MOBILE TRANSLATOR GUIDE FOR TOURISM DESTINATION IN LANGKAWI (MTGTDL)

ADEL AHMED MOHAMMED ALHAJJ

UNIVERSITI UTARA MALAYSIA
2012

MOBILE TRANSLATOR GUIDE FOR TOURISM DESTINATION IN LANGKAWI (MTGTDL)

A project submitted to Dean of Research and Postgraduate Studies Office in partial Fulfillment of the requirement for the degree
Master of Science (Information Technology)
Universiti Utara Malaysia

By
Adel Ahmed Mohammed Al-hajj

DEAN OF AWANG HAD SALLEH GRADUATE SCHOOL
UNIVERSITI UTARA MALAYSIA

PERMISSION TO USE

In presenting this project in partial fulfillment of the requirements for a postgraduate degree from Universiti Utara Malaysia, I agree that the University Library may make it freely available for inspection. I further agree that permission for copying of this thesis in any manner, in whole or in part, for scholarly purpose may be granted by my supervisor(s) or, in their absence by the Dean of Awang Had Salleh Graduate School of Arts and Sciences. It is understood that any copying or publication or use of this project or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to Universiti Utara Malaysia for any scholarly use which may be made of any material from my project.

Requests for permission to copy or to make other use of materials in this project, in whole or in part, should be addressed to

Dean of Awang Had Salleh Graduate School College of Arts and Sciences
Universiti Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman
Malaysia

Abstract

Mobile devices can be used anywhere and anytime. Relying on this characteristic, this search aims to introduce mobile electronic translator guide for tourism destination in Langkawi in order to ease the communication between the who are talking in different languages to have easy access to places of interest in Langkawi and facilitate the user to use this application without internet. Facilitating or enhancing the communication leads to convergence of cultures. As long as the research deals with Malaysians and tourists who talk Arabic language, the prototype created will be useful for both sides where. Learning common phrases will urge users to have information about a specific language

Dedication

إهداء

أهدي هذا العمل المتواضع

إلى أبي الذي لم يبخل علي يوماً بشيء الذي علمني النجاح والصبر,,,,

إلى أمي التي زودتني بالحنان والمحبة,,,,,

إلى من وقفت بجانبي في السرا ء والضرا ء و تحملت معاناة لغربه من أجلي ,,, زوجتي الحبيبه

إلى اخي الغالي الذي كان عونا لي دائما في مسيرة دراستي مرادو,,,,,

إلى من وقف بجانبي في دراستي ولم يبخل عليا بنصائحه الغاليه د. خالد ناصر الحاج ,,,,,,,

إلى من أخي الغالي من دعمني بنصائحه نبيل,,,,,

إلى الذي انسا وحشتي ابني الغالي عمار,,,,,

إلى أهلي وأحبابي الذين لم ينسوني في غربتي ,,,,,,

عادل أحمد محمد الحاج

Acknowledgement

Praise to Allah for his guidance and blessing for giving me the strength and perseverance to complete this project.

I would foremost like to thank my parents, for providing me with the opportunity to pursue my goals for their love and affection and a great effect for achieving my study.

I would like to express my deep and sincere gratitude to my supervisor, **Dr. Khairudin Kasiran .** His wide knowledge and his logical way of thinking has been of great value for me. His encouragement and personal guidance has provided a good basis for the present thesis.

I would like to thank my second supervisor, **Dr. Abdul Jaleel Kehinde Shittu** for his guidance and constant motivation that has enabled me to complete my project work.

I owe my loving thanks to my wife and my son. They have lost a lot due to my study abroad. Without their encouragement and understanding, it would have been impossible for me to finish this study.

I would like to thanks my big brother Murad for constant motivation that has enabled me to complete my project work and my special gratitude is due to my brothers, sisters and friends.

Table of Contents

List of Tables

List of Figures

List of Appendices

CHAPTER ONE

INTRODUCTION

1.0 Introduction

Mobile devices were one of the greatest technology have that been discovered. Certainly, the mobile devices are used and involved in many fields and services. One of these fields is the tourism service. The services of mobile tourism has become a vital tool for supporting tourists in the world (Tan, Goh, Theng and Foo, 2007).

Tourists have already adopted many new technologies, e.g.web, mobile phones and digital cameras. This suggests that there are opportunities for new tourist systems that fit tourist practice (Brown & Chalmers, 2003).

Use of information technology became a key strategy to enhance and improve benefits of competitions in all parts of the world. In addition, the information technology are very important in the development of hospitality services in order to cope with the wishes and needs of tourists (Lam et al, 2007; Wang and Qualls,2007; Duffy,2010).

Mobile devices are used to serve the interactions between local people and tourists (Lee and Watson, 1993; Munro, 1998). Although tourism presents a number of barriers to introduce new technology in particular the need for devices to be sufficiently mobile tourists have already adopted many new technologies, e.g. the web, mobile phones and digital cameras. This suggests that there are opportunities for new tourist systems that fit tourist practice (Brown & Chalmers, 2003).

Nowadays, no one can leave his mobile .It becomes part of their life's. This can be noticed when we read what Kayan mentioned when he said "Information technologies (IT) could help greatly in today's era of multinational collaborations" (Kayan, Fussell & Setlock, 2006).

Many people would like to travel around the word as tourists, businessmen or students. Some of them will face a problem in the communication with the local people in that country because of the language and cultural differences. Cross-cultural collaboration is still suffering from variety of issues such as misunderstanding (Cramton, 2001; Herbsleb, Mockus, Finholt & Grinter, 2000).

This application on the E-commerce is using M-commerce that allows the tourist to know details addresses of places in Langkawi without using the internet because there are many tourism places that do not have internet to enable the tourists to retrieve information easily.

The prototype will be developed in this research takes three languages with different cultures, Arabic, English and Malay Language. Bahasa Malaysia is an official language in Malaysia.

The Arabic language occupied the fifth level in the world as Wingyan (2008) said "Arabic, the fifth most popular language in the world, is spoken by more than 284 million people in some 22 countries".

1.1 Research Problem

The mobile is very important technology in our life because it helps to improve many sectors such as M-tourism but unfortunately, the mobile usage for tourism purposes is still at infancy stage (Sreenivasan & Noor, 2010). Very few applications have been created in order to guide tourists to landscapes and parks in the destination country such as Malaysia (Sreenivasan & Noor, 2010).

Therefore, a mobile application for tourism services is greatly needed to help the tourists to get many type of information. Furthermore, not all part of Malaysia can connect to internet because there are no coverage for the internet in some rural areas and tourism places.

It becomes very important to find a tool for facilitating the communication between the Arabic speaking tourist and Malaysians. As it known, if not all Arabs and Foreign, most of them, do not speak Bahasa Malaysia language as well as most locals in Malaysia can not speak Arabic and English well.

The problem statement focuses on the communication facility between different people with different languages and cultures and help to provide application to support the tourists to get information about Langkawi without using the internet anywhere anytime.

1.2 Research Questions

The research questions are:

i. What are the system requirements for translator guide application on mobile devices tourism destination?

ii. How can we use the mobile devices in order to facilitate the communication between Malaysians and tourists more easily?

iii. What are the factors need to evaluate from the user perspective for mobile application translator guide for tourism destination?

1.3 Research Objectives

The main objective of this study is to develop the mobile tourism application that provides translator guide for tourist destinations in Langkawi for addresses of places about tourism places in without use internet.

Specific objectives are:

I. To identify the system requirements for translator guide application on mobile devices tourism destination.

II. To facilitate the communication between Malaysians and tourists more easily.

III. To identify the factors that need to evaluate from the user perspective for the mobile application translator guide for tourism destination.

1.4 Research Scope

This study focuses on the design of the application that is used by tourists about tourism places of Langkawi.

The scope of this study will be focus on all Arabs or Foreign who visit Langkawi and speaks Arabic languages or English languages, and all Malaysians who communicate with visitors from countries. Also it involves any Arabic or Malaysian or Foreign who is interested to know about for addresses of places in Langkawi state using the other language

1.5 Research Significance

- The importance of the research involves the possibility of facilitating communication between people of different languages and cultures.

- This research is aimed to design a prototype to help the tourists by translating the hotels' addresses, restaurants, places of tourism in Langkawi, and the common phrases that the tourists need to use. By identifying these needs, this prototype will help the tourists to know exactly about the places of tourist in Malaysia. This is because; the researcher assumed that tourists do not exactly about the places. Hence, this prototype does not need internet to use. So, it will be easier for the tourist to use.

1.6 Summary

This chapter provides introduction about the study and explains the problem objectives, scope, significance of this study, as well as indications of the state of the real world these elements are important because they will support the implementation of the project. The next chapter deals with review of literature that expands on the relevant works.

CHAPTER TWO

LITERATURE REVIEW

2.1 Tourism M-commerce overview

Information technology is contributing positively to succeed of any tourism company, where it is plays the key role in constituting the decisions and strategies of the tourism industry. Mobile commerce, being a subset of internet and technology, has several technology acceptance and adaption research issues that hinder its success (Seoki Lee, 2010). The adoption of the new mobile technology helps the services providers by improving the communication between the customer and tourism organization and plays a vital role in increasing the capacity of productivity and profitability of the organization as well. In addition, the enhancement or quick access to useful information enable tourists to access important information and tourism related services. Business activities are considered as main part of the tourism industry due to its possibility to improve the products and services to attract a larger number of tourists and maintain their loyalty.

Al-Adeileh (2008) defines Information Systems (IS) as a set of linked and inter connected elements, collecting ,storing, processing and reporting data and information that are utilized in the enhancement of decision-making process. Additionally, an information system is also considered to collect, process, store, analyze and distribute information for a particular purpose.

2.2 M-Tourism

Through the literature review of this issue, it provides examples on the experimental and commercial mobile tourism services. It showed some characteristics on the mobile tourism services, for example, wireless access to information using communications technologies such as GPRS, 3G, 802.11 Wireless LAN, and Bluetooth.

The user interface consists of a map that shows interesting spots to visit, and the information displayed is context-sensitive, depending on the user's location, the artifacts within range and each artifact's relation to other artifacts. Information access is via Bluetooth associated with each artifact (Cherverst, Mitchell & Davis, 2002).

2.3 E-Tourism

The World Tourism Organization defines tourism as "The activities of a person traveling to a place outside his usual environment for not more than one consecutive year for leisure, business or other purposes" (Andersen and Henriksen, 2006). E - Tourism could also be defined, as the use of new information communication technologies to provide on line access to holistic cultural resources and experiences and associated souvenir products or cultural artifacts.

Similar to many other services, E-Tourism products are almost exclusively dependent upon audio visual presentation and descriptions, that is, they cannot be

physically displayed or inspected at the point of sales. This is, in itself, a challenge for the tourism industry at the origin of the customer where information about the tourist destination has to be presented in an attractive and convincing manner. Traditionally, the tourist industry has used advertisements and brochures with intriguing photos of hotels, local attractions, nature and culture to sell its products. In the era of the Internet an alternative channel for advertising is introduced. Due to the development of convenient means of transportation and the decrease in prices of airfare, it has become more common that traveling goes beyond regional destinations (Andersen and Henriksen, 2006).

2.4 ICT for Tourism

Information and communication technologies (ICT) have had an enormous impact on the tourism industry worldwide an impact that is still in its early stages in developing countries, where the potential for E-Tourism is especially promising. In order to help these countries make the most of that potential, United Nations conference on trade and development (UNCTAD) has developed an E-Tourism initiative.

The result has increased visibility for the country destination and a tourism industry that is highly responsive to the needs of today's travelers for quick access to information, customized products and secure, online payment facilities. (United Nations conference on trade and development, 2008).

2.5 The impact of ICT on Tourism

ICT is reshaping the basic structure of both commerce and society in general. The trend in which consumers are demanding for information, the importance of ICT to the success of a tourism enterprise can only grow in the future. As a result, tourism enterprises need to understand, incorporate and utilize ICT strategically in order to serve their target markets, improve their efficiency, maximize profitability, enhance services and maintain long-term profitability (Buhalis, 1998).

The E-Tourism concept includes all business function (E-commerce, e-marketing, e-finance, e-accounting, e-HRM and e-procurements e-R&D and e-production) as well as E-strategy and E-planning and E-management for all sectors of the tourism industry, include public sector organizations (Buhalis, 2003).

As demonstrated in Figure 2.3, E-Tourism bundles together three distinctive disciplines, namely:

- ✓ Business management
- ✓ Information system and
- ✓ Tourism management

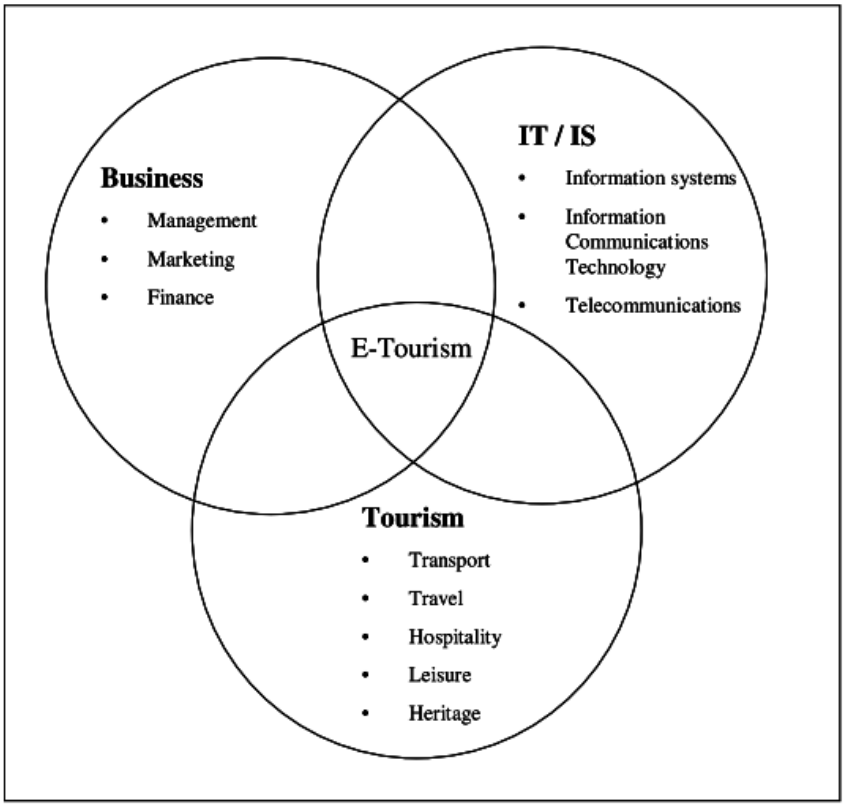


Figure 2.1 E-Tourism Concept and E-Tourism Domains

2.6 Cultural Differences

First, is important to define the term "culture". According to Woolfolk, Winne and Perry, culture is "the knowledge, rules, traditions, attitudes and values that guide the behavior of a group of people and allow them to solve the problems of living in their environment". It is further argued that language should be included in the description of culture because it is an integral part of community (Ozkirimli, 2000).

Studies based on usability metrics clearly show differences in performance with users from diverse cultures, although the reasons for these differences can be difficult to pin down without insights into the users' thinking. At present the origins and

consequences of these cultural effects remain controversial (Dunckley, Smith and Howard, 1999). Herman (1996) noted that the outcome of user based testing indicated that cultural effects exist and apply a strong influence on the outcome of user interface evaluation.

While we are dealing with two kinds of people we have to take in account the behavioral differences between them. Therefore, the objective is to investigate the ways cultural differences might affect mobile phone performance of users with different cultural background, and to develop ways to design appropriate interfaces to accommodate cultural difference. They concluded that Cultural difference was found to some extent in icon recognition according to the level of abstraction. The pilot tests suggest possibility of this research and can be an initial study for further researches clarifying relation between culture and mobile phone interface design (Kim and Lee,2005).

Differences present between two groups when they deal with the same environment, that what Bucolo has explained when say, “Differences were identified in the ability of the cultural groups to obtain a sense of Presence. This difference between the two groups was related to their ability to become involved within the virtual environment and to be comfortable with the human computer interface associated with the control of the virtual environment” (Bucolo, 2004).

2.7 Mobile Technologies

The mobile has entered the mainstream in 2002, when the number of global mobile phone networks increase sharply then the number of fixed lines. In January 2007, the number of mobile phones, ended up at 2.6 billion dollars. Almost of citizen on this world has a mobile device. In the developed world, mobile technology still exists between IT and other communications, but in developing countries, mobile technology may be just the people can access it (Tiainen et al, 2009).

According to Teng and Helps (2010), Mobile technologies such as Smartphone are enable the new customers to know any information about the products and accomplish their tasks with the mobile devices.

Based on (Mohamed et al,2008) the mobile technology is the application that are developed to aid personal digital, mobile phone or enterprise digital, they can be installed to the phone from the plant or download the application by the user from the website or from other networks.

2.8 Mobile phone

Mobile phone device that behaves like a normal phone, being able to move to a wider area (cellular phone, 2007). Mobile phones are intended for use in cellular network and providing a standard set of services that allows mobile phones to communicate with each other on different types of phones and in different countries, (IBM, 2006).

The possibilities of mobile phones now are more to become smart phones. The first smart phone was developed by IBM in 1992. In 2005, advanced smart phone has a high potential to 640x480 pixels / 65K display, 128 RAM. It's a Secure Digital (SD) memory card. Intel 520 MHz processor works with Windows Mobile 2005 operating system, including digital cameras.

It can support us Universal, as Mobile Telephony Services (UMTS). General Packet Radio Service (GPRS) (IDC, 2008). The wireless local area network (WLAN) and Bluetooth. Most operating systems for smart-phone Symbian, which is present leader with more than 80% market share. (Herstad et.al, 1998) Figure 2.1 shows consumer services.

Figure 2.2: Consumer Services (Mobile Computing, 2005)

Personal Digital Assistants (PDA) are portable devices, which were originally designed as personal organizers (Palm PC, 2007). Key applications include PDA watches, date book, address book, task list, note pad and a simple calculator. The main advantage of using a device to synchronize data with a computer and notebook.

Most of the CPC worked with the use of ARM processor technology "developed" Intel. Possibilities of CPC, there are at the moment, limited storage, and silent operation. Single user interface tasks, low power consumption compared with notebooks and compact devices. Nevertheless, pocket computers have more limited capacity, compared with personal computers (PCs).

PDAs are the most popular devices in business and consumer applications. With the help of wireless technology Bluetooth, workers can gain access to product information and corporate databases from remote locations. Popular operating systems are PDAs Palm operating system and Windows operating systems (Garretson, R, 1999). Fig. 2.2 shows some of the New Generation of Mobile Phones

Figure 2.3: The New Generation of Mobile Phones (Mobile Computing, 2005)

2.9 Mobile Usability

Usability guidelines require a measurement mechanism to be used to monitor, understand and improve software processes as well as mobile application (Kasper and Effie, 2007).

Nielsen has defined usability by five quality components (Nielsen, 2003,):

I. Learnability: How easy is it for users to accomplish basic tasks the first time they encounter the design?

II. Efficiency: Once users have learned the design, how quickly can they perform tasks?

III. Memorability: When users return to the design after a period of not using it, how easily can they reestablish proficiency?

IV. Errors: How many errors do users make, how severe are these errors, and how easily can they recover from the errors?

V. Satisfaction: How pleasant is it to use the design?

There are many other important quality attributes. A key one is utility, which refers to the design's functionality. Usability and utility are equally important, it matters little that something is easy if it's not what you want. It's also no good if the system can hypothetically do what you want, but you can't make it happen because the user interface is too difficult. To study a design's utility, you can use the same user research methods that improve usability (Nielsen, 2003).

In 2008, Hussain and Ferneley found that the mobile users are increasingly becoming reliant on their mobile phones as their primary communication medium, and will nearly always carry their handsets with them. These include the news, travel, weather, sports updates that are becoming essentials and 'must-have' for many users (Leung, Chan, and Chan, 2003). Also for knowing more about the usability, there are some studies on how to measure usability (Daniel et al, 2006).

Abid Waris, a senior user experience consultant at Web credible, has an article which has published credible website. He explained seven usability guidelines for websites on mobile devices. We can take them for the standalone application on mobile devices. These are the usability guidelines with some explanations.

1-Meet users' needs quickly.

Mobile and PC users can have different reasons for visiting the same site. Mobile users are more likely to want information to help them at that location or time, such as finding directions or finding out what's going on nearby. Also, they might want quick entertainment to pass away a short period of time, like something to read on the bus or while waiting to meet a friend. For your site, predicts users' needs and fulfill these as quickly as possible. Exceptions to this are items people download to keep on their phones (e.g. buying ringtones).

2- Do not repeat the navigation on every page

For your website on a mobile, only display the navigation on the homepage. On other pages only include links back to the homepage and back to the last important point along the path users have taken. Show these links at the top and bottom of the page so they're never too far away. BBC Mobile does this effectively with a clickable breadcrumb trail at the top and a list of links at the bottom.

3-Clearly distinguish selected items

Mobile phone users tend to have poor cursor control. This is because moving the pointing device down (with the joystick or direction buttons) simultaneously scrolls the page and highlights links, buttons and form fields. Due to this lack of control it's important to clearly feedback to users what item is in focus. This can be done by changing the appearance of an item to make it stand out from everything else. For example, you can change the front and background color of links and buttons.

4-Make user input as simple as possible

Allow users to input information by making selections instead of entering free text (or at least provide this as an alternative method). Entering text on a mobile phone can be painfully slow and error-prone on the typical 12 button mobile keypad. Mobile users are more likely to make mistakes (due to misspelling or mistyping) or take shortcuts. Sets of well thought out links on quick loading pages can be very usable.

5- Only show essential information

Mobile phone screens are of course tiny and have only a fraction of the area or pixels on most PC monitors. Be sure to identify page requests coming from mobiles and only send down the most essential of information. Otherwise, important content might be pushed down or difficult to find amongst everything else on the page.

6-Place basic browsing controls on the page

To save screen space, mobile browsers often don't display basic controls such as 'Back' or they display the web page in full screen mode. As such, always include a 'Back' button on every page other than the homepage.

7- Design mobile-friendly page layouts

On your website, make sure you design the page to present content in the right order and render well on mobile screens. Website layouts for large landscape PC screens usually don't work well on small portrait mobile phone screens. Furthermore, mobile browsers and page trans coders usually vertically stack pages suitable for portrait display.

2.10 Mobile Applications

To achieve portability, many applications are developed for a specific environment that runs on top of the mobile device's native platform. One such environment is the Java Micro Edition (JME) which has the highest market penetration amongst mobile devices. It can run on most platforms, including Symbian OS, and as a result most mobile games have been developed for JME (Morales and Nelson, 2007).

Adobe has targeted the mobile market with the release of Flash Lite that offers the ability to create mobile applications and games that are cross-platform compatible (Rhodes, 2006). The Flash Lite player is available for Symbian OS, BREW and Microsoft Windows Mobile platforms and this emerging technology has the potential to be a strong competitor with JME (McDougall, 2008).

Koller, Foster and Wright was shared their experience in building a tile-based arcade-style mobile phone game with JME and Flash Lite in an attempt to provide a comparative analysis of these two environments. It is hoped that this will enable developers to make informed decisions as to which environment offers the tools best suited for the development of a particular mobile phone game (Koller, Foster and Wright, 2008).

2.11 Mobile Services

Karlsson (2004) states that the Board of Mayor Mark local tourism, located to the south-east of Goteborg, plans to introduce a new mobile service for visitors having a particular focus on nature-based tourism and interior design. The region is well known for its textile and furniture companies with Mark leading them as the "fabric center" in Sweden. The Tourism Board desires for the tourists to buy the fabrics and avail the services of an Interior decorator' Accordingly, a mobile service is made as a part of the Virtual Office of Tourism to support the process' This mobile service can be downloaded from the mobile phone by the tourists with an option to use multiple languages.

According to the Director of Tourism in Sweden, Gunilla Malmen, it is possible to create a mobile service to provide this type of service, but it is relatively pricey.

