

# THE QUEST E-TOURISM MOBILE APPLICATION

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## Abstract

Currently, tourists use the mobile application for searching the attractions information while they are traveling. A lot of information such as the current location, the nearest attraction, or the attraction history are searched in order that the tourists can get as much as information for their travel. However, many applications provide the information based on the current location of the users. The attractions around the users are shown regarding to the distance and the user filter, not by their details. In each city, there are legends about each attractions of their own. The relationships among the attractions are connected with several legends. The tourist can visit the attraction list according to the legends as their quest in a game. In the computer games, there is a set of activities which players have to achieve in order to get some rewards, this set of activities is called as the quest. The quest makes the players feel more delight when they achieve the rewards. In this paper, the quest concept is applied with the mobile tourist. The tourist will get the quest when they are traveling. The mobile application will provide the quest according to the city myth which leads a series of attractions. The tourists can keep the track for each quest by tracking the map, and getting the attraction information in the application. In addition, the tourist can get the next attraction information based on the myths of each city. These will help the tourists understand the cultural and history of the city with the joyfulness of playing game in the same time.

## Keywords:

Quest, e-tourism, mobile application, Location-Based Service

## Introduction

Currently, many tourists use their smart phone as an information source for their travelling due to the internet infrastructure in many countries. The tourists can search for the attraction information, the food store information, or even the souvenir. In addition, the cost of the smart phone and mobile internet connection is decreased, so the tourists can use the smart phone to connect many data sources cheaper. In addition, getting the attraction information via the smart phone is easier than carrying the guidebook around while the tourists are hopping around the attractions.

The location-based services area service for the devices that offers users the current location. The information may not be only the current location, but the service also provides the interesting location nearby for the tourists to decide where they want to visit. Some location services such as Google maps or Bing bring the maps that shows where the tourists are, and lead the tourists to the location which the users want to go. These services provide the information based on the location and help the tourists as a point to point navigation which is moving from the current location to next places. However, the tourists need to prepare a travel plan based on their researches before using these free services.

As the tourists have the limited resource for travelling, they need to prepare the travelling plan to utilize their resources. Many researches provide the tools for building the effective plans. The

different people have the different interests, so the travelling plan for different tourists is very difficult. To create the different travel plan for individual tourists, the personalized techniques to create the trips based on the tourist interest and their location are proposed. A technique may get the tourist interested keyword and then find the nearest place based on the tourist location and return the attractions to the tourists (Liu & Wilde, 2011). The expert system may be used for recommending the next attractions (Batet, Moreno, Sánchez, Isern, & Valls, 2012; García-Crespo, López-Cuadrado, Colomo-Palacios, González-Carrasco, & Ruiz-Mezcua, 2011). The social network is also one of the best sources to find the interesting attractions as people believe in what their friends said (Shankar, Yun-Wu, Castro, Nath, & Iftode, 2012).

In an online game industry, many games offer a list of tasks for the players to complete in order to get a special item. The list is called as the "Quest". The quest is a part of the game story or may be optional tasks of the game. There is a story in each quest to make the quest more interesting. The quest helps the players to play the old game with a new vision, and let the players still involving in the game. The online game can provide the quest any time the game providers want to let the players keen to log in to the game to see whether the new quest is set, and to complete it.

In this paper, the concept of the quest is provided to the tourist. A set of the attractions will be provided as a quest for the tourists. The quest will be provided to the tourists using the mobile application with the location base services. In the initial phase, the quest will be created from the Chiang Mai myth. With this concept, the tourists can plan their travel easily by selecting the quest they want, and go through the provided quest attractions. The tourists can travel through the list of their interest.

The paper consists of five sections and organized as follows. Section 2 describes the quest concept, and how to apply to the application design. The developed application is illustrated in section 3. The related works are discussed in section 4. Finally, section 5 concludes the work and targets for the future works.

## **The Application design**

### **Travelling quest**

The RPG (Role playing game) is a game that simulate role for the players to play in the written story (Salen & Zimmerman, 2004). The players have to play as a role in the game to complete the story of the game. In the story, there are many small achievements that the players should complete. This is called as a "Quest". The quest is a common structure found in most adventure games (Dickey, 2006). Players take on the role and embark on a long and arduous journey that will require the players to overcome several of conflicts encountered or places to visit along the way. The quest is normally tied to the story of the game or the artifacts that it is related to.

The quest lets the players more enthusiasm to the game as there may not be only single aspect of the games. Many quests are not directly related to the main game story. When the players are bored of the main game, they can play the mini quest to relax. To make the quest more interesting, the tasks or the places in the quest should have relationships in some aspect. The stories among the places in the quest makes the players more touching to the story.

