																								
13		Analysis data collection									■																							
14		Analysis interaction between user and application									■																							
15		Analysis flowchart or diagram										■																						
16		Analysis user interface design										■																						
17		Analysis application design											■																					
18		Analysis simulation of prototype											■																					
19		**Phase 3 - Design**																																
20		Design the interface of prototype													■																			
21		Proposal defence and progress evaluation														■																		
22		Submission of of interim report															■																	
23		**Phase 4 - Implementation**																																
24		Simulation development																	■															
25		Cutover new system																		■														
26		Submission of progress report																			■													
27		**Phase 5 - Testing**																																
28		Development testing																				■												
29		Development of the prototype																					■											
30		User testing																						■										
31		Evaluate results																							■									
32		Submission of dessertation first draft																							■									
33		**Stage 3 - Documents and Publications**																																
34	⇒	SEDEX																											■				
35	⇒	Online submission of technical report and dessertation																											■				
36	⇒	VIVA																													■		
37	⇒	Produce final dissertation																														■	■
38	⇒	Submission of project dissertation																															■

	Legend:
🌱	Project completed
⇒	Project in progress

44

No	Task	Month				5	6	7	8	9	10	11	12
		1	2	3	4								
1	**Travel Guide Mobile Application**												
2	**Stage 1 – Proposal Approval**												
3	Endorsement on the project topic												
4	Project proposal submission												
5	**Stage 2 – Research and Development**												
6	**Phase 1 – Requirement Planning**												
7	Conduct research about the application												
8	Submission of extended roposal												
9	**Phase 2 – Analysis**												
10	Analysis mobile application in market												
11	Analysis demand from target user												
12	**Phase 3 – Design**												
13	Design and analysis of an interface application												
14	Proposal defence and progress evaluation												
15	Submission of of interim report												
16	**Phase 4 – Implementation**												
17	Simulation development												
18	Cutover new system												
19	Submission of progress report												
20	**Phase 5 – Testing**												
21	Development testing												
22	Development of the prototype												
23	User testing												
24	Evaluate results												
25	Submission of progress report/ interim report												
26	**Stage 3 – Documents and Publications**												
27	Produce dissertation												
28	Submission of project dissertation												

[USER TESTING] Travel Guide in Malaysia Mobile Application

Nick Name: ……………………………………. Status: ……………………………………. Age: …………………………………….

Kindly provide answers to the all questions below. Please rating from lowest to highest level.
(Strongly Disagree 1, Disagree 2, Medium 3, Agree 4, Strongly Agree 5)

	1	2	3	4	5
1. Do you have the difficulty to get information in new environment when you travel?					
2. Do you face difficulty in cost and limitation when you travel in other country?					
3. Do you need simple application to assist when you travel?					
4. After you use this application, do you think this application is useful information?					
5. Do you think interface application attract your attention?					
6. What parts of the features in an application are important to you when travel?					
☐ Map Tour					
☐ Homestay					
☐ Travel Kits					
☐ GPS					
☐ Others *(please state)*					
7. Would you like to use this application in the future?					