2.12 Mobile Guide Service

Schmidt e at (2001) referred to the mobile users such as tourists require mobile services, to do many purposes: on business, for recreation, education, and entertainment, while travelling. Such as, booking with the help of travel agents buying guide books and maps. On the other hand, the travel section includes information on flight schedules from the official Airline Guide database.

Based on (Mohamed.et.al, 2008) the mobile technology is the application that are developed to aid personal digital, mobile phone or enterprise digital, they can be installed to the phone from the plant or download the application by the user from the website or from other networks.

There are many kinds of mobile applications. Mobile Marketing Association Team spilt these types to many categories like MMS/SMS client music players and browsers

Furthermore, Microsoft Corporation has explained, there are two types of mobile applications, file-based for web like "e-mail clients, mobile internet, and web browsers". In addition non, file-based for non web application like " games, travel, and productivity" (Micro Soft, 2010).

2.13 Android

Android applications are developed using Java and can be ported rather easily to the new platform. Other features of Android include an accelerated 3D graphics engine (based on hardware support), database support powered by SQLite and an integrated web browser (Jerome, 2008).

One of the most exciting and compelling features of Android is that of its architecture where third-party applications are executed with the same system priority as those that are bundled with the core system (See Figure 1). This is a major shift from most systems, which gives embedded system apps a greater execution priority than the thread priority available to apps treated by third-party developers. Also, each application is executed within its own thread using a very lightweight virtual machine (Butler, 2011).

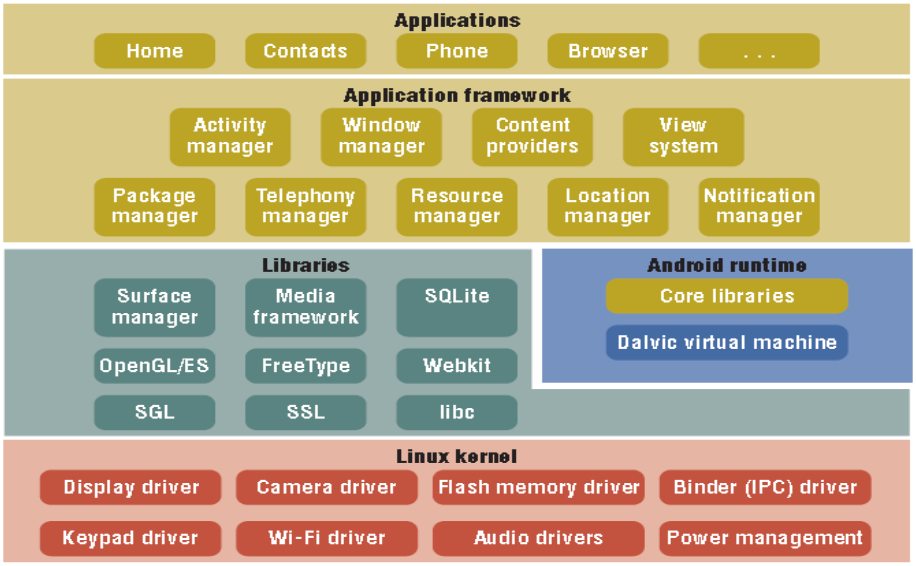


Figure 2.4: Android system architecture (Jerome, 2008)

2.14 Java 2 Platform, Micro Edition (J2ME)

Java 2 Platform, Micro Edition (J2ME) is the one other revolution in Java's short background. When Java was developed in 1995, it seem like the future of computing was in applets, minor programs that could be downloaded and run on demand. A slow Internet and a restrictive all-or-nothing sandbox security model accounted for the initial slow adoption of applets. Java, is a platform, actually took off with the advent of serves, Java programs that run on a server (offering a modular and efficient replacement for the vulnerable CGI. Java further developed into the server side of things, eventually picking up the moniker of Java 2 Platform, Enterprise Edition (J2EE). This was the first revolution, the blitz of server-side Java. And the second revolution is the explosion of small-device Java, and it's happening now. The market for small devices is highly growing rapidly, and Java is important for two reasons. First, developers can write code and have it run on dozens of small devices, without change. Second, Java has important safety features for downloadable code (Sing & Knedsen, 2005).

J2ME is an integral part of the Java 2, together with Java SE, Java EE they make up the main three versions of Java technology, and also work out by JCP (Java Community Process) (Ren & Yu, 2011). J2ME is a highly optimized Java running environment, mainly aim at consumer electronics devices, such as mobile phones, digital set-tops, and car navigation system and so on. J2ME technology was officially launched in Java One Developer Conference in 1999; it transplanted platform-independent character of the Java language into small electronic equipment, allowing the wireless mobile equipment to share between applications.

2.15 Architecture of J2ME

Compared with J2SE Java and J2EE, J2ME are more diversified in operation environment and target, but each of this kind of the use of the products is actually more of a single, and resource constraints also more strict. In order to achieve standardization and compatibility and at the same time try to meet different demand, structure of J2ME is divided into Configuration Profile and Optional Packages (See in Figure 2). Their combination trade-offs formed specific operation environment. Configuration is mainly classified according to longitudinal equipment including storage and processing capability, which defines the virtual machine characteristics and basic class library (Ren, & Yu, 2011). Standardized configuration includes Connected Limited Device Configuration CLDC and Connected Device Configuration CDC.

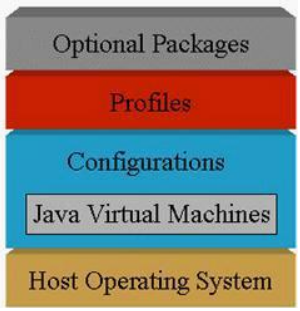


Figure 2.5: Structure of J2ME system (Ren & Yu, 2011).

Established based on Configuration, Profile together with Configuration formed a complete operating condition. Profile is mainly classified into market segment according to specific field; it mainly includes libraries of specific use and the API (Zhang, 2009). The standardized Profile on CLDC has Mobile Information Device Profile MIDP and

Information Module Profile IMP, and the standardized Profile on CDC has Foundation Profile FP Personal Basis Profile PBP Personal Profile PP. Optional package which is independent from the front two provided additional, modular and more diversified functions. Currently standardized optional package includes database access, multimedia, Bluetooth (Ren and Yu, 2011).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Design research methodology has been defined within two concepts. First, it is concerned with undertaking research in to the design process (Van Aken, 2007). The second concepts, design research refer to undertaking research within the process of design (Vaishnavi and Kuechler, 2008). However, these concepts can be identified in the theoretical structure of design research methodology. Design should be investigated and the relationships with research should be addresses. The levels of Design Research and their outputs should be studied as a methodological aspect (Ardakan and Mohajeri, 2009).

Kothari (1985) claimed that research methodology is a systematic way to solve the research problem. It is not a way to know how to conduct a research. Furthermore, other ways to refer to the methods and techniques used by researchers in conducting research, such as, collect technical data, data processing techniques and instruments.

The methodology for this research was adopted from Vaishnavi and Kuechler (2004).This methodology consists of five phases which are awareness of the problem ,suggestion, development, evaluation, and conclusion. The researcher adopted Vaishnavi and Kuechler methodology because it contains the rational phases which will be used to solve the problem and develop application. In addition, Vaishnavi and Kuechler (2004) methodology is a flexible in implementation. Most of the research also is adopted Vaishnavi and Kuechler (2004) methodology to enhance their result of the research.

As long as Design Research Methodology covers all the requirements of current study or project and it is acceptable by many researchers as mentioned above, so it has been chosen for applying it in this research. According to Vaishnavi and Kuechler (2004), the design research methodology includes the major steps as shown in Fig. 3.1.

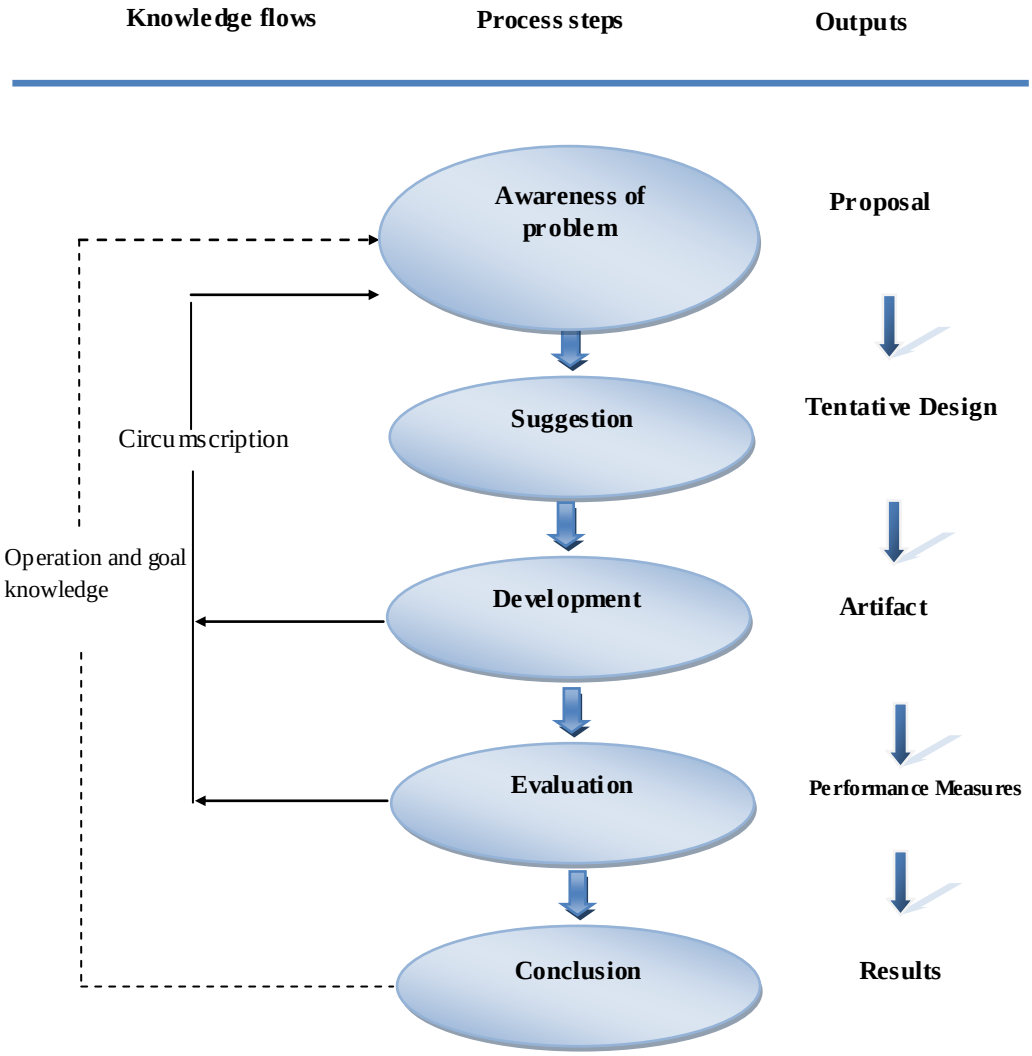


Figure 3.1: The general methodology of the design science research (Vaishnavi & Kuechler, 2004)

3.2 Awareness of Problem

Awareness of the problem is the first step in general methodology (Vaishnavi &Kuechler, 2004). They also explained that, information about problem come from many sources: new developments in industry or in a reference discipline, such as: various applications which may help tourists but they work as a guide. These applications do not work without internet. So, these applications are not active in areas which is not covered by the Internet, and do not provide Sufficient information about the places.

For this study, the awareness the problem arises because of the need to facilitate the communication among Malaysians, Arabs and foreigners, that they already talk different languages. And quick access to the place desired by the tourists these facilitations can be run using mobile devices and provide type of information to serve a tourists without use internet. The cultural differences have been taken in the account for designing such as suited interface for both kinds of peoples. In this stage of the method is usually done by making a series of interviews and discussions with people who involves (Malaysians and Arabs and Foreign).

3.2.1 Data collection

Data collection is a section that helps the awareness of the problem. Based on the objectives of this study, the researcher needs to cover and understand the research domain. The researcher needs also to know the requirements of the tourists that need to provide them in the application. So, this study will achieve that by the interview way to gather the information with the tourists.

3.2.2 Interview

Interviews know as one of the most important ways to collect the information and decide what the requirement and the problem that need to solve. However, the interview made as a dissection with the international student because the student can be a tourist and international tourists.

3.3 Suggestion

After getting and understanding the needs of users form the first phase of design research method, this study suggests using mobile device to build an application support users who have different language and culture to employ this application service specially tourists in Langkawi that will enable the tourists to know more about tourism places and solve the problem which may face the tourists to find a good way to retrieve information Because of all users have mobile device, so there is no need for extra devices to apply . In this way, users who are Malaysians and Arabs can easily communicate with each others.

In this way, users who are among Malaysians and Arabs and Foreign can easily communicate with each others. In this phase of methodology, the analysis should be prepared. So, the output of this phase is a temporary design. The design of the system includes UML diagrams. The UML diagrams are general use case diagrams, detailed sequence diagrams for each use case, and class diagrams.

3.4 Development

The main tools that will use to design and develop the proposed application are:-

- Windows 7.
- Eclipse program.
- Platform Android.
- Photoshop Program.
- SPSS equation, to analyze the results.

3.4.1 System Development

Mobile Translator Guide for Tourism Destination in Langkawi application will be develop by using eclipse as a programming to write the code. In addition, notepad text will be used to store the data, Furthermore, using android platform to use virtual mobile. This application consists of Translator Guide to many languages at the same time facilitate the arrivals to the desired place in Langkawi the adoption on the language chosen by the user, and get common phrases for Malay language.

3.5 Evaluation

The evaluation will conduct after developing of application; it will test by running the system and test the service by making questionnaires. Results checking process by collect the questionnaires and analyze them using SPSS software to get clear

performance measurement will be evaluation consists of four sections to get background about performance of the application,

I. The first section is to measure the perceived usefulness (PU) of the system.

ii. The second section is to measure the perceived ease of use (PEOU) the system.

iv. The third section is to measure the flexibility (F) of the system.

v. The fourth section is to measure the satisfaction (S) of the system.

Perceived usefulness and perceived ease of use were adopted from Davis (1989), flexibility was adopted from Lin, Choong, and Salvendy (1997) and satisfaction was adopted from Lewis (1993).

The researchers will analyze the result of the questionnaire by using the statistical package for social program (SPSS) science. The data is analyzed in the form of descriptive statistics.

3.5.1 Questionnaire

Form of a questionnaire has distributed to the users who already involve (Malaysians and Arabs and Foreign). The format of the questionnaire will be multiple choice questions (MCQ), and the sample of the questionnaire as show table 3.1

Factors	Items	Authors
Usefulness	1- MTGTDL is useful. 2- MTGTDL saves time. 3- MTGTDL saves effort. 4- MTGTDL meets my needs. 5- MTGTDL help me to communicate with others. 6- MTGTDL makes things easy to get done. 7- MTGTDL does everything I would expect it to do.	(Davis,1989)
Ease of use and learning	8- MTGTDL is easy to use. 9- MTGTDL requires the fewest steps to find the specific phrase. 10- With MTGTDL user does not need to write any instruction. 11- MTGTDL avoid user from any mistake. 12- There is no conflict while using MTGTDL. 13- MTGTDL is easy to remember on how to use it. 14- I can use MTGTDL successfully every time and anywhere.	(Davis,1989)
Flexibility	15- The design for data show is flexible. 16- MTGTDL provides flexible user guidance. 17- MTGTDL has menu options dependent on context. 18- It is easy to remember where to find things. 19- I can get information quickly. 20- Information is easy to read**.**	(Lin, Choong, and Salvendy, 1997)
Satisfaction	21- It was simple to use MTGTDL for finding the phrases. 22- The information of MTGTDL is easy to understand. 23- The information is organized clearly. 24- MTGTDL has the functions and capabilities that I expect. 25- MTGTDL has friendly interface. 26- I feel comfortable using MTGTDL. 27- I feel I need MTGTDL on my mobile. 28- The content of MTGTDL is interesting. 29- I am satisfied with MTGTDL**.**	(Lewis,1993)

Table 3.1 References factors

3.6 Conclusion

Research Design Methodology which is used in this study, has been discussed in this chapter. It included four phases:

1. Awareness Phase: ideas, information, issues and problems related to this study.

2- Suggestion Phase: requirements analysis, the output of this phase is the temporary design.

3. Development Phase: determine the programming language which is Eclipse program with platform Android.

4. Evaluation Phase: test the application and find if it is provide the required services.

CHAPTER FOUR

SYSTEMS ANALYSIS AND DESIGN

4.1 Introduction

This chapter will provide the system analysis for steps of MTGTL application prototype. So, this chapter consist a system analysis

4.2 Requirements

System requirements are the foundation upon which systems are constructed. Thus System Analysts are the key connection points between the developer and the client. However, system requirements are very important to reflect the system functions well. Therefore, we need to create system specification that necessary for captured, analysis and important to prototype requirements.

This section attempts to capture the requirements of the system. It consists of functional, non functional, hardware and software requirements. In the priority column, the following short terms are used:

- M – mandatory requirements (something the system must do)
- D – desirable requirements (something the system preferably should do)
- O – optional requirements (something the system may do)

4.2.1 Functional Requirements

No.	Requirement ID	Requirement Description	Priority
	MTGTDL _01	**By Search**	
1	MTGTDL _01_01	If a tourist presses by search button by search must be show type search in the prototype	M
2	MTGTDL _01_02	If a tourist presses hotels button must be show types search in the hotels page.	M
3	MTGTDL _01_03	If a tourist presses Restaurants button must be show types search in the Restaurants page.	M
4	MTGTDL _01_04	If a tourist presses places of tourism button must be show types search in the places of tourism page.	M
5	MTGTDL _01_05	If a tourist presses common phrase button must be show types search in the common phrase page.	M
	MTGTDL _02	**Show List**	
5	MTGTDL _02_01	If a tourist presses show list button must be show types lists in the prototype	M
6	MTGTDL _02_02	If a tourist presses English to Malay button must be show types lists in English to Malay page.	M
7	MTGTDL _02_03	If a tourist presses Arabic to Malay button must be show types lists in Arabic to Malay page.	M

Table 4.1: Functional Requirement

4.2.2 Non- Functional Requirements

No.	Requirement ID	Requirement Description	Priority
1	MTGTDL _01	**Usability**	
2	MTGTDL _01_01	Improve the application screen.	M
3	MTGTDL _01_02	Simple to use and does not need training.	M
4	MTGTDL _01_03	The system must be easy and understandable	M
5	MTGTDL _02	**Reliability**	
6	MTGTDL _02_01	The system must be confident with respect to processing services for tourists	M
7	MTGTDL _02_02	If any type of problems happened for the system such as crash it able reload again.	D
8	MTGTDL _03	**Available**	
9	MTGTDL _03_01	Highly available anytime anywhere for the user	M
10	MTGTDL _04	**Efficiency**	
11	MTGTDL _04_01	Performance.	D
12	MTGTDL _04_02	A powerful also searchable to retrieval information.	M
13	MTGTDL _05	**Maintainability**	
22	MTGTDL _05_01	Ability to increase the new features to the system.	D

Table 4.2: Non-Functional Requirement

4.2.3 Hardware and Software Requirements

Hardware and software requirements enable MTGTDL to be applicable on the mobile devices. Table (4.3) shows hardware and software requirements:

Hardware Requirements	
Mobile Device	Nokia or any type of mobile device has the Same software requirements.
Software Requirements	
Platform	Android applications are developed using Java and can be ported rather easily to the new platform. Other features of Android include an accelerated 3D graphics engine (based on hardware support) (Jerome, 2008).

Table 4.3 Hardware and Software Requirements

4.3 System Analysis

This section display the UML diagrams included use case diagram and sequence diagrams. The following section illustrates the design of the prototype. The Rational Rose (2000) software is used to draw the necessary diagrams that help in the development stage.

The Use Case diagram shows the scenario of interactions between the system and the users of the system, it is explain what tasks can be did by the system, not how the system do it. Fig 4.1 use case diagram describes the interaction between the prototype and its user.

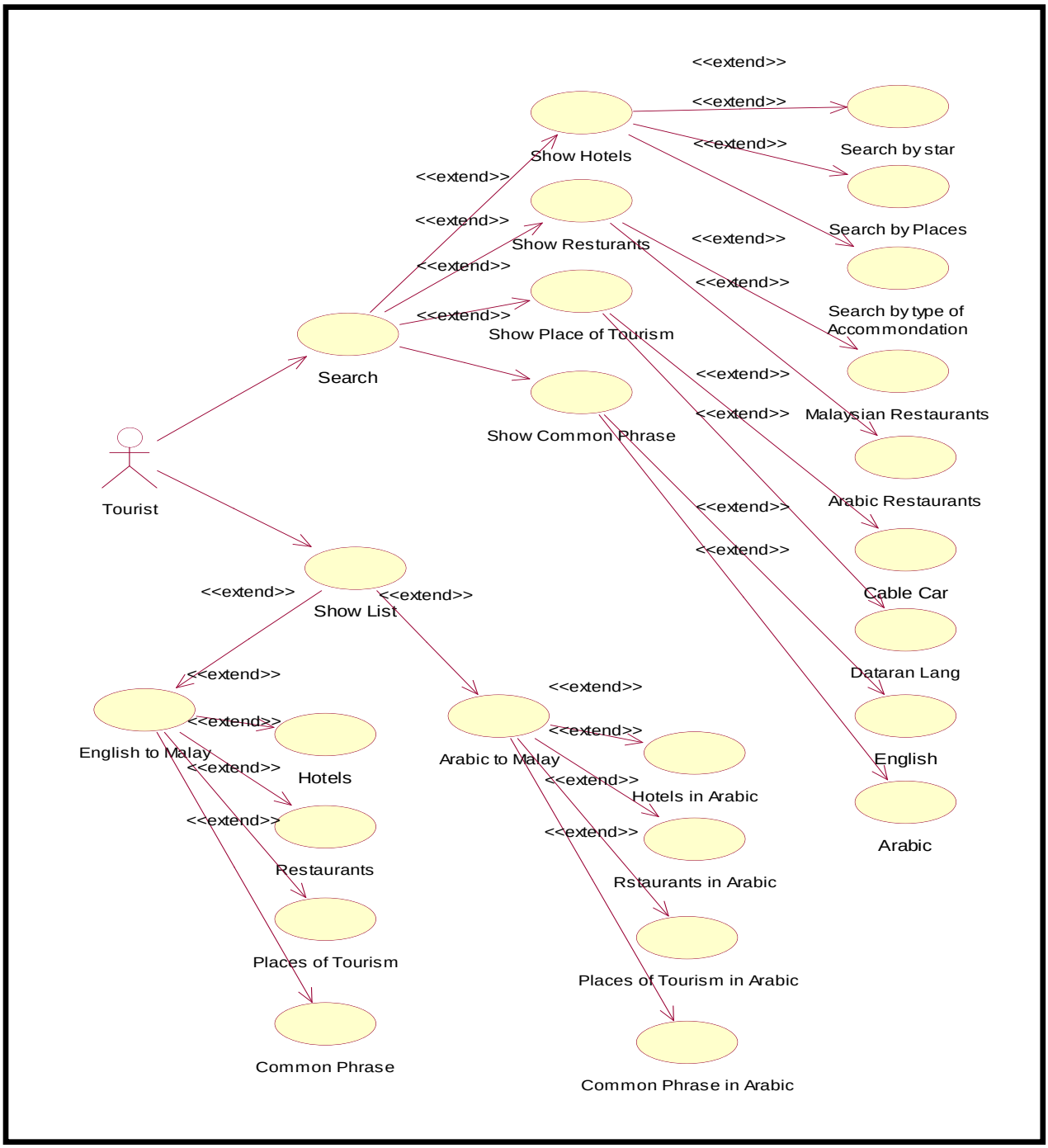


Figure 4.1: Use Case Diagram for the MTGTDL

As it has been shown in the figure 4.1 above, there is only one Actor in the system (Tourist) who can initiate all the tasks in the system. Tourist can start the system by clicking the system icon to access the main menu which can be extended to contain the list. The Tourist can then choose and from the list to initiate the chosen

4.4 Sequence Diagram

This section explains the using of sequence diagram to represent all the action in the system, sequence diagram is type of UML diagrams that very helpful because it describe the stricture of the steps and implement the behavior of the system, arranged in time. In addition, it display the control flow with many objects to achieve the task .Furthermore sequence diagram are steps for each use case separately to provide more details for the structure of the system.