Applying the quest for the tourists is similar to use a quest in the game. The traveling quest must contain a list of the places or attractions which contains the relations in some aspects. For example, a group of places which contains the same architecture era or the built by the same king. However, just only the group of attractions does not express the relationships among the attractions.

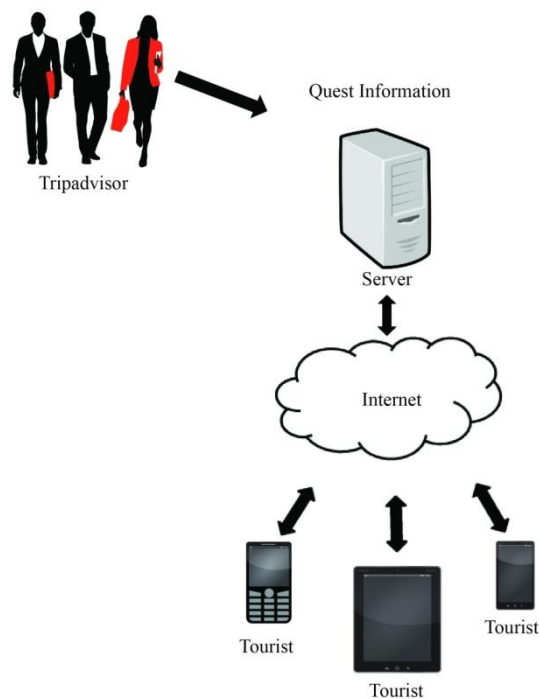
There are trails which indicate the travelling from one place to the other places. In Thailand, there is a group of poem called "Nirad". "Nirad" is the poem that the poet composes about the trip from one

place to the other place. During the trip, the poet describes the places that he passed, and explain the relationship of the places with the name or the trip. The “Nirad” can be focused as the quest for the tourist to travel along the famous poem. The sequence of events in the history can be selected as a quest as well.

As a consequence, the quests for the tourists should be a sequence of places for the tourists to go. The sequence can be created from “Nirad”, or the historical moments. The quest will help the tourist not to see the attractions, but also understand the history, the cultural, the background behind each attraction, and the relationship among the attractions.

### The architecture design

To apply the quest to the tourist via mobile application, the architecture of the system is shown in Fig 1.



**Fig 1**The application architecture

There are two major stake holders in the system which are the trip advisors and the tourists. The trip advisors are the history experts. The trip advisors provide the tourist attraction information such as the name of the attractions, the location, and the historical details. Then the trip advisors have to link the attraction together as a quest. As the quest is applied for the “Nirad” or historic trails, after linking the tourist attraction, the trip advisors have to provide the quest information such as the details (from the “Nirad”, or history), and the award if applicable. The award can be provided by any sponsors. For example, if the tourists can complete the quest, they can show the result at the tourist information kiosk for getting a reward. The web application is developed for the trip advisors to complete these tasks.

To get the quest information during travelling, the tourists have to download the mobile application. Currently, it is developed for the android platform. The tourists can see all the quests provided by the trip advisors. Once the tourists select the quest, the list of attractions and the quest information are shown. The list of attractions shows the map that links all the attractions in the quest together and lead the tourists from the first attraction to the end. During the travelling, the tourists can check-in in the application when they arrive the attraction to show that they have been here. If all attractions in

the quest have been visited in the quest order, the quest badge will be given to the tourists that they have accomplished the quest. The tourist agency can take this chance to give some souvenir to the tourist to attract the tourists to travel along each quest.

In addition, if the tourists do not interest traveling via the quest. They can go anywhere they want and get the attraction information as well. To get the attraction information easily, the Location based technique is adapted to the application. The mobile application retrieves the position of the tourists via the GPS module in the mobile. Using the current location, the mobile application queries for the attraction information which the tourists stay, or the tourists can search for the attraction information which the tourists want to go.

The augmented reality technique is also applied for the tourist to get the information in a different view. The tourists can find the direction of the tourist attractions using the camera in the mobile. The augmented reality technique adds the information of the attraction inside the camera view, so the tourists can see the direction to the next attraction and other related information which can be shown in the screen.