4.4.1 Sequence Diagram for Hotels By Listing

This diagram enable the tourist translation the address hotels from English to Malay. So this task achieve by clicking on the hotels button.

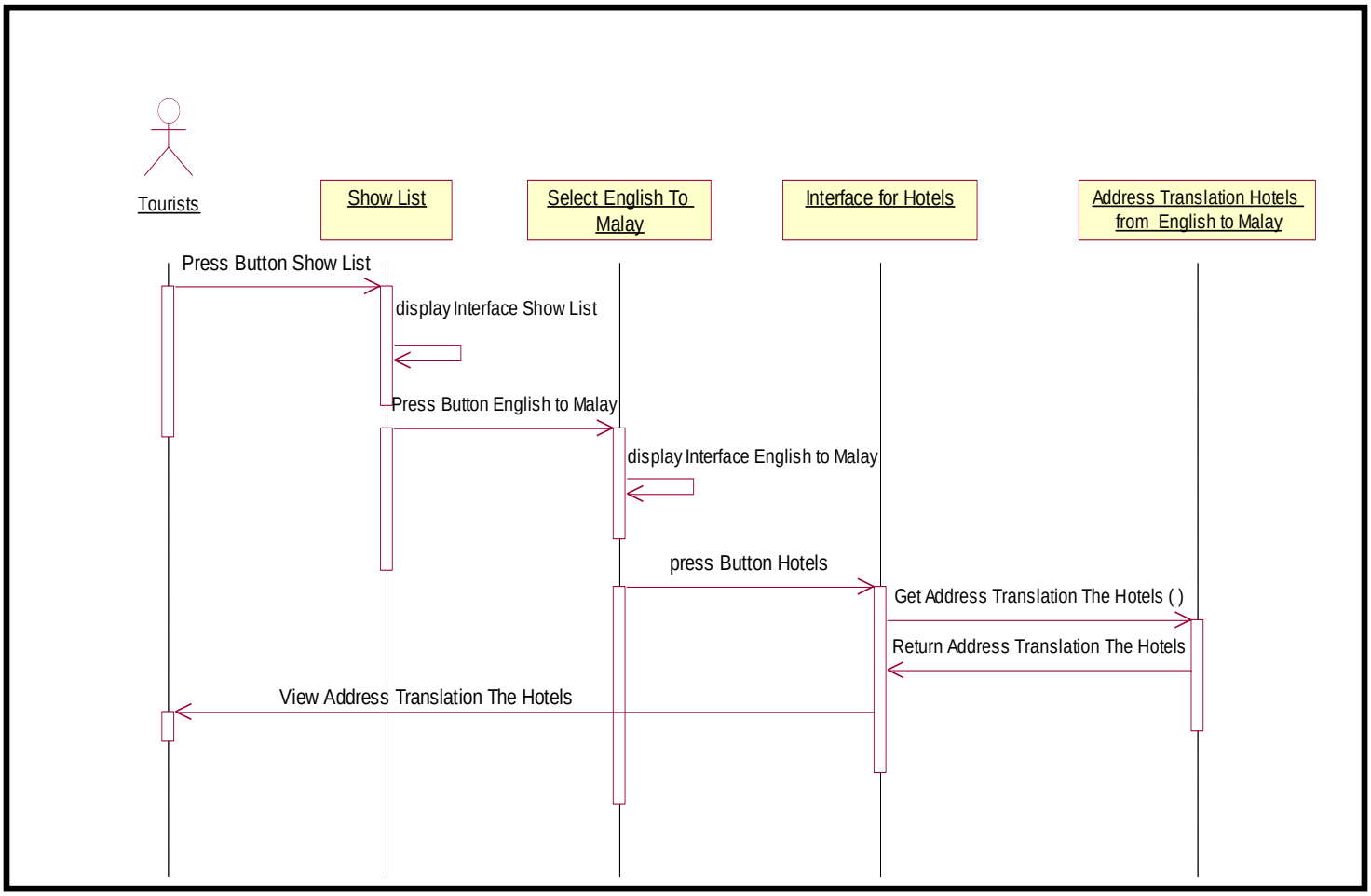


Figure 4.2: Sequence Diagram for Hotels Interface Listing

4.4.2 Sequence Diagram for Restaurants By Listing

This diagram enables the tourist translation the address Restaurants from English to Malay. So this task achieve by clicking on the Restaurants button.

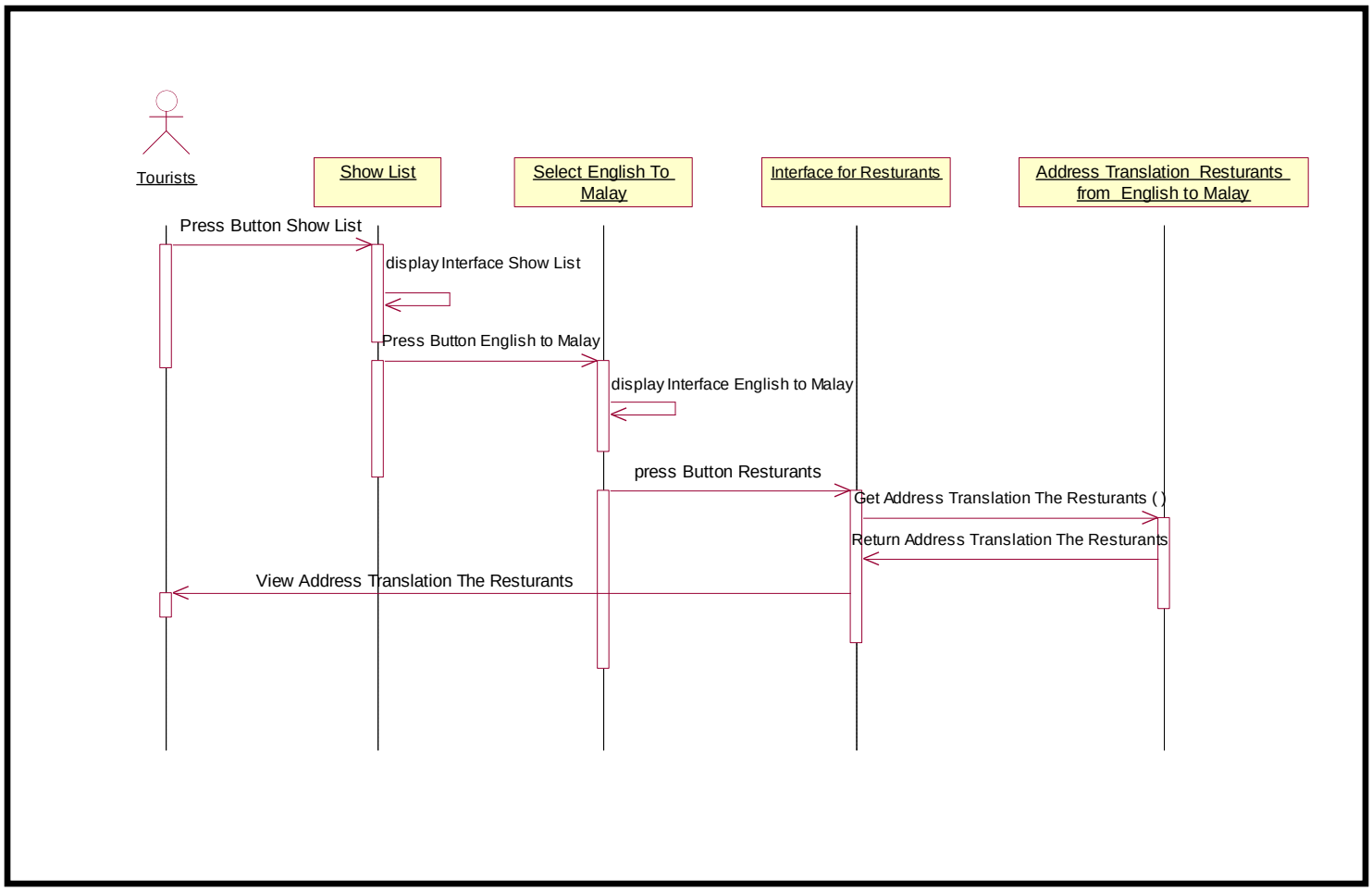


Figure 4.3: Sequence Diagram for Restaurants Interface by Listing

4.4.3 Sequence Diagram for Places of Tourism By Listing

This diagram enables the tourist translation the address places of tourism from English to Malay. So this task achieve by clicking on the places of tourism button

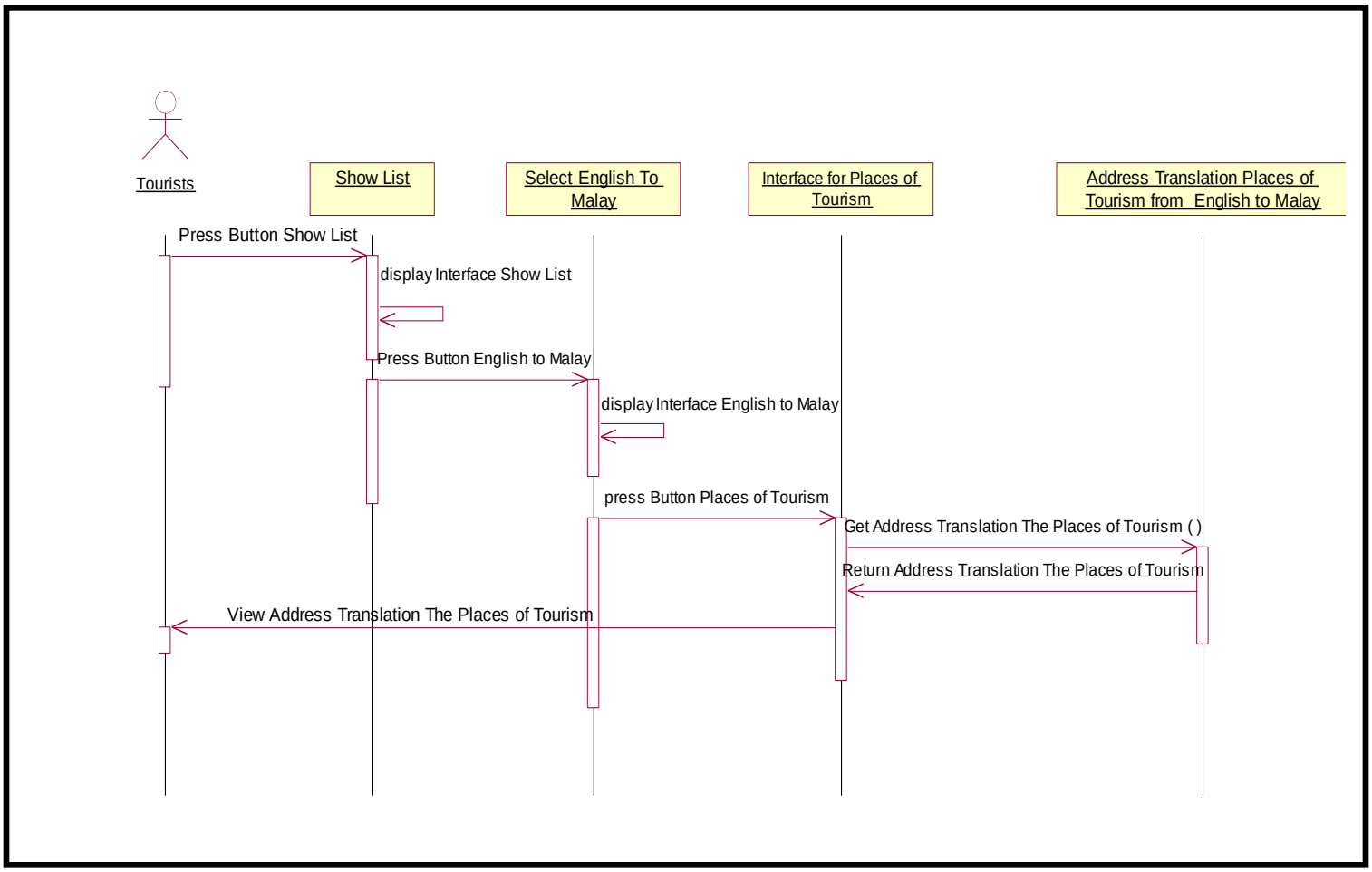


Figure 4.4: Sequence Diagram for Places of Tourism Interface by Listing

4.4.4 Sequence Diagram Common Phrase for Greeted By Listing

This diagram enables the tourist translation the Common Phrase for Greeted from English to Malay. So this task achieve by clicking on the Common Phrase button after that clicking on the Greeted button.

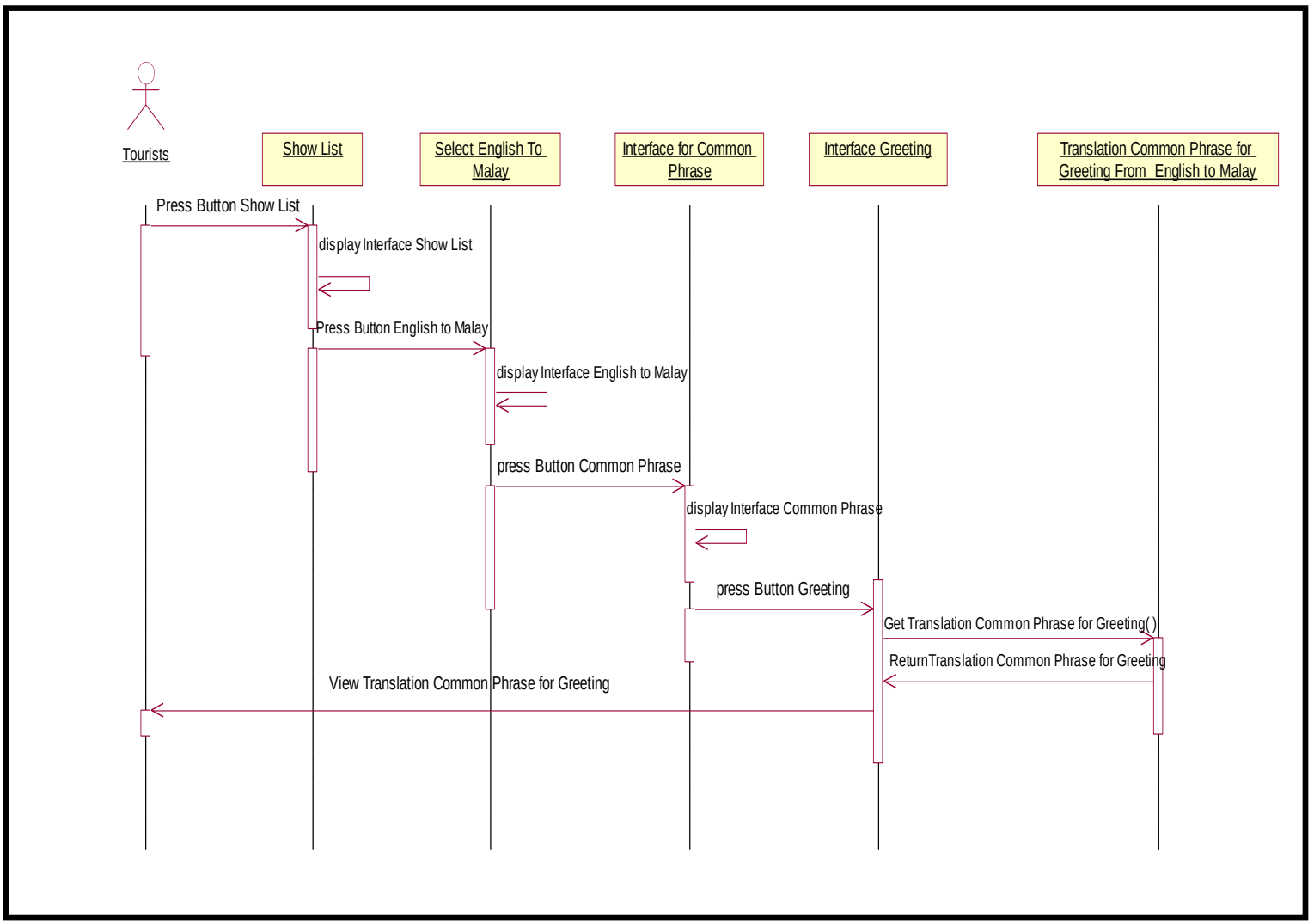


Figure 4.5: Sequence Diagram Common Phrase for Greeted Interface by Listing

4.4.5 Sequence Diagram Common Phrase for Emergency By Listing

This diagram enables the tourist translation the Common Phrase for Emergency from English to Malay. So this task achieve by clicking on the Common Phrase button after that clicking on the Emergency button.

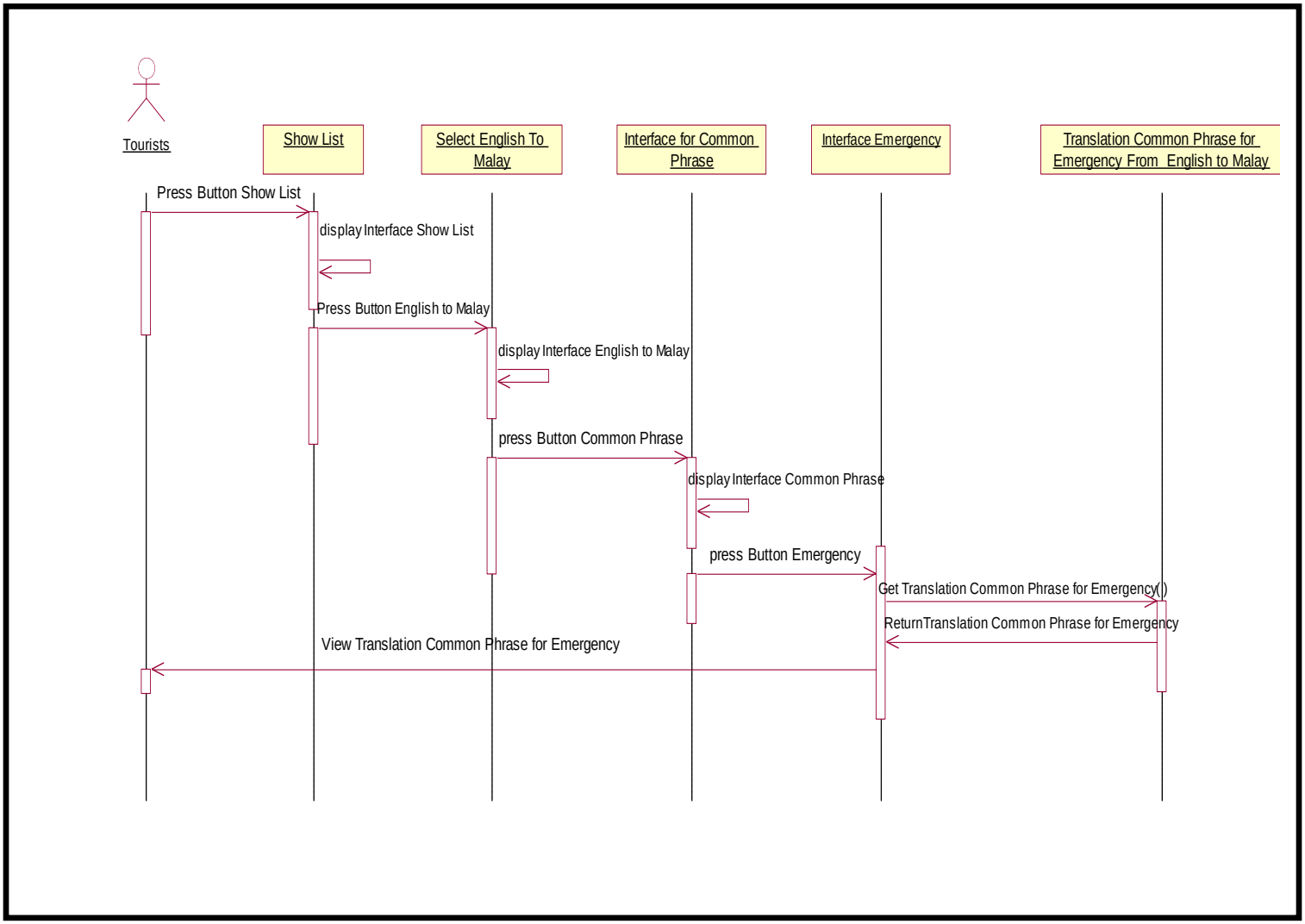


Figure 4.6: Sequence Diagram Common Phrase for Emergency Interface by Listing

4.4.6 Sequence Diagram Common Phrase for Health Care by Listing

This diagram enables the tourist translation the Common Phrase for Health Care from English to Malay. So this task achieve by clicking on the Common Phrase button after that clicking on the Health Care button.

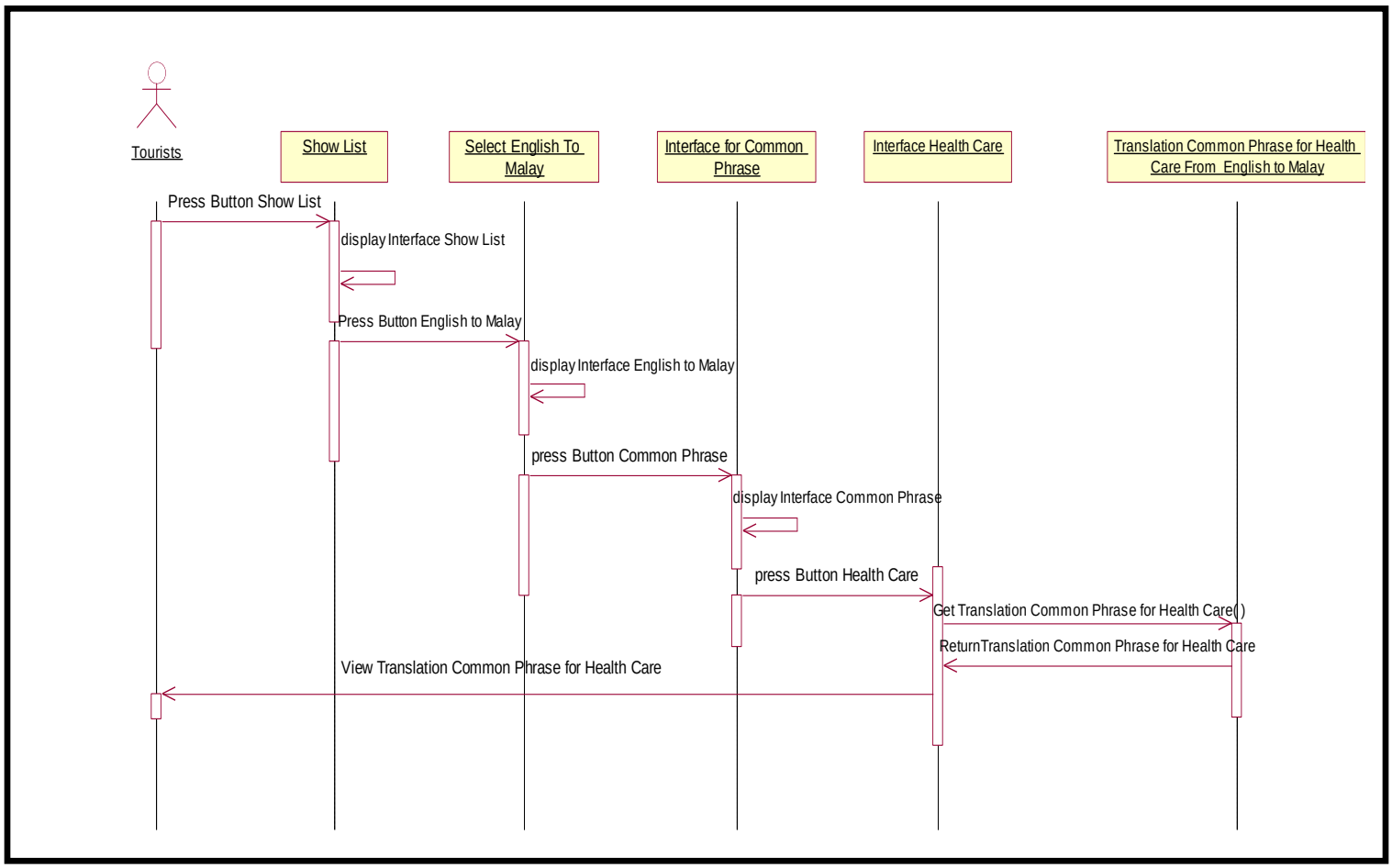


Figure 4.7: Sequence Diagram Common Phrase for Health Care Interface by Listing

4.4.7 Sequence Diagram Common Phrase for currency conversion by Listing

This diagram enables the tourist translation the Common Phrase for Currency from English to Malay. So this task achieve by clicking on the Common Phrase button after that clicking on the Currency button.

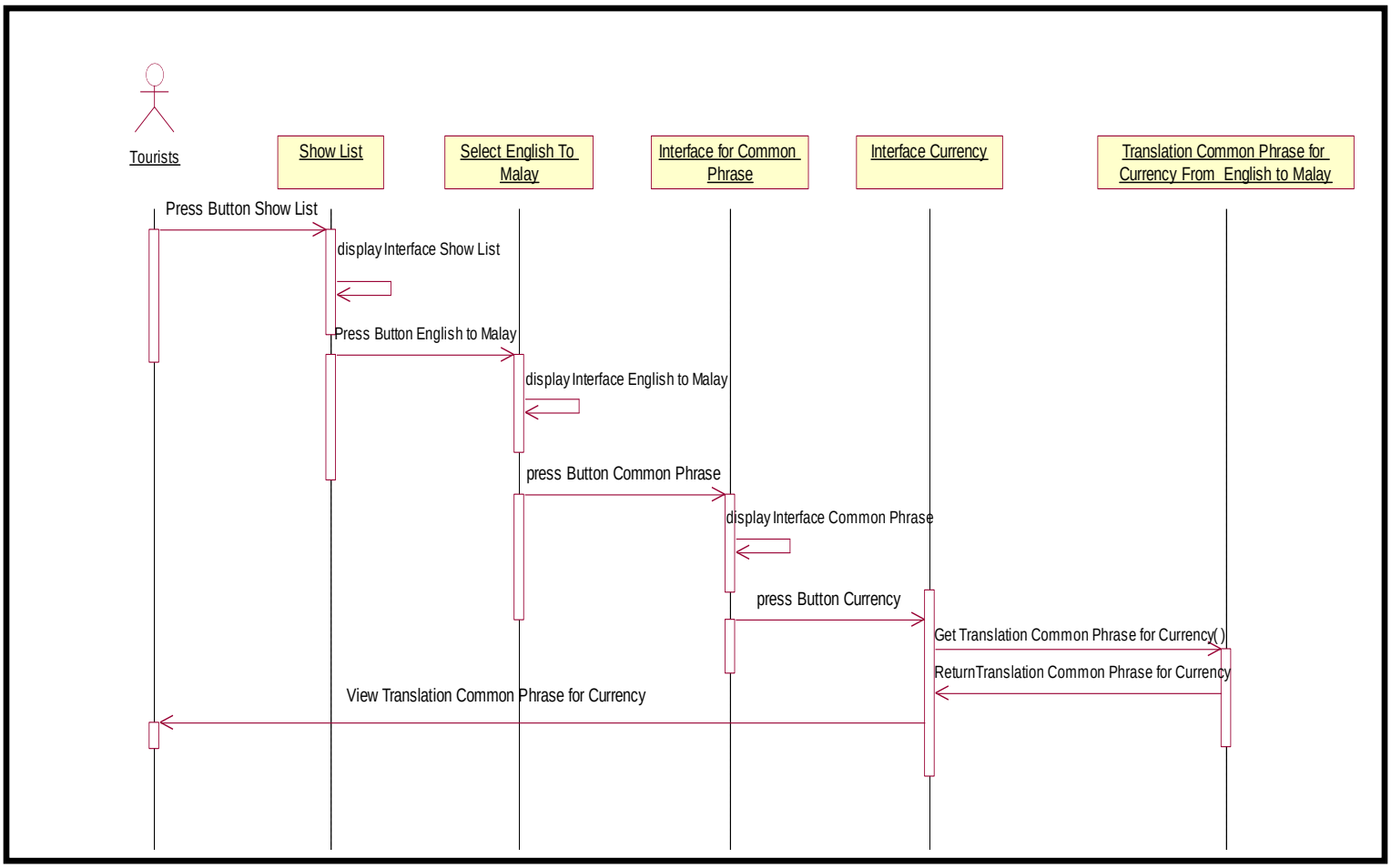


Figure 4.8: Sequence Diagram Common Phrase for currency conversion Interface by Listing

4.4.8 Sequence Diagram Interface for Hotels in Arabic by Listing

This diagram enable the tourist translation the address hotels from Arabic to Malay. So this task achieve by clicking on the hotels Arabic button

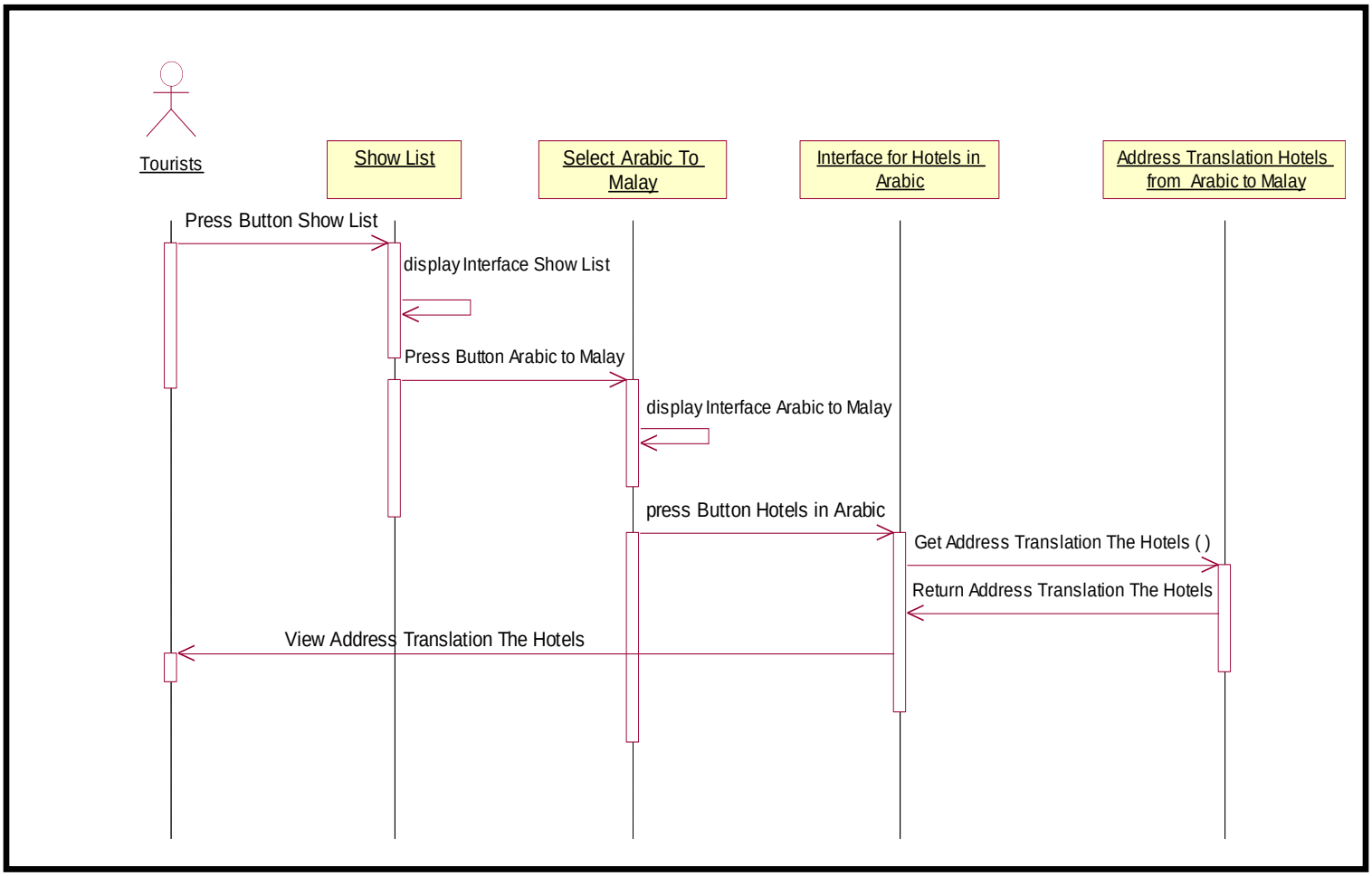


Figure 4.9: Sequence Diagram Interface for Hotels in Arabic by Listing

4.4.9 Sequence Diagram Interface for Restaurants in Arabic by Listing

This diagram enables the tourist translation the address Restaurants from Arabic to Malay. So this task achieve by clicking on the Restaurants Arabic button.

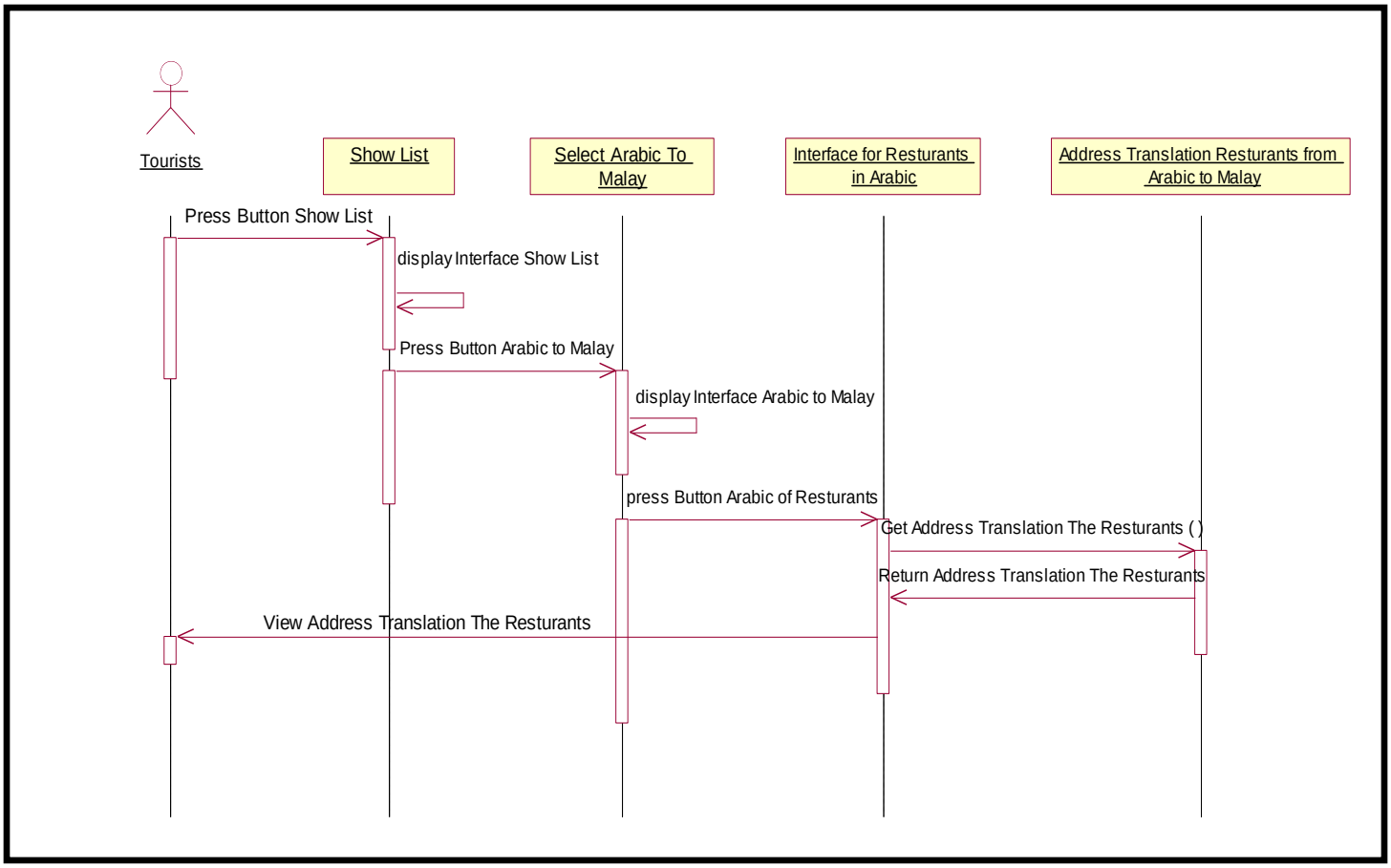


Figure 4.10: Sequence Diagram Interface for Restaurants in Arabic by Listing

4.4.10Sequence Diagram Interface for places of tourism in Arabic by Listing

This diagram enables the tourist translation the address places of tourism from Arabic to Malay. So this task achieve by clicking on the places of tourism Arabic button.

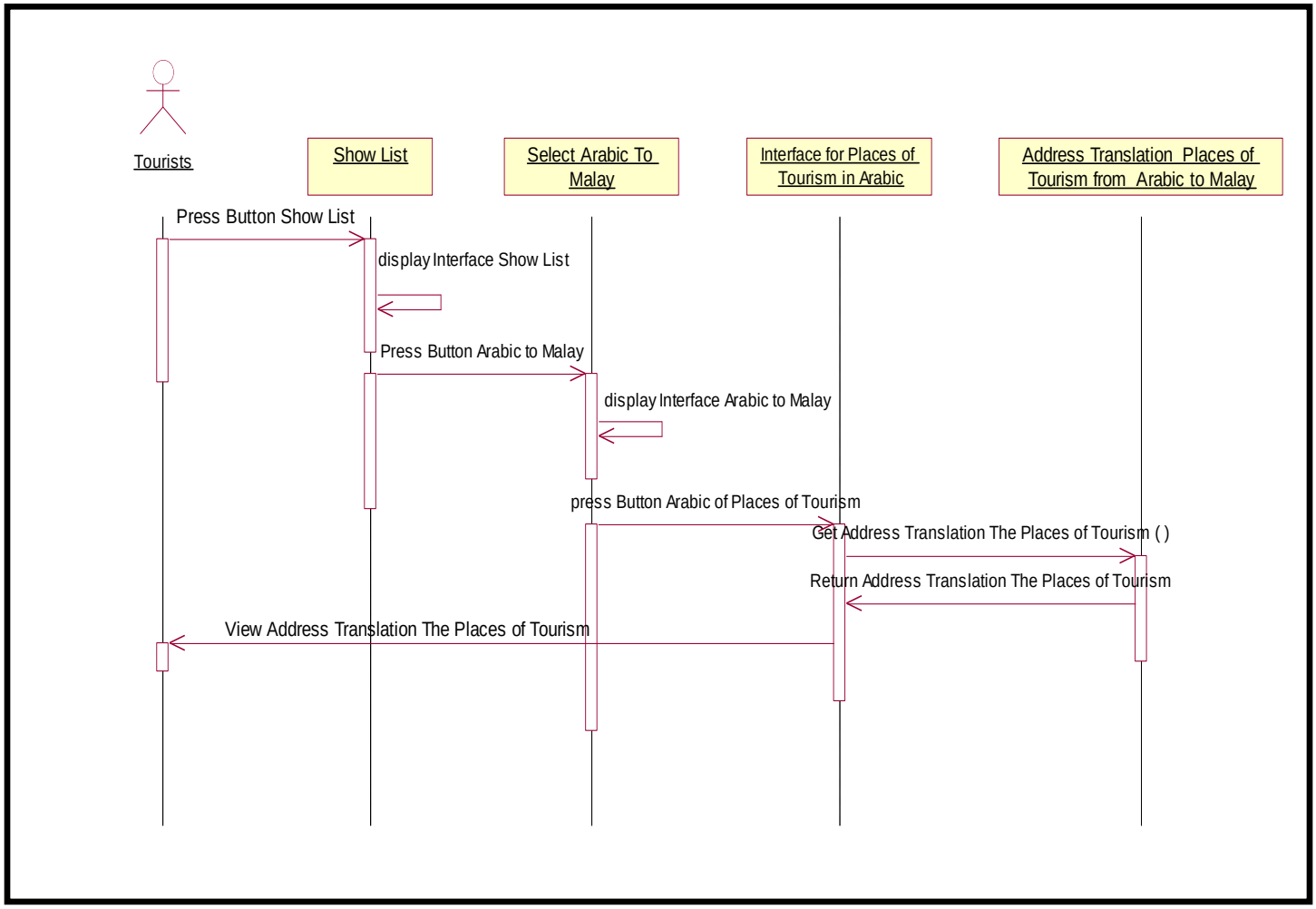


Figure 4.11: Sequence Diagram Interface for Places of Tourism in Arabic by Listing

4.4.11 Sequence Diagram Interface Common Phrase Arabic for Greeted in Arabic by Listing

This diagram enables the tourist translation the Common Phrase for Greeted Arabic from Arabic to Malay. So this task achieve by clicking on the Common Phrase Arabic button after that clicking on the Greeted Arabic button.

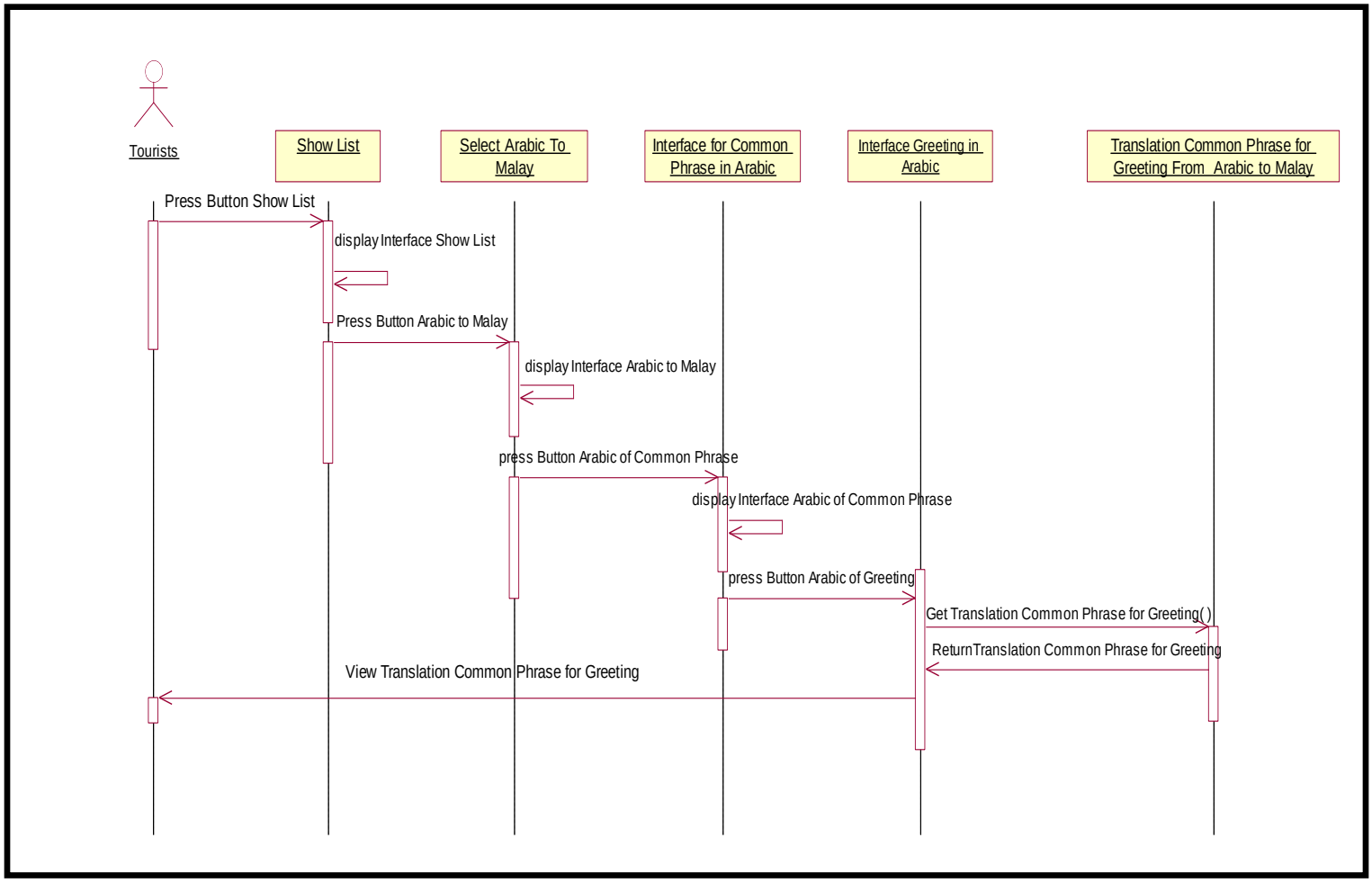


Figure 4.12: Sequence Diagram Interface Common Phrase Arabic for Greeted in Arabic by Listing

4.4.12Sequence Diagram Interface Common Phrase Arabic for Emergency in Arabic by Listing

This diagram enables the tourist translation the Common Phrase for Emergency Arabic from Arabic to Malay. So this task achieve by clicking on the Common Phrase Arabic button after that clicking on the Emergency Arabic button.

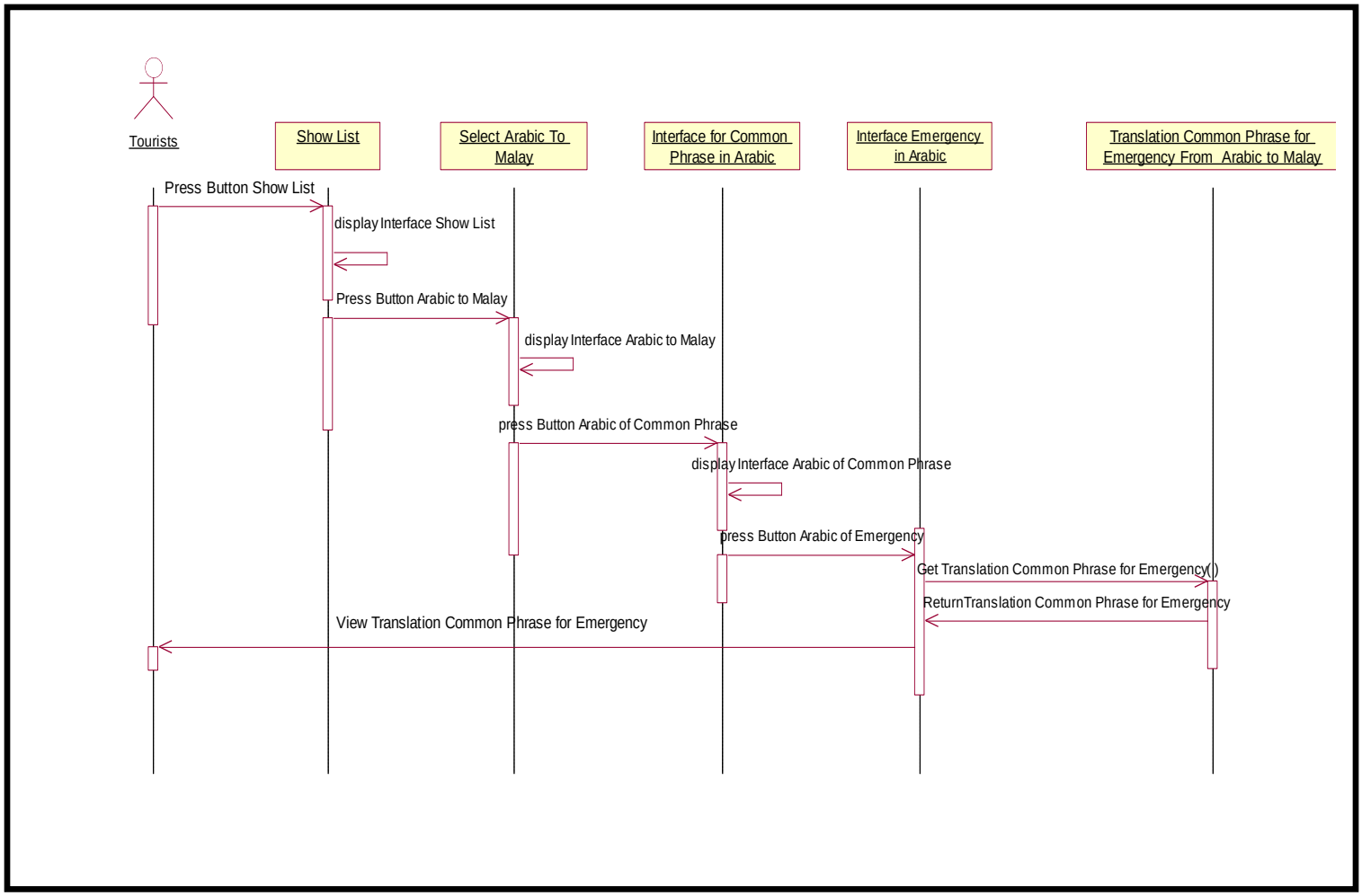


Figure 4.13: Sequence Diagram Interface Common Phrase Arabic for Emergency in Arabic by Listing

4.4.13Sequence Diagram Interface Common Phrase Arabic for Health Care in Arabic by Listing

This diagram enables the tourist translation the Common Phrase for Health Care Arabic from Arabic to Malay. So this task achieve by clicking on the Common Phrase Arabic button after that clicking on the Health Care Arabic button.

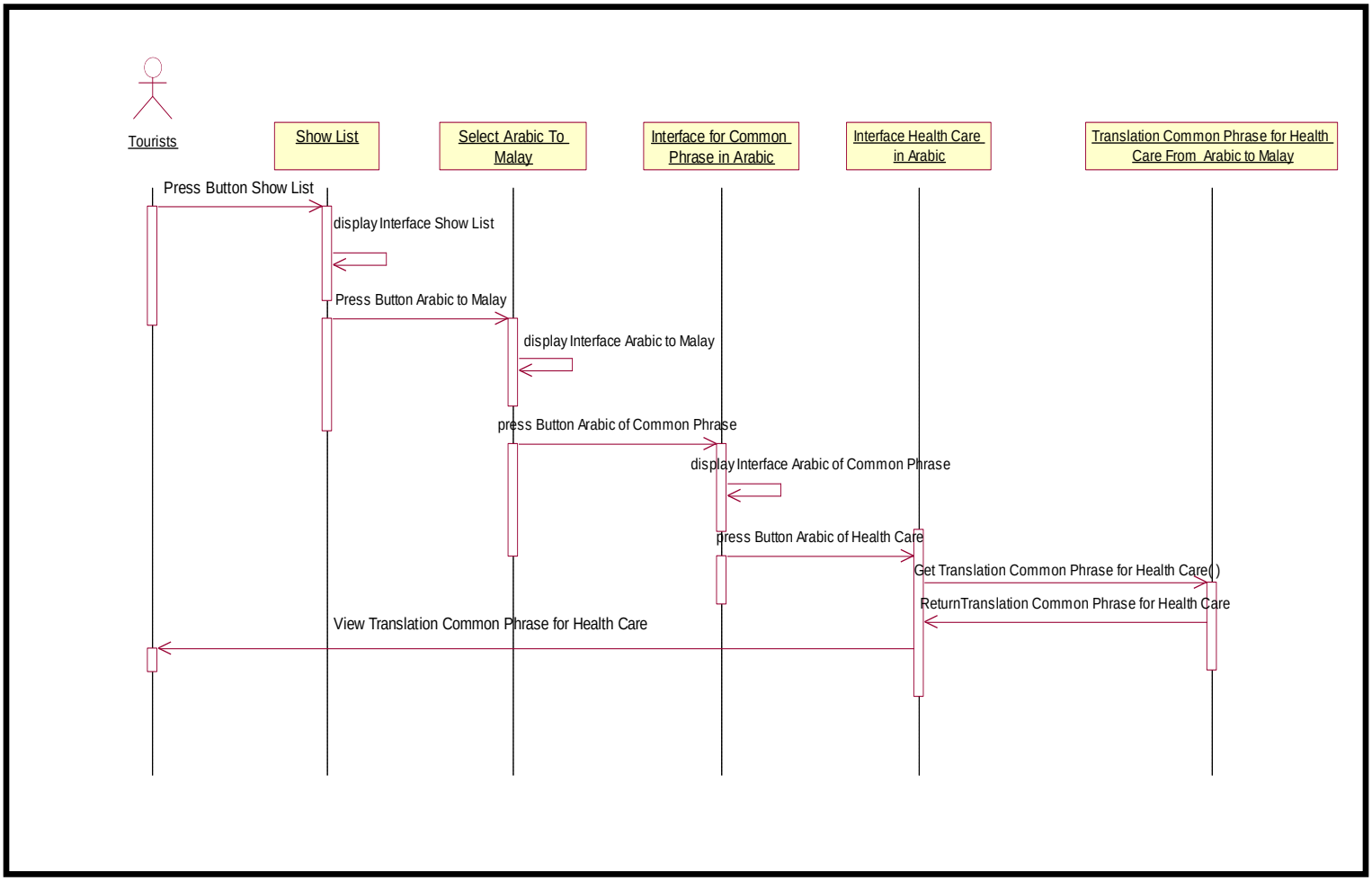


Figure 4.14: Sequence Diagram Interface Common Phase Arabic for Health Care in Arabic by Listing

4.4.14Sequence Diagram Interface Common Phrase Arabic for currency conversion in Arabic by Listing

This diagram enables the tourist translation the Common Phrase for Currency Arabic from Arabic to Malay. So this task achieve by clicking on the Common Phrase Arabic button after that clicking on the Currency Arabic button.

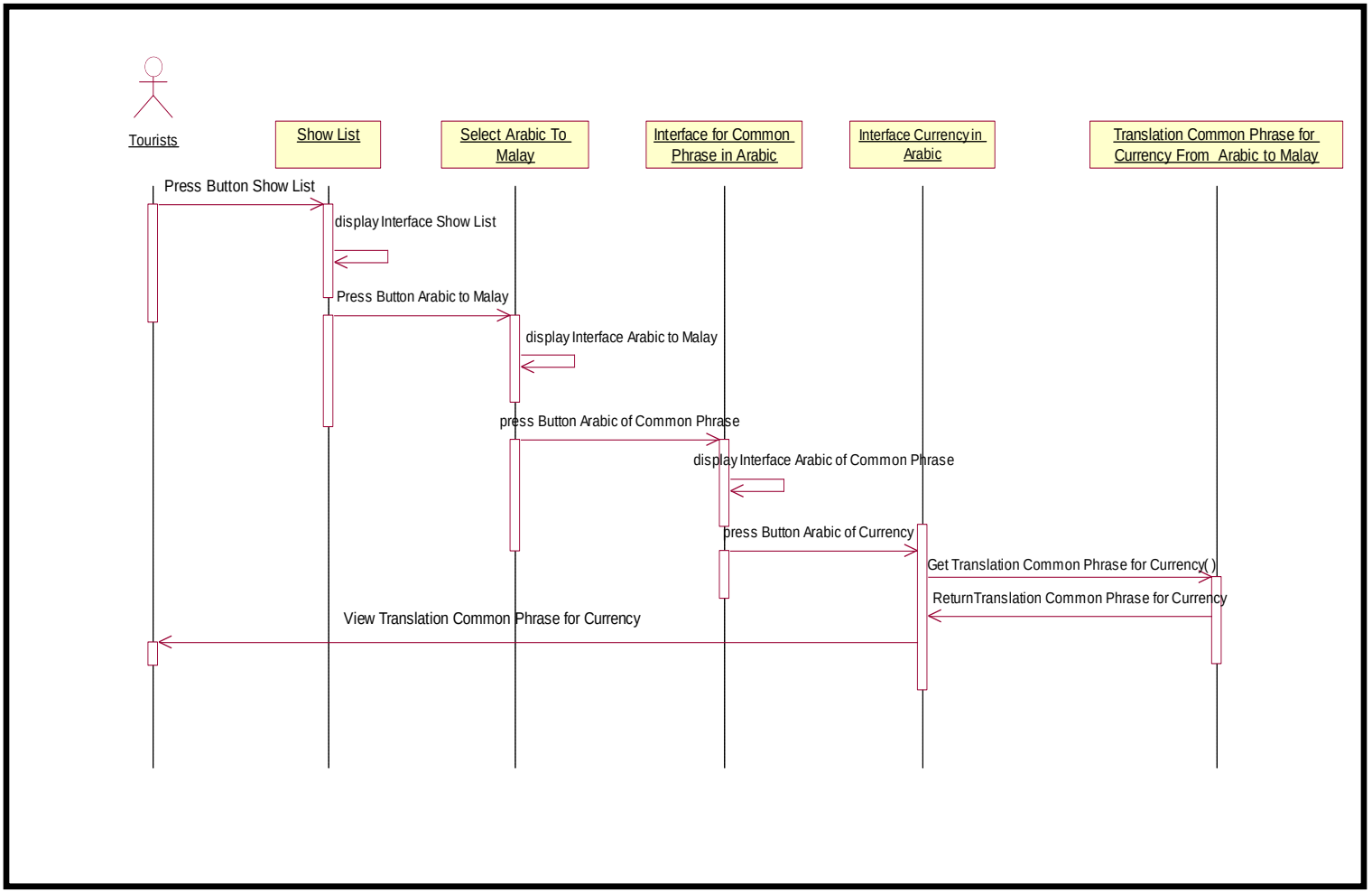


Figure 4.15: Sequence Diagram Interface Common Phrase Arabic for currency conversion in Arabic by Listing

4.4.15Sequence Diagram Interface Hotels Star by Searching

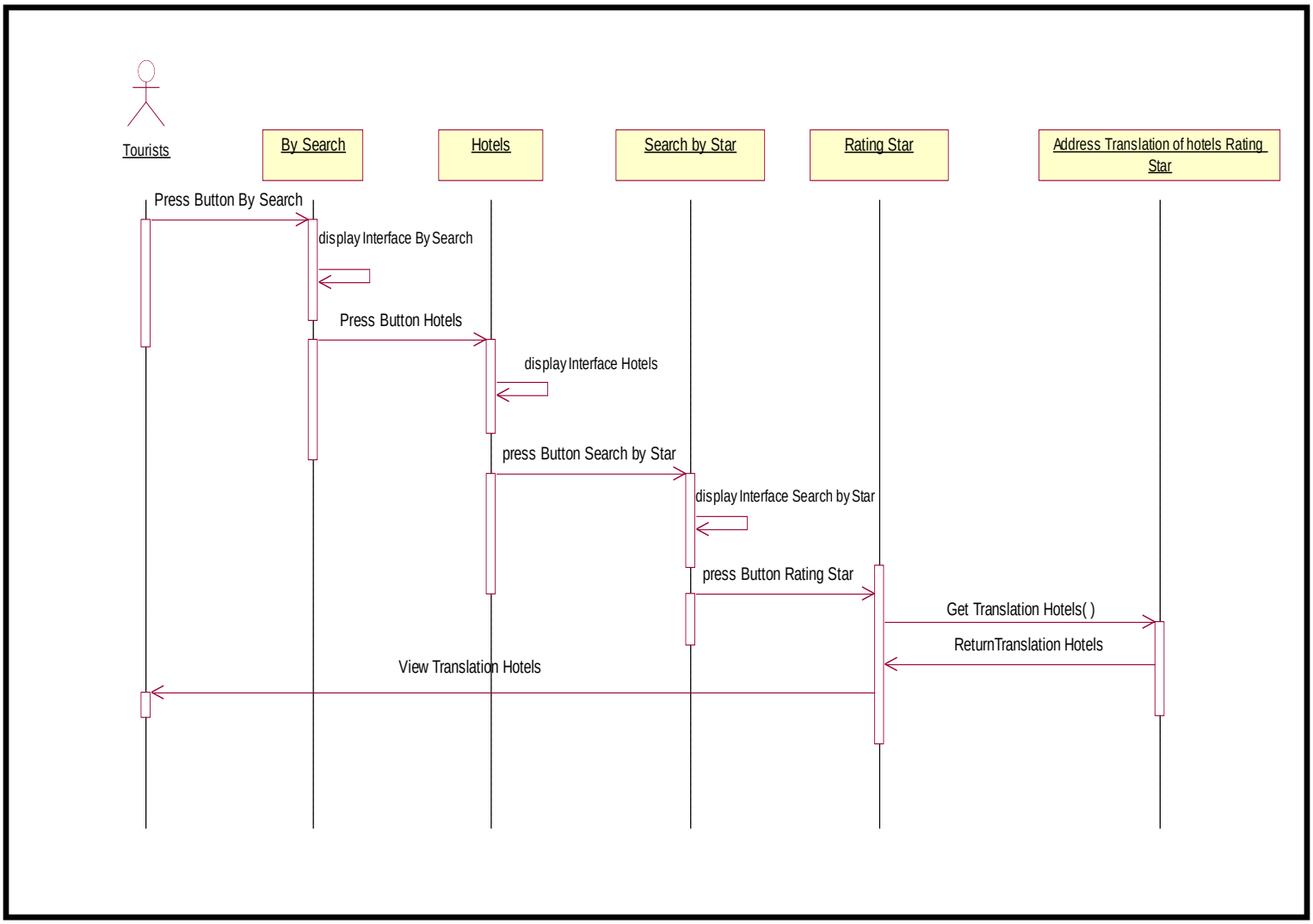


Figure 4.16: Sequence Diagram Interface Hotels Star by Searching

4.4.16Sequence Diagram Interface Search hotels by places

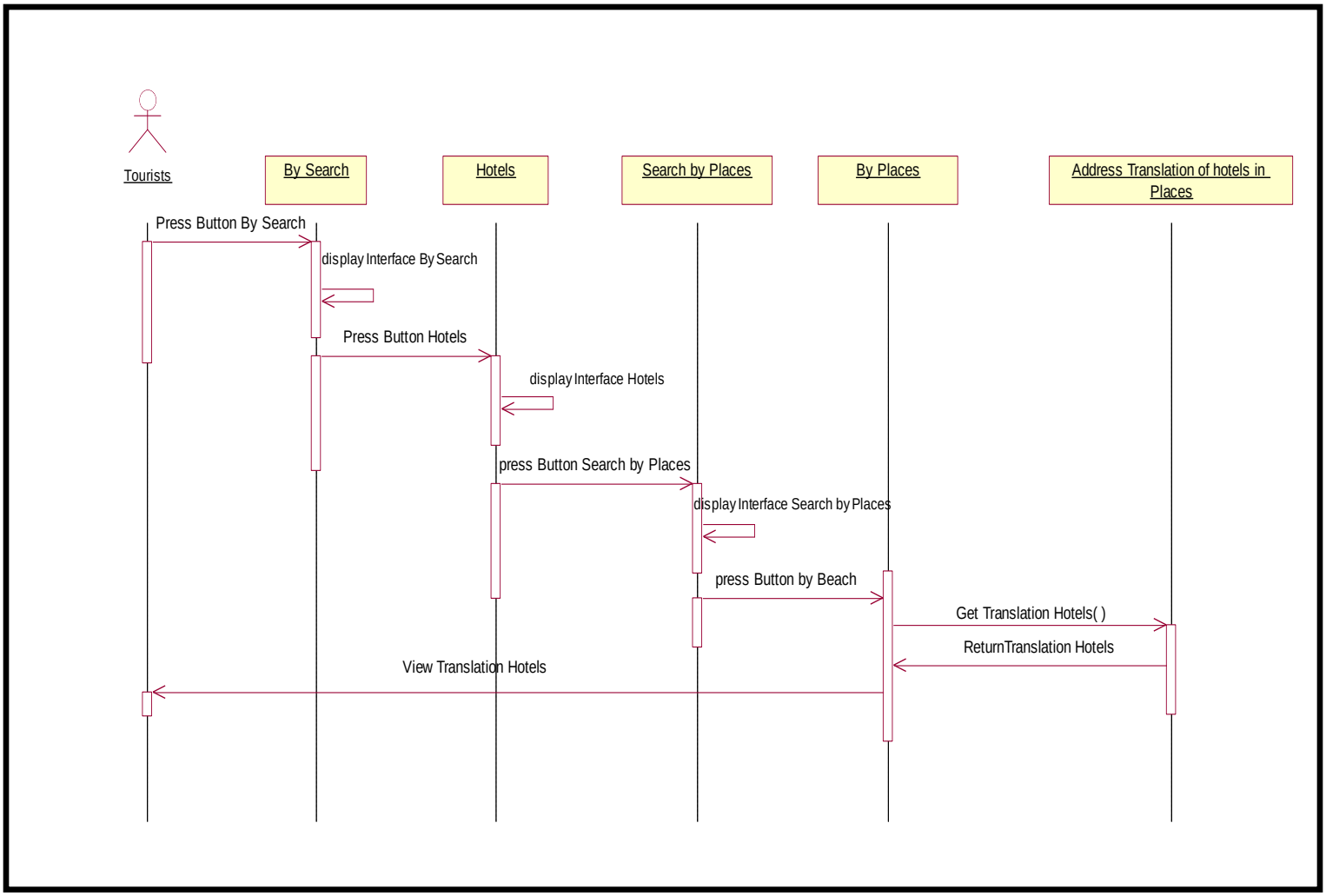


Figure 4.17: Sequence Diagram Interface Search hotels by places

4.4.17Sequence Diagram Interface Search hotels by Type of Accommodation (Motels)

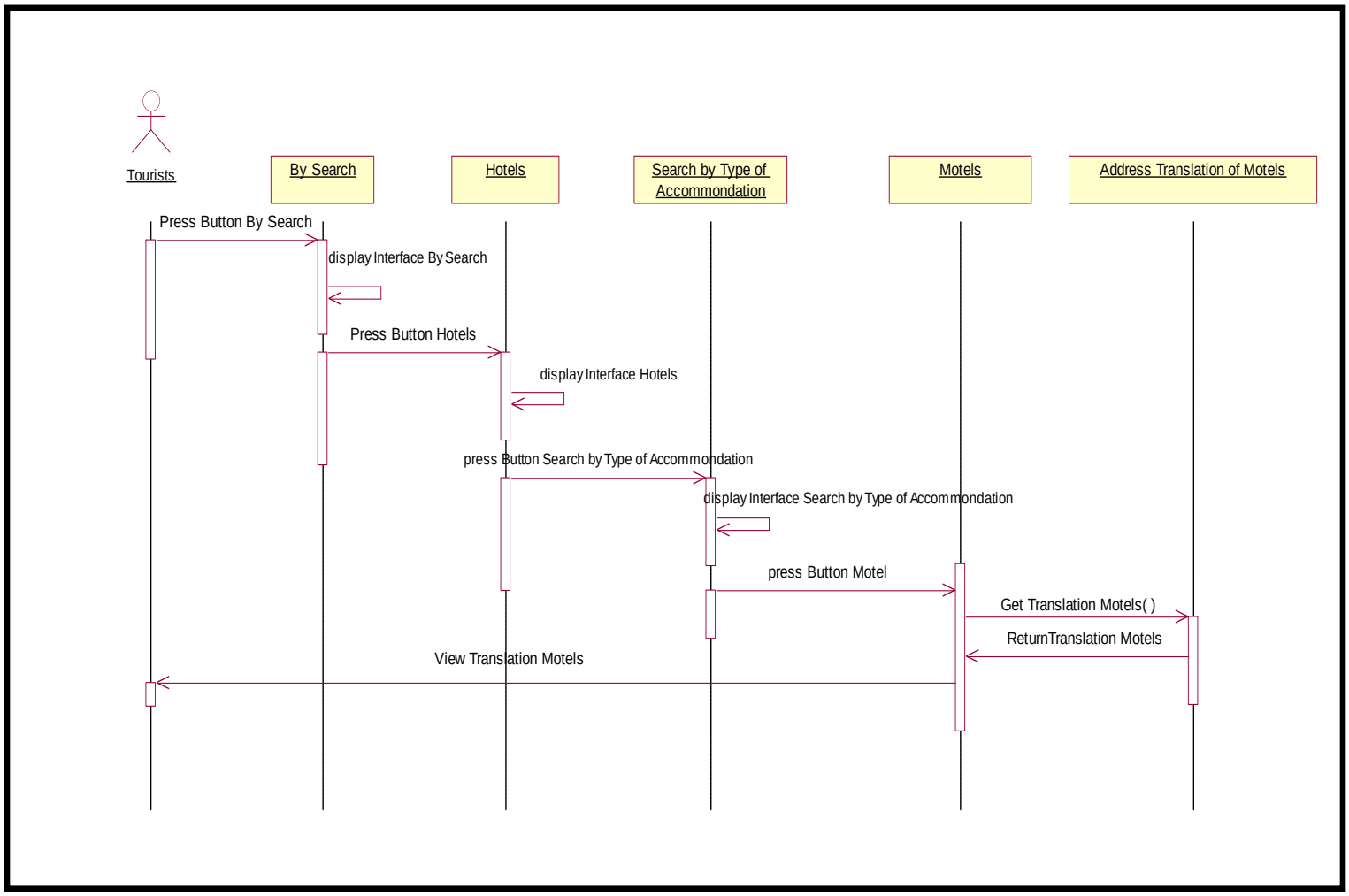


Figure 4.18: Sequence Diagram Interface Search hotels by Type of Accommodation (Motels)

4.4.18 Sequence Diagram Interface Search hotels by Type of Accommodation (Chalet)

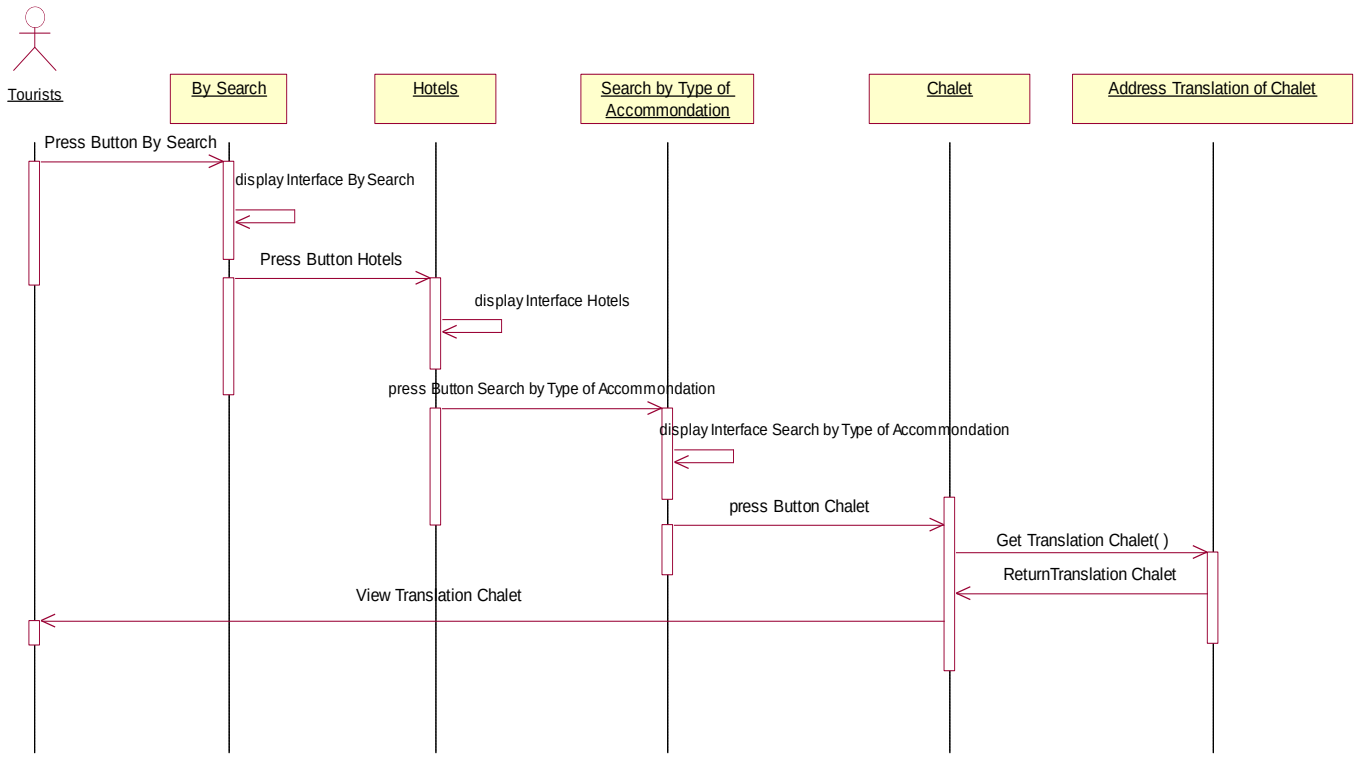


Figure 4.19: Sequence Diagram Interface Search hotels by Type of Accommodation (Chalet)

4.4.19Sequence Diagram Interface Search Malaysia Restaurants

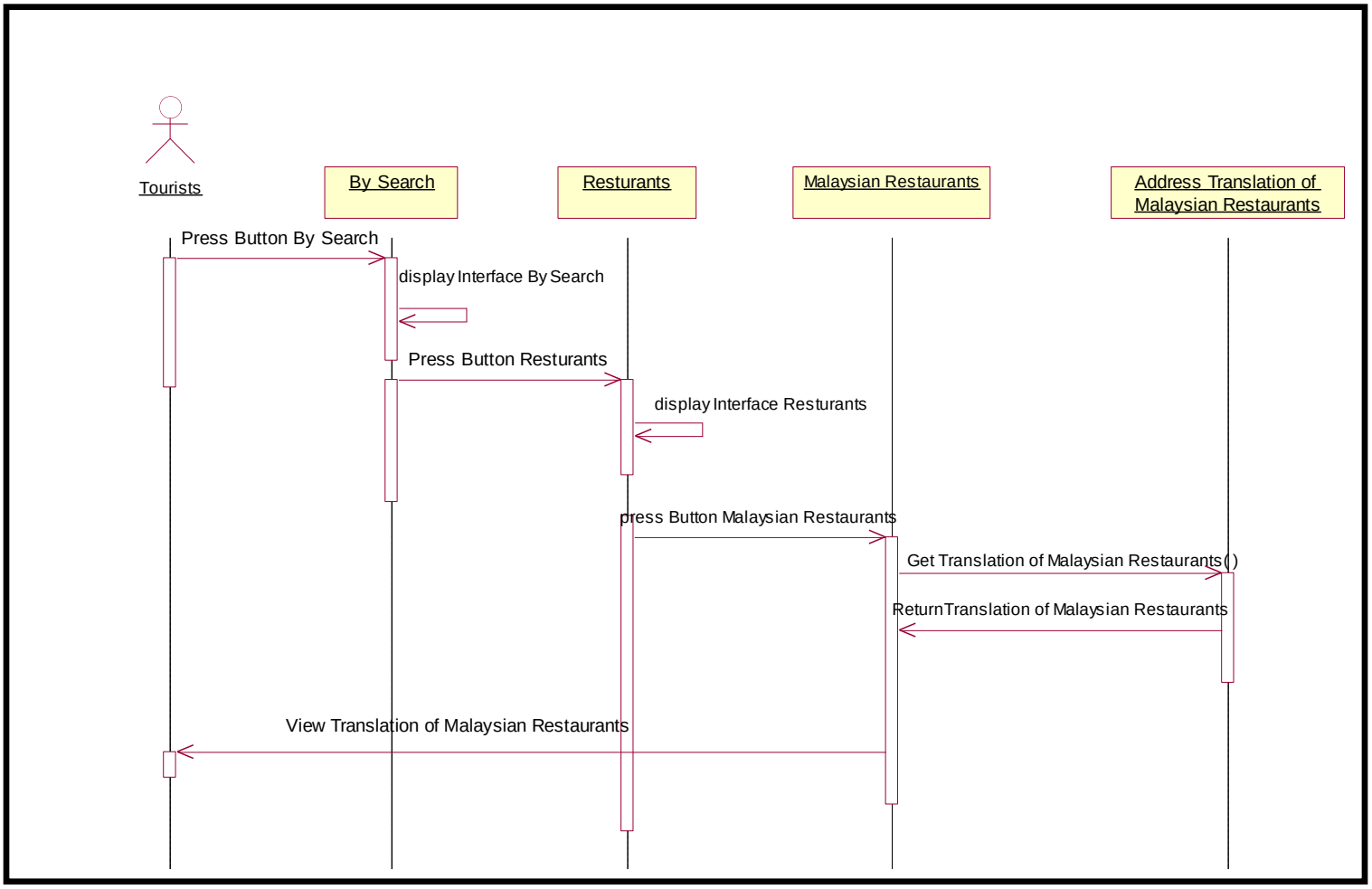


Figure 4.20: Sequence Diagram Interface Search Malaysia Restaurants

4.4.20Sequence Diagram Interface Search Arabic Restaurants

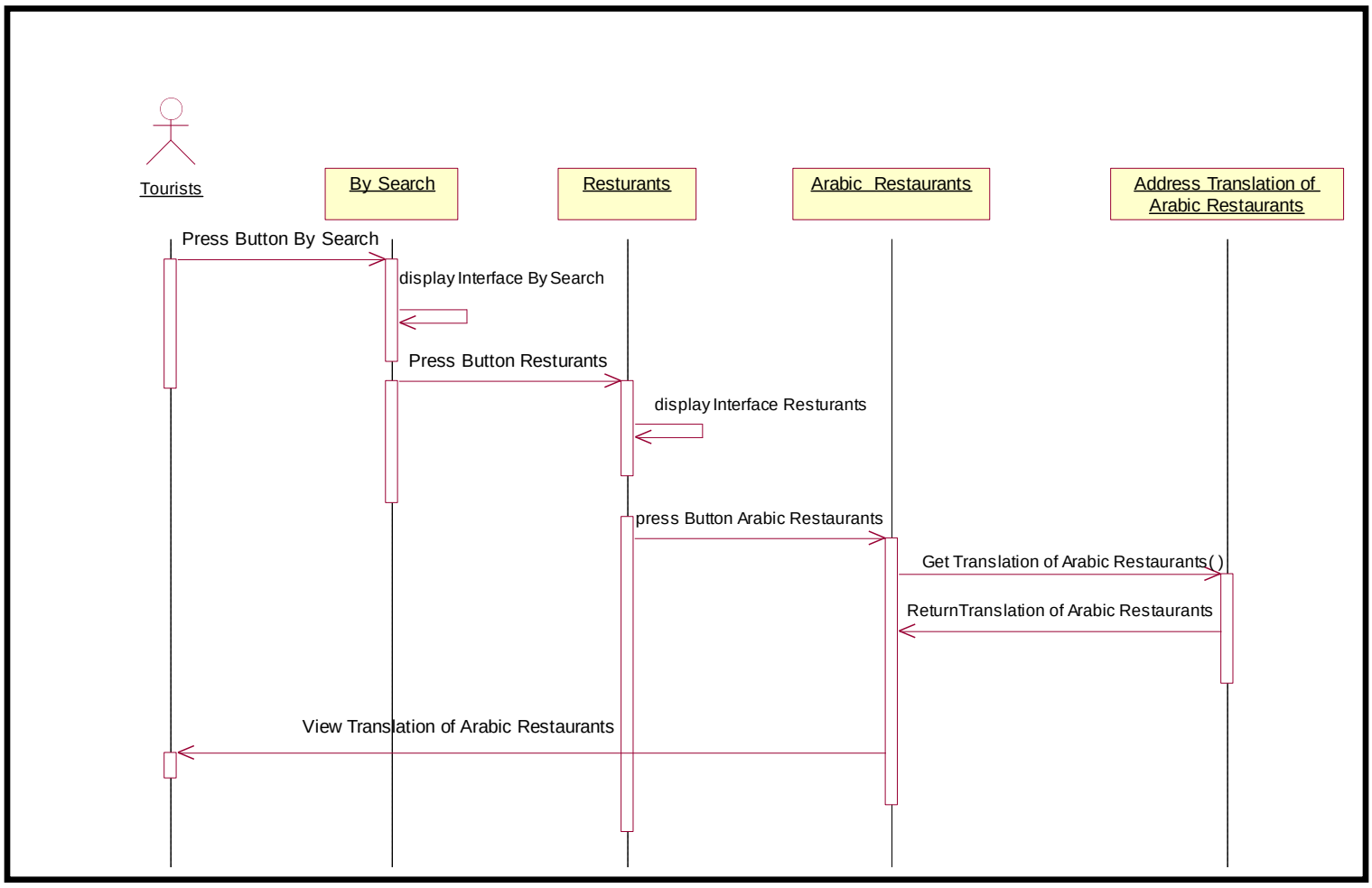


Figure 4.21: Sequence Diagram Interface Search Arabic Restaurants

4.4.21Sequence Diagram Interface Search Place of Tourism (Cable Car)

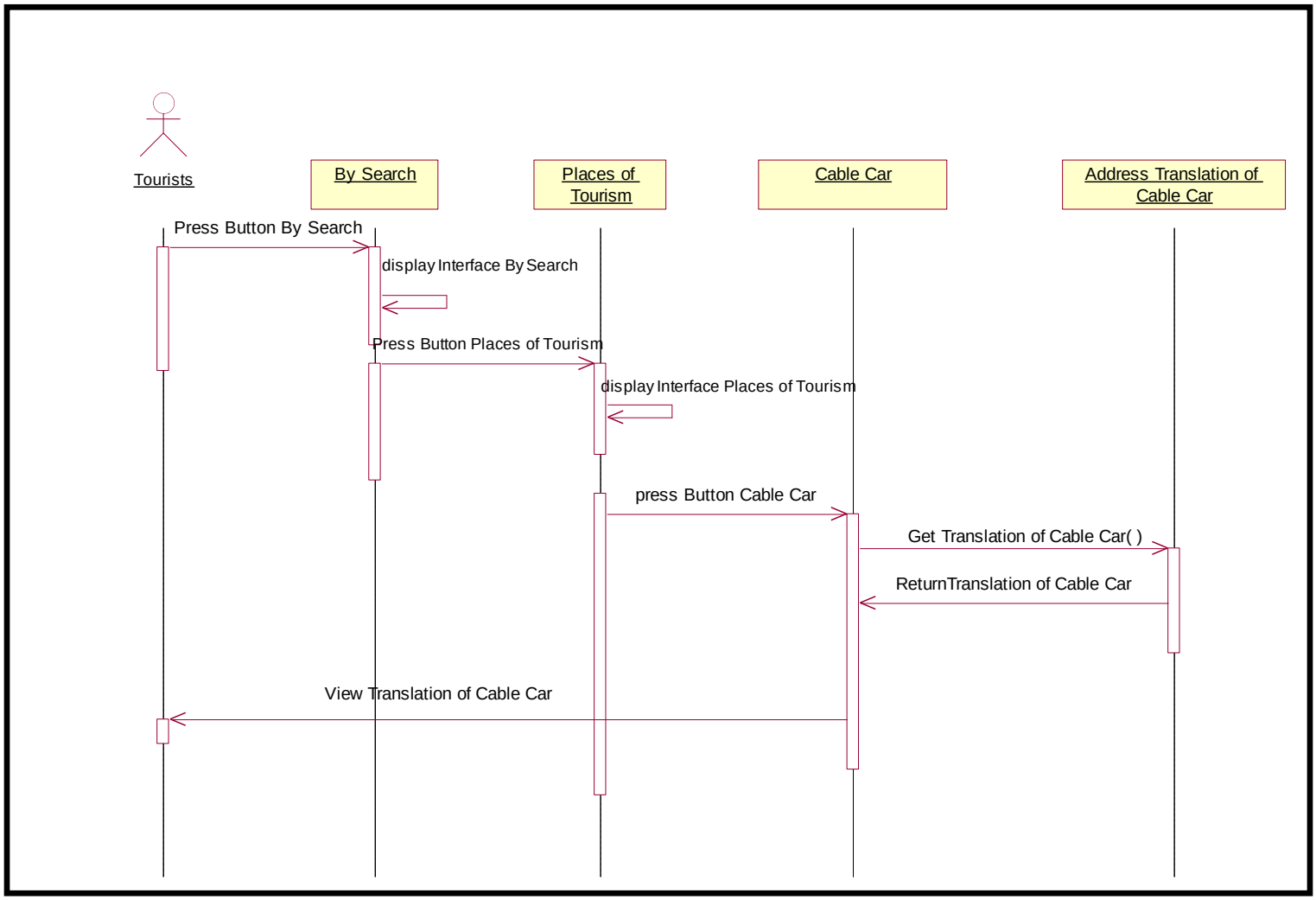


Figure 4.22: Sequence Diagram Interface Search Place of Tourism (Cable Car)

4.5 Design Interfaces for MTGTDL Prototype

This section of the chapter four explains the interfaces of MTGTDL prototype.

4.5.1 Home Page

Description: this is the main screen in MTGTDL Prototype, it provide to tourist select Translate by Search or by Show List.

Figure 4.23: Home Page for MTGTDL

4.5.2 By Search Page

Description: After chose this option will show this screen, it provide to tourist select Translate any part will select it.

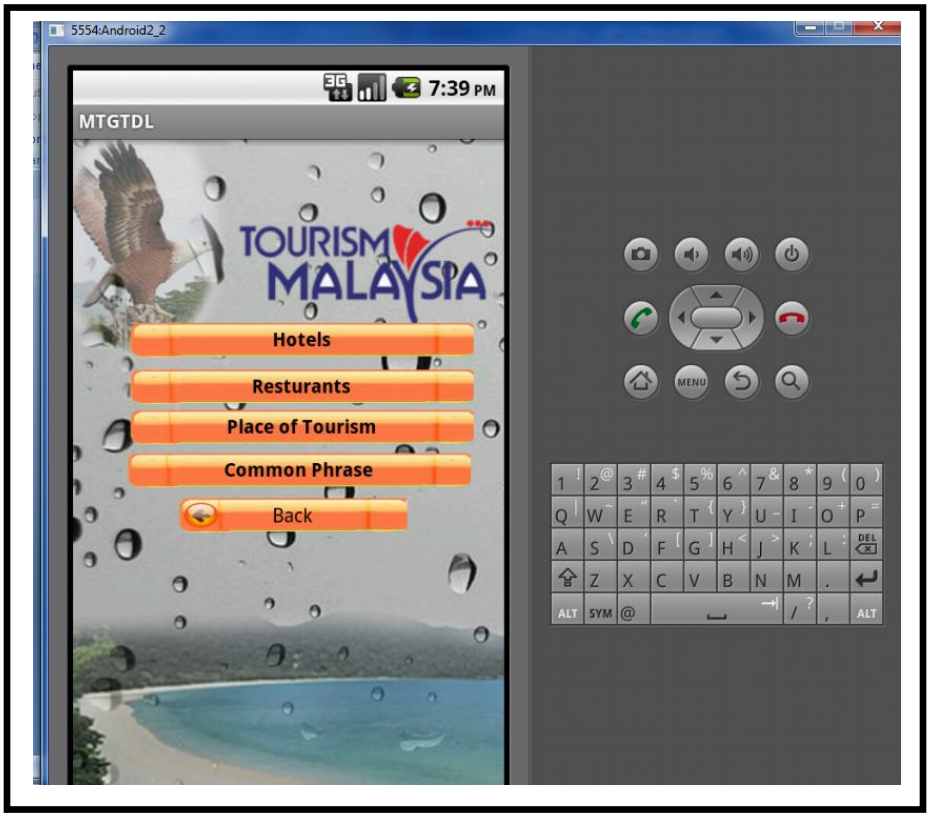


Figure 4.24: By Search Page for MTGTDL

4.5.3 Show list Page

Description: : After chose this option will show this screen, it provide to tourist select Translate any part will select it.

Figure 4.25: Show List Page for MTGTDL

4.6 Summary

This chapter covers the development and implementation of mobile translator guide for tourism destination in Langkawi application prototype. It started with the system requirements and design collected during the first phase and the second phase of the methodology, respectively, then this chapter was to highlight the architecture of the system how it design the flow of the adaptation process, finally designing user interface prototype. The rest of the interfaces the prototype attached in appendix A

CHAPTER FIVE

DISCUSSION OF RESULTS

5.1 Introduction

This chapter discusses the evaluation of the MTGTDL developed prototype.testing usability is one of the most fundamental methods in usability evaluation, because real test users are asked to use the product. The moderator of the test gives predetermined test tasks one at a time to the test user, who in turn performs the tasks with the user interface (Nielson, 2006).

5.2 Evaluation Techniques

The evaluation was performed after the system has been developed to determine the level of usefulness and operability of the system; it is tested through a questionnaire which was distributed to the public. The sample size which has taken is 50 respondents and has obtained feedback from 35 respondents; each participant was given a brief description of the functionality of MTGTDL. The participants were allowed to use the prototype, finally they were given a set of prepared questionnaire to obtain their perceptions. The aim was to see the level of satisfaction and perception of the developed prototype ease of use and operability of the prototype system.

5.3 Evaluation questionnaire

The questionnaire questions were prepared and adopted from different standard Questionnaire (Lund, 2001; Lewis, 1993; Lin, Choong, and Salvendy, 1997), it consisted of two main sections, firstly general information which intended to gather demographic data about the sample and its distribution. The second part included questions about the perceptions of the participant regarding to different usability (Usefulness, Ease of Use and Learning, Flexibility and satisfaction). The questions were scaled by five levels (strongly disagree = 1, disagree = 2, natural = 3, agree = 4, and strongly agree = 5).

5.4 Data Analysis

The data collected through the questionnaire was analyzed using SPSS software .Two different techniques were used descriptive statistics. The Evaluation Questionnaire consists of 29 questions. These questions divided to four parts, each one refer to different usability testing as mentioned above.

5.4.1 Descriptive of Each Usability

5.4.1.1 Descriptive Usefulness

Table 5.1 shows descriptive usefulness which is consists of 7 questions.

Descriptive Statistics (Usefulness)					
	N	Minimum	Maximum	Mean	Std. Deviation
Q1	35	2.00	5.00	4.8	.64561
Q2	35	3.00	5.00	4.8	.50543
Q3	35	2.00	5.00	4.2	.81684
Q4	35	2.00	5.00	4.40	1.09006
Q5	35	2.00	5.00	4.31	.86675
Q6	35	2.00	5.00	4.25	.81684
Q7	35	2.00	5.00	4.54	.78000

*** Average of Mean 4.47 (%89)**

The previous table consists of six columns ; the first column contains the seven questions of usefulness section. The next column represents number of participants who answered these questions, so it is easy to note that each question was answered by all participants. The third refers to minimum answer while the fourth column is the maximum answer. The fifth column is the Mean of the values answers while the last column is the Std. Deviation. Since the first seven questions measure the system usability, it can found the average Mean of all Mean values of the questions by summation of the corresponding values in the Mean column. Average of Mean 4.47 (%89) this means that most respondents feel that the usefulness and ease of work with the application as shown in table 5.1.

Fig. 5.1 represents the percentage values of Mean for each question for the usefulness section.

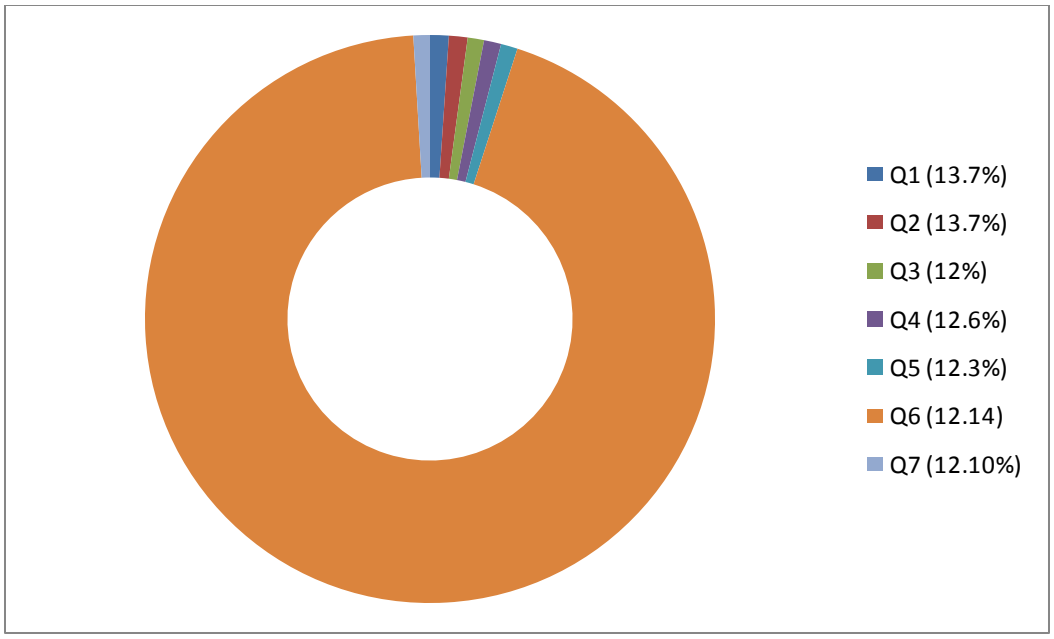


Figure 5.1: Descriptive Statistic Mean for Usefulness

5.4.1.2 Descriptive Ease of Use

Average of Mean 4.5 (%90) this means that most respondents feel that the ease of use with the application as shown in table 5.2.

Table 5.2 shows descriptive ease of use which is consists of seven questions

Descriptive Statistics (Ease of Use)					
	N	Minimum	Maximum	Mean	Std. Deviation
Q8	35	2.00	5.00	4.54	.74134
Q9	35	3.00	5.00	4.80	.47279
Q10	35	2.00	5.00	4.62	.64561
Q11	35	2.00	5.00	4.48	.65849
Q12	35	2.00	5.00	4.63	.64561
Q13	35	2.00	5.00	4.31	.93215
Q14	35	2.00	5.00	4.54	.70054

*** Average of Mean 4.5 (%90)**

As shown in the tab. 5.2 the average of Mean for ease of use section is 4.5 (%90). The percentage values of Mean for each question for the ease of use section shows in Fig. 5.2.

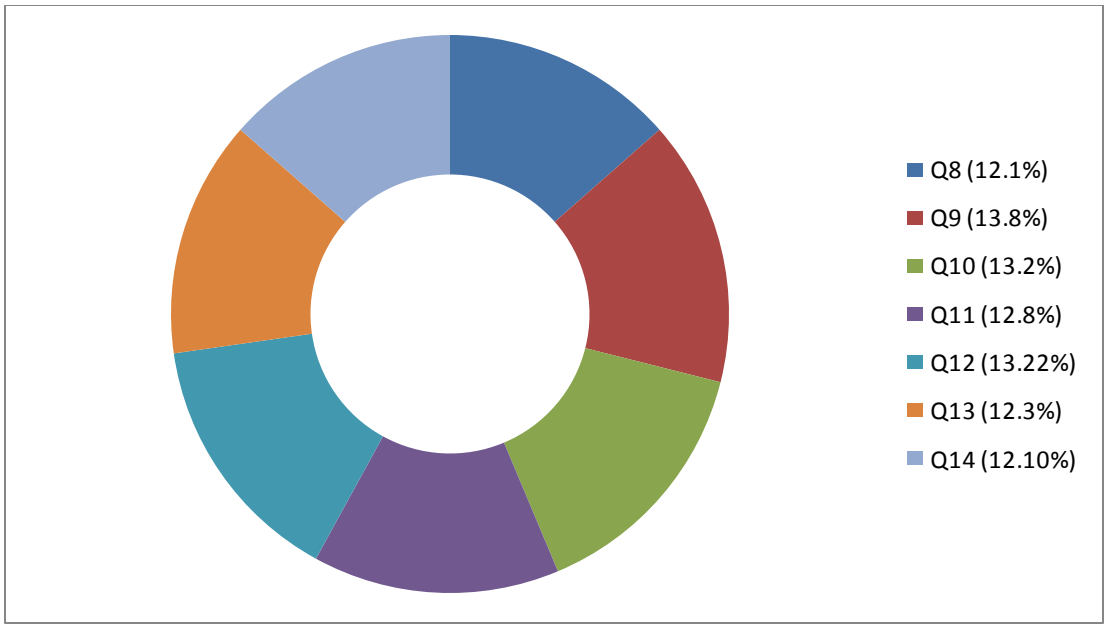


Figure 5.2: Descriptive Statistic Mean for Ease of Use

5.4.1.3 Descriptive Flexibility

Average of Mean 4.46 (%89.2) this means that most respondents feel flexibly in dealing with the application as shown in table 5.3.

Table 5.3 shows descriptive flexibility which is consists of six questions.

Descriptive Statistics (Flexibility)					
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Q15	**35**	**2.00**	**5.00**	**4.34**	**.87255**
Q16	**35**	**2.00**	**5.00**	**4.43**	**.88403**
Q17	**35**	**2.00**	**5.00**	**4.46**	**.81684**
Q18	**35**	**2.00**	**5.00**	**4.43**	**.85011**
Q19	**35**	**2.00**	**5.00**	**4.58**	**.69814**
Q20	**35**	**2.00**	**5.00**	**4.54**	**.78000**

*** Average of Mean 4.46 (%89.2)**

As shown in the Tab. 5.3 the average of Mean for flexibility section is 4.46 (%89.2). The percentage values of Mean for each question for flexibility section shows in Fig. 5.3.

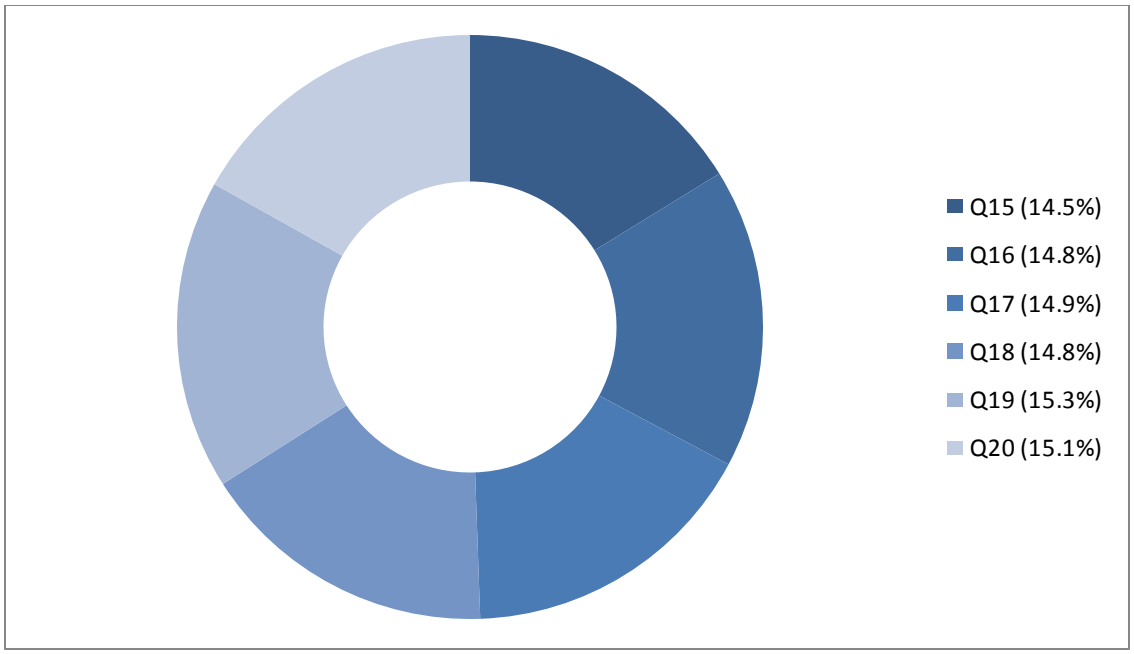


Figure 5.3: Descriptive Statistic Mean for Flexibility

5.4.1.4 Descriptive Satisfaction

Average of Mean 4.35 (%87.06) this means that most respondents feel satisfaction in dealing with the application as shown in table 5.4.

Table 5.4 shows descriptive satisfaction which is consists of nine questions.

Descriptive Statistics (Satisfaction)					
	N	Minimum	Maximum	Mean	Std. Deviation
Q21	35	2.00	5.00	4.57	.88403
Q22	35	2.00	5.00	4.05	1.05560
Q23	35	2.00	5.00	4.46	.70054
Q24	35	2.00	5.00	4.31	1.05081
Q25	35	2.00	5.00	4.46	.88593
Q26	35	2.00	5.00	4.28	.92582
Q27	35	2.00	5.00	3.74	1.33599
Q28	35	2.00	5.00	4.63	.64561
Q29	35	2.00	5.00	4.68	.67612

*** Average of Mean 4.35 (%87.06)**

As shown in the Tab. 5.4 the average of Mean for the satisfaction section is 4.35 (%87.06). The percentage values of Mean for each question for the satisfaction section shows in Fig. 5.4.

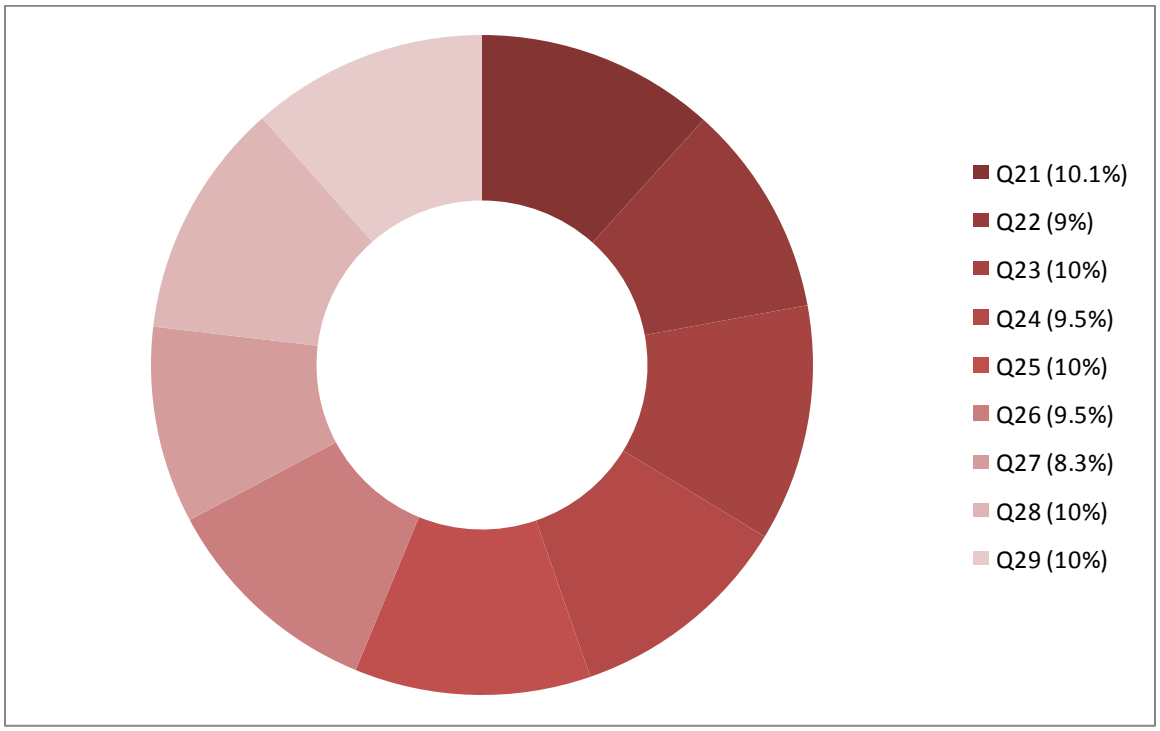


Figure 5.4: Descriptive Statistic Mean for Satisfaction

5.4.1.5 Descriptive of all Usability

Table 5.5 describes the number of the respondents, the minimum and maximum answers, the mean and the Std. deviation for all different usability.

Descriptive Statistics (all Usability)					
	N	Minimum	Maximum	Mean	Std. Deviation
Q1	35	2.00	5.00	4.7714	.64561
Q2	35	3.00	5.00	4.7429	.50543
Q3	35	2.00	5.00	4.2571	.81684
Q4	35	2.00	5.00	4.4000	1.09006
Q5	35	2.00	5.00	4.3143	.86675
Q6	35	2.00	5.00	4.2571	.81684
Q7	35	2.00	5.00	4.5429	.78000
Q8	35	2.00	5.00	4.5429	.74134
Q9	35	3.00	5.00	4.8000	.47279
Q10	35	2.00	5.00	4.6286	.64561
Q11	35	2.00	5.00	4.4857	.65849
Q12	35	2.00	5.00	4.6286	.64561
Q13	35	2.00	5.00	4.3143	.93215
Q14	35	2.00	5.00	4.5429	.70054
Q15	35	2.00	5.00	4.3429	.87255
Q16	35	2.00	5.00	4.4286	.88403
Q17	35	2.00	5.00	4.4571	.81684
Q18	35	2.00	5.00	4.4286	.85011
Q19	35	2.00	5.00	4.5714	.69814
Q20	35	2.00	5.00	4.5429	.78000
Q21	35	2.00	5.00	4.5714	.88403
Q22	35	2.00	5.00	4.0571	1.05560
Q23	35	2.00	5.00	4.4571	.70054
Q24	35	2.00	5.00	4.3143	1.05081
Q25	35	2.00	5.00	4.4571	.88593
Q26	35	2.00	5.00	4.2857	.92582
Q27	35	2.00	5.00	3.7429	1.33599
Q28	35	2.00	5.00	4.6286	.64561
Q29	35	2.00	5.00	4.6857	.67612

Table 5.5 Descriptive of all usability

5.4.2 Respondent Profile

Respondent profile is general information about the respondents such as age, nationality, marital status and using mobile.

Fig 5.5 represents the percentage of the gender of the respondents participate. The Figure shows 0% (15-20 years old), 49% (21-30 years old), 51% (31-40 years old) and 0% (41-60 years old).

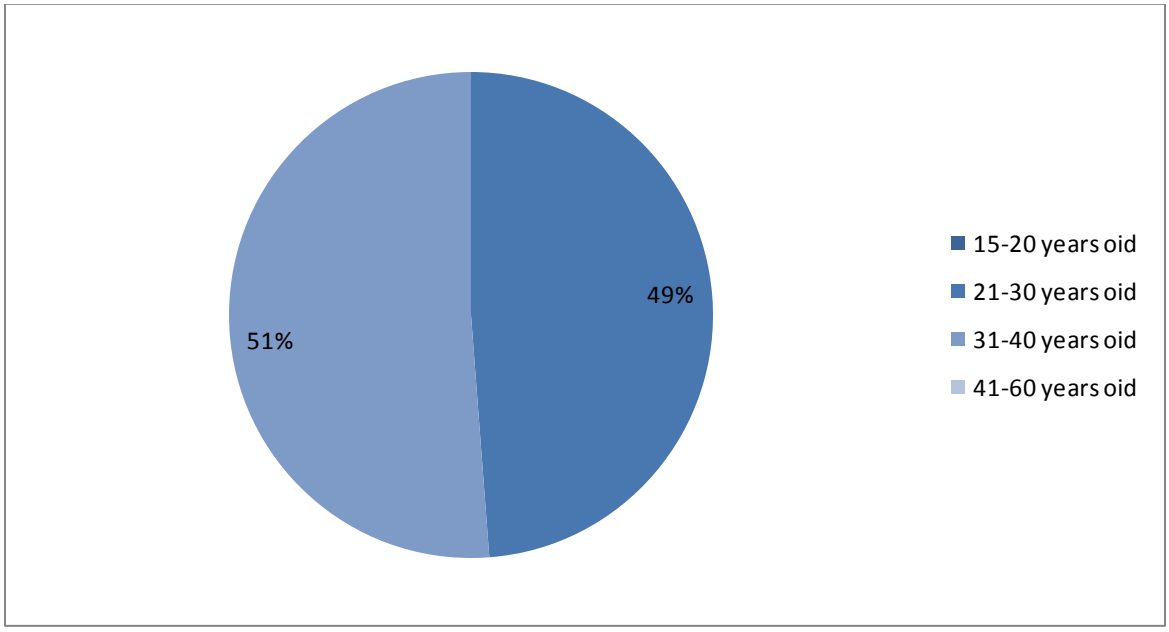


Figure 5.5: Respondent Profile (Age)

Fig 5.6 represents the percentage of the nationality of the respondents participate. The figure shows 49% for Arabic respondents and 17% for Malaysians and 34% for other.

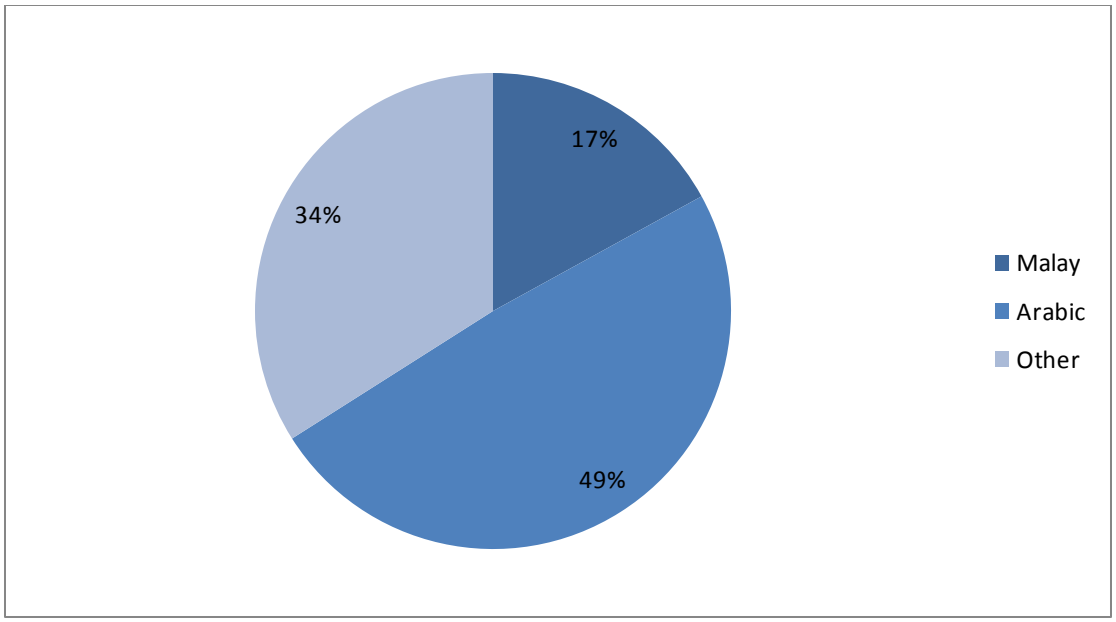


Figure 5.6: Respondent Profile (Nationality)

Fig 5.7 represents the percentage of the marital status of the respondents participate. The figure shows 46% for single and 54% for married respondents.

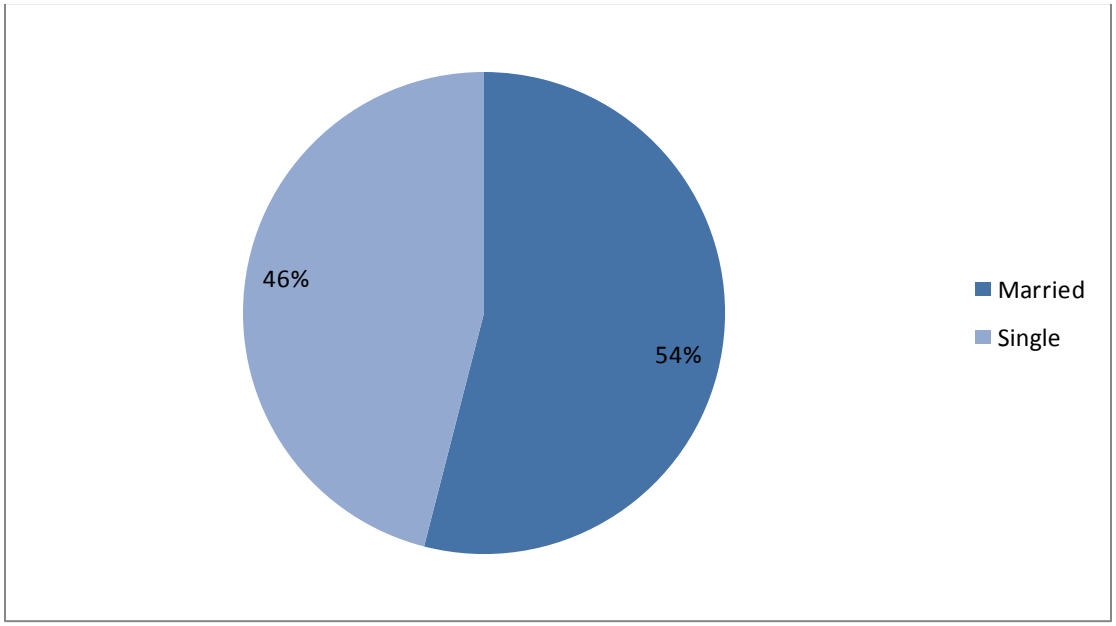


Figure 5.7: Respondent Profile (Marital Status)

Fig 5.8 represents the percentage of using mobile phone of the respondents Participate. The figure shows %100 of respondents are using mobile phone.

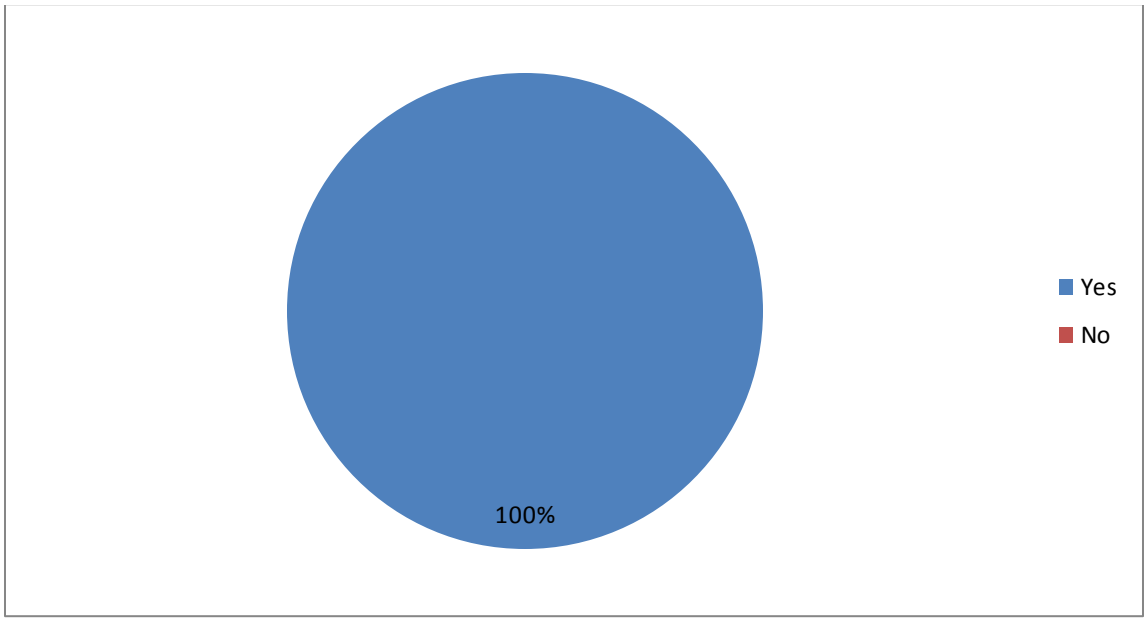


Figure 5.8: Respondent Profile (Using Mobile Phone)

CHAPTER SIX

CONCLUSIONS

6.1 Introduction

This chapter concludes the study by summarize and review the findings that found and presenting research contribution, problems and limitations, then the direction of the future works.

6.2 Conclusion of the study

This study goes along way about translator guide for tourism destination in Langkawi in a simplified way in order to work on mobile devices for helping users to communicate with each other. Malaysians and Arabs and Foreign whom speaks Arabic languages or English languages have been targeted for making their communications easier especially for those who do not have language skills of the next user who would like to communicate with. A Mobile Translator Guide for Tourism Destination in Langkawi Application (MTGTDL) prototype has developed by using Android with java. The satisfied results of questionnaires appeared after testing and evaluating the prototype. The satisfaction shows how users can communicate with each others.

6.3 Study contribution

Mobile Translator Guide for Tourism Destination in Langkawi Application (MTGTDL) prototype helps Malaysians and Arabs and Foreign whom speaks Arabic languages or English languages who do not have enough language skills for communicating with each other by using specific phrases and facilitate access to the requested address and translate it to the desired language. These phrases have been classified in categories according to the common use.

6.4 Future works

Because of the limited time for design and submitting this study, the Mobile Translator Guide for Tourism Destination in Langkawi Application (MTGTDL) still has a lot of works to be done on this application in the future such as enable users to hear any phrase by recording the phrases.

6.5 Recommendation

The wide spread of using mobile devices make. In my opinion and no one can deny the importance of the mobile technology it is become as the backbone of our society, we must make the uses of the mobile to be more wide in all the area because it is make everything easy and fast to be done.

7.0 REFERENCES

Aken, V., J, & K. (2007). Design Science and Organization Development Interventions: Aligning Business and Humanistic Values. *The Journal of Applied Behavioral Science*.

Al-adaileh, & R. (2008). Essentials of Management information System.

Ali, M. A. T. A., Berri, J., & Zemerly, M. J. (2008). *Context aware mobile Muslim companion*. Paper presented at the CSTST '08 Proceedings of the 5th international conference on Soft computing as transdisciplinary science and technology. http://dl.acm.org/citation.cfm?id=1456335

Andersen, K. V., & Henriksen, H. Z. (2006). *Impact analysis of e-tourism in Bhutan*.

Ardakan, M. A., & Mohajeri, K. (2009). Applying Design Research Method to IT Performance Management: Forming a New Solution. *Applied Sciences, 9*(7), 1227-1237.

Brown, B., & Chalmers, M. (2003). Tourism and mobile technology. *ECSCW'03 Proceedings of the eighth conference on European Conference on Computer Supported Cooperative Work*, 335 - 354.

Bucolo, S. (2004). *Understanding Cross Cultural Differences During Interaction Within Immersive Virtual Environments*. Paper presented at the Virtual Reality Continuum and its Applications in Industry, Nanyang, Singapore. http://eprints.qut.edu.au/24984/

Buhali, & D. (2003). E-Tourism Information Technology for Strategic Tourism

Buhalis, & Dimitrios. (1998). *Strategic use of information technologies in the tourism industry*. Retrieved from http://epubs.surrey.ac.uk/1123/

Butler. (2011). Changing the mobile landscape. *IEEE Computer Society, 10*(1), 4-7.

Cheverst, K., Mitchell, K., & Davies, N. (2002). The Role of. Adaptive Hypermedia in a Context-Aware Tourist Guide. *Communications of the ACM - The Adaptive Web 45*, 47 - 51.

Computing, M. (2005). Retrieved date 5-3-2009 from http://searchmobilecomputing.techtarget.com/sDefinition/0,,sid40_gci213337,00.html

Cramton, C. D. (2001). The Mutual Knowledge Problem and Its Consequences for Dispersed Collaboration. *Organization Science, 12*(3), 346-371.

Daniel. (2006). *Usability guidelines for designing mobile learning portals*. Paper presented at the Mobile technology applications systems. http://www.mendeley.com/research/usability-guidelines-designing-mobile-learning-portals/

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *Management Information Systems Research Center, University of Minnesota, 13*(3), 319 of 319-340.

Dunckley, Smit, & Howard. (1999). Designing for Shared Interfaces with diverse user groups. 630.636.

Garretson. (October 13,1999). Palm Computing, Symbian to Team. Retrieved date 3-3-2009 from Computerworld http://www.computerworld.com/cwi/story/0,1199,NAV47_STO29169.00.html(current January 20,2002)

Herbsleb, J. D., Mockus, A., Finholt, T. A., & E, R. (2000). Distance, dependencies, and delay in a global collaboration. *CSCW '00 Proceedings of the 2000 ACM conference on Computer supported cooperative work*, 319 - 328.

Herman, L. (1996). Towards effective usability evaluation in Asia: cross-cultural differences. *IEEE*, 135-136.

Herstad , J., D.V, Thanh, & S.Kristoffersen. (1998). Wireless Markup Language as a Framework for Interaction with Mobile Computing Communication Devices.

Hornbæk, K., & Law, E. L.-C. (2007). *Meta-analysis of correlations among usability measures*. Paper presented at the on Human factors in computing systems. http://dl.acm.org/citation.cfm?id=1240722

Hussain, A., & Ferneley, E. (2008). Usability metric for mobile application: a goal question metric (GQM) approach. *iiWAS '08 Proceedings of the 10th International Conference on Information Integration and Web-based Applications & Services*, 567-570.

IBM. (2006). Mobile Content Services: Delivering next-generation content servicecapabilities, from Retrieved date 4-4-2009 from http://www.03.ibm.com/industries/media /doc/content/bin/Ped_8Mobile Content Services_White_Paper_09_2006.pdf

Jerome, & M., D. (2008). *Android: A Programmer's Guide*. Chicago: United States of America: McGraw- Hill Companies.

Kayan, S., Fussell, S. R., & Setlock, L. D. (2006). Cultural differences in the use of

instant messaging in Asia and North America. *CSCW '06 Proceedings of the 2006 20th anniversary conference on Computer supported cooperative work*, 525-528.

Kim, J. H., & Lee, K. P. (2005). *Cultural difference and mobile phone interface design: icon recognition according to level of abstraction* Paper presented at the Human computer interaction with mobile devices & services.

Koller, A., Foster, G., & Wright, M. (2008). *Java Micro Edition and Adobe Flash Lite for arcade-style mobile phone game development: a comparative study*. Paper presented at the conference of the South African Institute of Computer Scientists and Information Technologists on IT research in developing countries: riding the wave of technology.

Kothari , c. (1985). Research Methodology: Methods and Techniques .

Lam, T., Cho, V., & Qu, H. (2007). A study of hotel employee behavioral intentions towards adoption of information technology. *International Journal of Hospitality Management*, *26*(1), 49–65.

Lee, J. R. E., & Watson, D. R. Final Report to the Plan Urbain: Public Space as an Interactional Order. *Manchester, Department of Sociology, University of Manchester*.

Lee, S., & Connolly, D. J. (2010). The impact of IT news on hospitality firm value using cumulative abnormal returns (CARs). *International Journal of Hospitality Management*, *29*(3), 354–362.

LEUNG, C. H., CHAN, Y. Y., & CHAN, C. S. C. (2003). *Analysis of mobile commerce market in Hong Kong*. Paper presented at the ICEC '03 Proceedings of the 5th international conference on Electronic commerce. http://dl.acm.org/citation.cfm?id=948058

Lewis, J. R. (1995). IBM Computer Usability Satisfaction Questionnaires: Psychometric Evaluation and Instructions for Use. *Intrinational Jurnal of Human-computer Interaction, 7*(1), 57 -78.

Li, S., & Knudsen, J. (2005). *Beginning J2ME: From Novice to Professiona* (3rd ed.).

Lund, A. M. (2001). Measuring Usability with the USE Questionnaire. STC Usability SIG Newsletter. Retrieved from WWW.HCIBIB.ORG on 22/09/2009.

McDougall, P. (2008). Microsoft Adds Adobe's Flash Lite to Windows Mobile. InformationWeek. retrieved 10-January-2009 from http://www.informationweek.com/news/mobility/messaging/showArticle.jhtml articleID=206904112.

Micro Soft, c. (2010). Marketplace for Mobile. Retrieved May 29, 2010, from

windowsphone:http://developer.windowsphone.com/resources/enus/marketplacep rohibitedAp plicationTypes.Pd.

Morales, C., & Nelson, D. (2007). Mobile 3D Game Development: From Start to Market (Charles River Media Game Development.

Munro, A. (1998). *Fringe benefits: an ethnographic study of social navigation at the Edinburgh Festival. Stockholm*.

Nations, U. (2008). Paper presented at the Conference on Trade and Development. Available at: http://www.unctad.org/Templates/StartPage.asp?intItemID=2068 [Accessed September 15th 2008]

Nielsen, J. (August 25, 2003). Usability 101: Introduction to Usability. Alertbox. Retrieved date 2-2-2009 from http://www.useit.com/alertbox/20030825.html.

Nielsen , J. (June 26, 2006). Studies: How Many Users to Test. Alertbox. Retrieved date 2-2-2009 from http://www.useit.com/alertbox/quantitative_testing.html

Ozkirimli, U. (2000). Theories of Nationalism: A Critical Introduction.

PC, P. (2007). In Encyclopædia Britannica. Retrieved date 6-4-2009 from Encyclopedia Britannica Online: http://www.britannica.com/eb/article-9374440

Ren, W., & Yu, D. (2011). *Research on encryption technology based on J2ME socket network communication*. Paper presented at the Mechatronic Science, Electric Engineering and Computer (MEC), 2011 International Conference on Mechatronic Science, Electric Engineering and Computer (MEC). http://ieeexplore.ieee.org/xpl/articleDetails.jsp?reload=true&arnumber=6025874&contentType=Conference+Publications

Rhodes, G. (2006). *Macromedia Flash Professional 8 Game Development (Charles River Media Game Development)*

Salwani, M. I., Marthandan, G., Norzaidi, M. D., & Chong, S. C. (2009). *E-commerce usage and business performance in the Malaysian tourism sector: empirical analysis* (Vol. 17).

Schmidt, B. N., A., Poslad, Zip, A. . (2001). Personalized and Location-based MobileTourism Services ,Keluvords: mobile users.

Sreenivasan, J., & Noor, M. (2010). A conceptual framework on mobile commerce acceptance and usage among Malaysian consumers. *WSEAS Transactions on Information Science and Applications, 7* (5), 661-670

Sreenivasan, J., & Noor, M. N. M. (2010). A conceptual framework on mobile commerce acceptance and usage among Malaysian consumers: the influence of location, privacy, trust and purchasing power. *WSEAS Transactions on Information Science and Applications, 7*(5), 661-670.

Tan, E. M.-Y., Goh, D. H.-L., Theng, Y.-L., & Foo, S. (2007). *An analysis of services for the mobile tourist*. Paper presented at the Mobility '07 Proceedings of the 4th international conference on mobile technology, applications, and systems and the 1st international symposium on Computer human interaction in mobile technology. http://dl.acm.org/citation.cfm?id=1378142

Vaishnavi, V., & Kuechler, B. (2004). Design Research in information system. Retrieved date 7-January -2009 from http://home.aisnet.org/displaycommon.cfm?an=1&subarticlenbr=279

Vaishnavi, V. K., & Jr, W. K. (2008). Design Science Research Methods and Patterns: Innovating Information and Communication Technology.

Werthner, H., & Ricci, F. (2004). E-Commerce and Tourism. Communications of the ACM. *47*(12), 101-105.

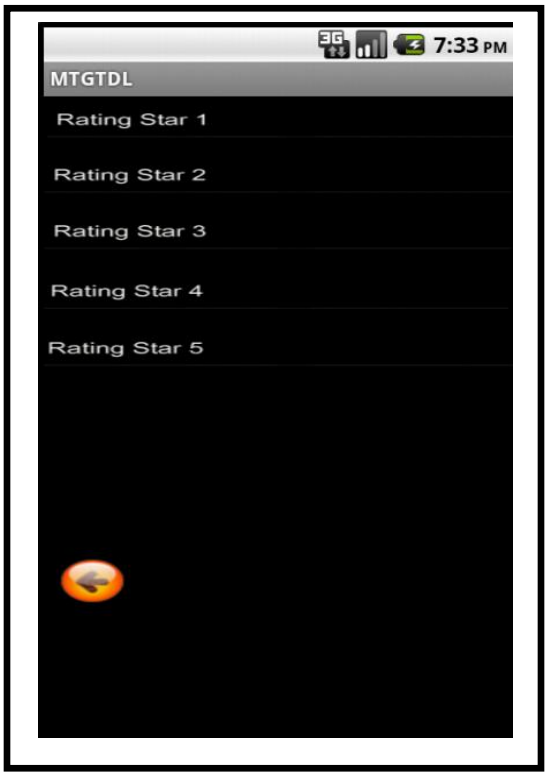
Zhang, X. (2009). *Design of mobile electronic commerce system based on J2ME* Paper presented at the International Conference on Communication Software and Networks. http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=05076974

Appendix A Interface MTGTDL

Main Page

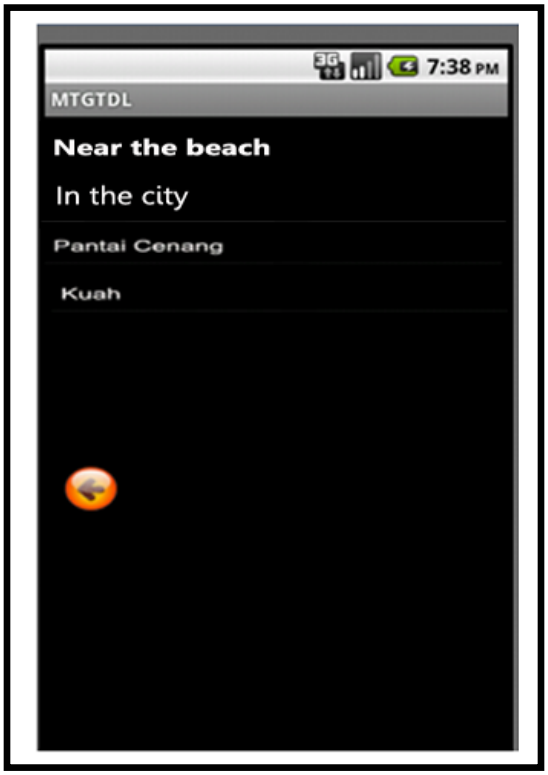
Select By Search

Select Hotels

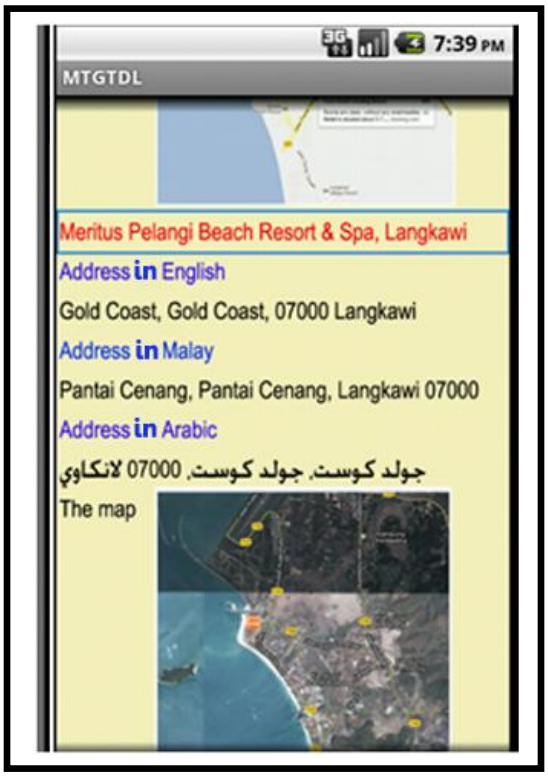


Select Search by Star

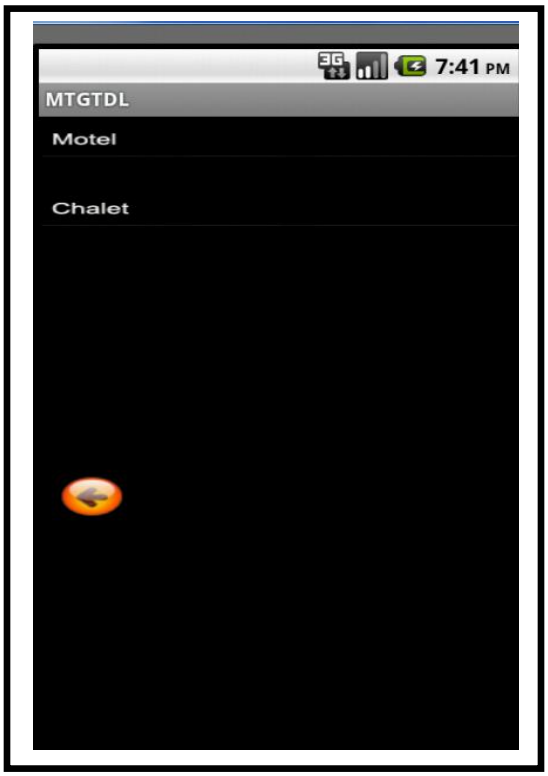
Select Rating Star1



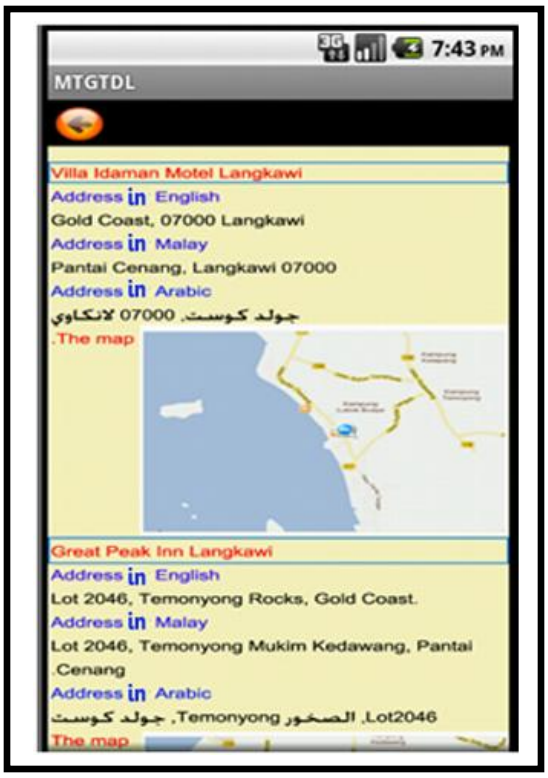
Select Search by Places



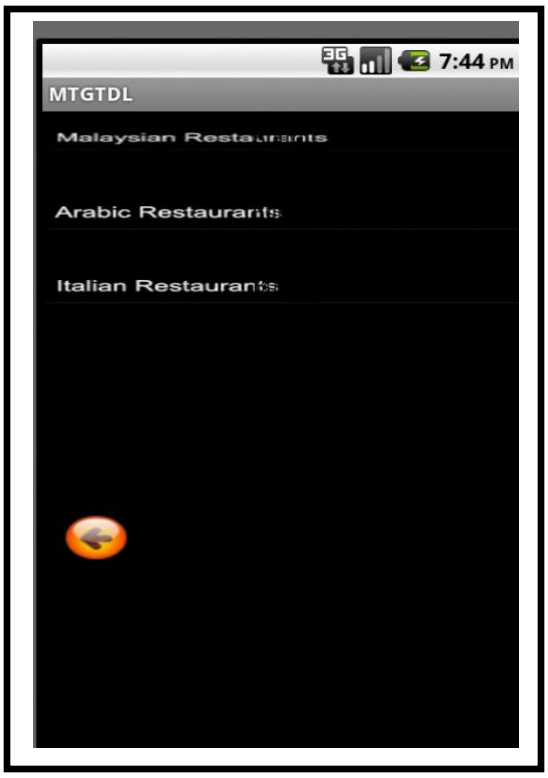
Select Search by Beach



Select Search by Type of Accommodation



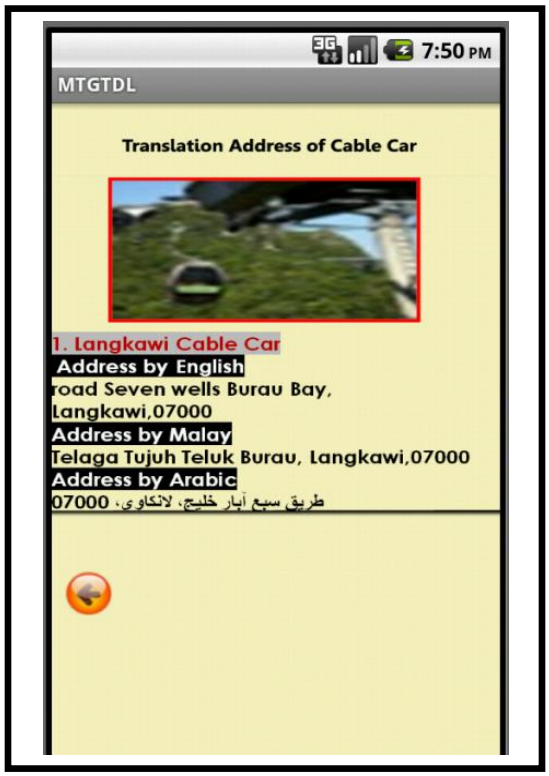
Select Chalet



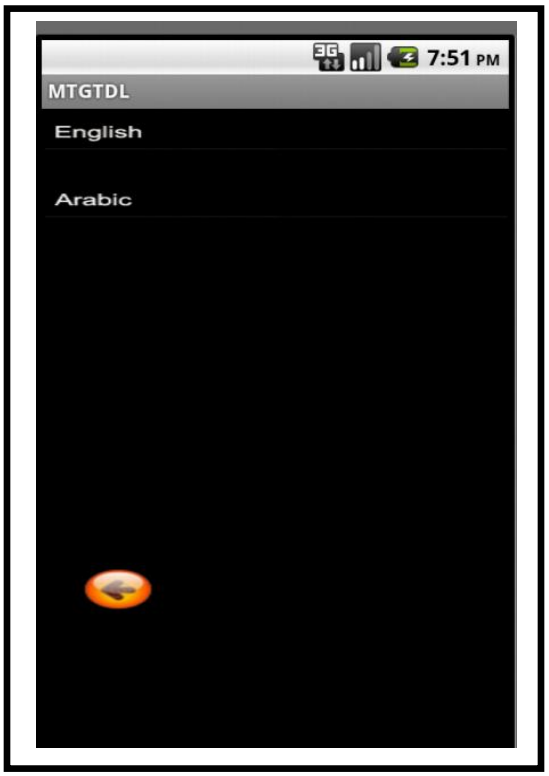
Select Restaurants

Select Arabic Restaurants

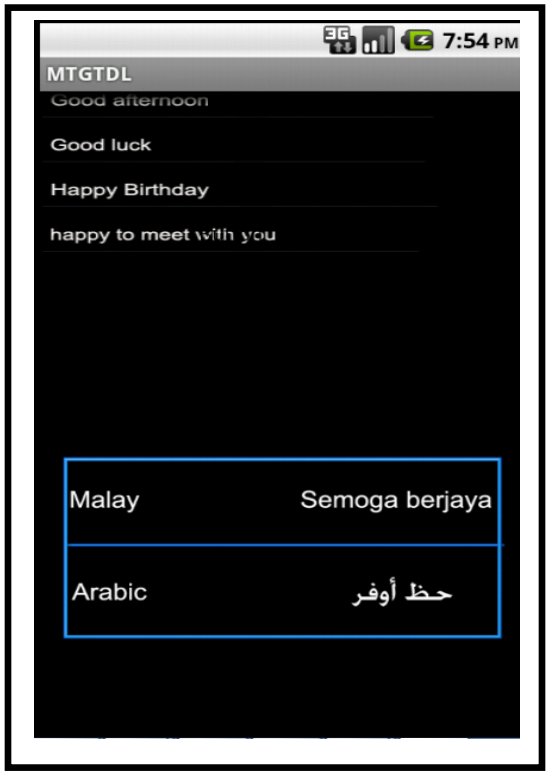
Select Places of tourism



Select Cable Car



Select Common Phrase



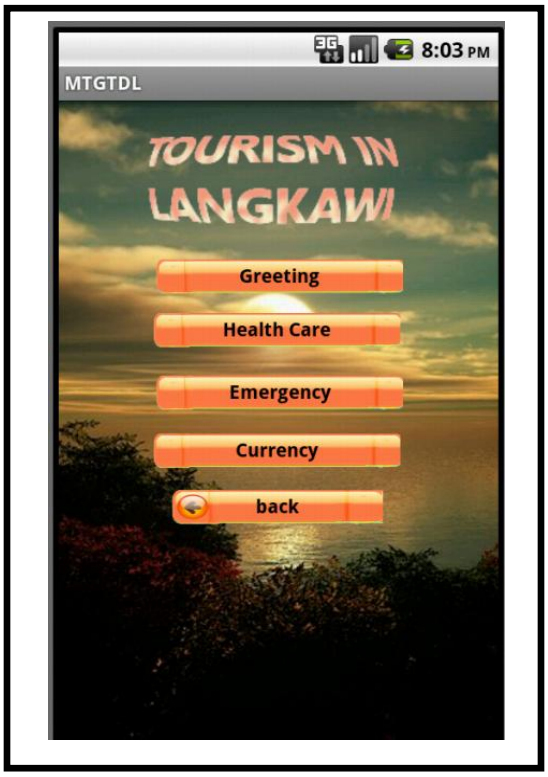
Select English

Select Arabic

Select Show List

Select English to Malay

Select Hotels



Select Common Phrase

English	Malay
Good morning	Selamat pagi
Good day	Selamat siang
How are you	Awak apa khabar
Happy to see you	Gembira berjumpa dengan awak
See more	Jumpa lagi
Good night	Selamat malam
Good luck	Semoga berjaya
We hope to see you again	Moga berjumpa lagi
Thank you	Terima kasih
Not	Tidak
Please	Sila
Pardon me	Maafkan saya
Happy Birthday	Selamat hari lahir
Happy new year	Selamat tahun baru
Bye-bye	Selamat Jalan
Welcome	Selamat Datang
Please Sign In	Sila Masuk

Select Greeting

Select Arabic to Malay

Select Hotels by Arabic

Select Common Phrase by Arabic

Arabic	Malay
صباح الخير	Selamat pagi
مساء الخير	Selamat siang
كيف حالك؟	Awak apa khabar
أنا سعيد بمقابلتك	Gembira berjumpa dengan awak
اراك لاحقا	Jumpa lagi
ليله سعيده	Selamat malam
حظ اوفر	Semoga berjaya
انا سعيد لرؤيتك مره اخرى	Moga berjumpa lagi
شكرا	Terima kasih
لا	Tidak
لوسمحت	Sila
عفوا	Maafkan saya
عيد ميلاد سعيد	Selamat hari lahir
سنه سعيده	Selamat tahun baru
وداعا	Selamat Jalan
مرحبا	Selamat Datang
تفضل بالدخول	Sila Masuk

Select Greeting by Arabic