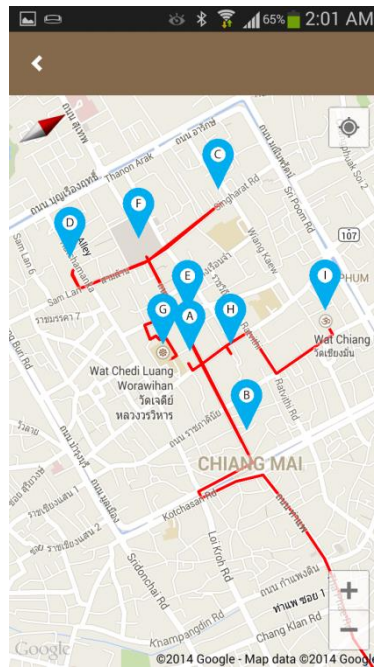
### **The program implementation**

With the design described in the previous section, the system for the quest traveling is implemented. The mobile application is developed by PhoneGap framework (Ghatol & Patel, 2012). The PhoneGap application is developed by HTML5 and then it can be compiled to several mobile application platform. The quest information is provided in Fig2.



**Fig2The quest information page**

The quest name is shown on the top of the application. The quest story is described after the picture and the list of attractions in the quest is shown with the attraction information. The tourist can see the sample pictures of the quest, the quest information in order to decide will they travel in the quest or not. If they want to know more information about each attraction in the quest, they can see the attraction information directly. When the tourists decide to go the quest, they can request a map for their trip as shown in Fig3.




**Fig3The quest map**

The map shows the list of attractions to go. The attraction in the list is shown alphabetically. The route is created from the current location (outside the picture) to the attraction and then traverse to attraction B, C and so on. The tourist can travel through the route to each location. When they reach each location, the application will show the attraction information for the tourist to mark that they have been there.

On the server side, the trip advisors have to provide the quest information. First of all, the trip advisors have to provide the attraction information as shown in Fig4.


### Location

Map Satellite



Map data ©2014 Google Terms of Use Report a map error

### Image



### Name

### Description

A Normal text Bold Italic

☰ ☲ ☳ ☴ ✍

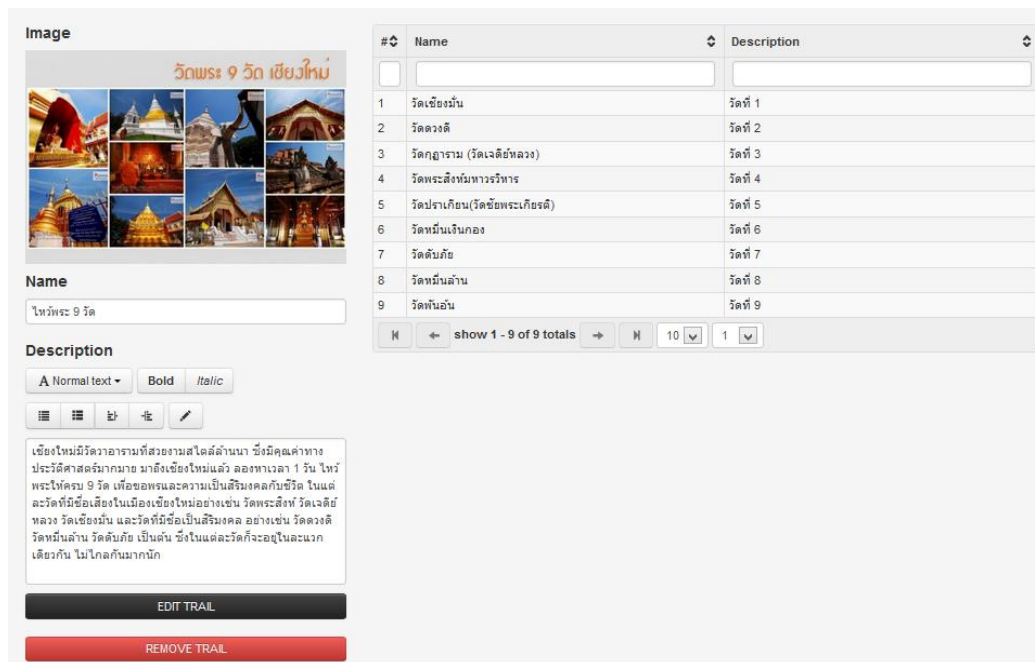
ที่ตั้งวัดในวัดจันทน์บ้านสามสิบห้า ตำบลเมืองฝาง จังหวัดเชียงใหม่ ตั้งวัดในวัดจันทน์เมืองฝาง  
บ้านสามสิบห้า ตำบลเมืองฝาง จังหวัดเชียงใหม่ ตั้งวัดในวัดจันทน์เมืองฝาง บ้านสามสิบห้า ตำบลเมืองฝาง  
จังหวัดเชียงใหม่ ตั้งวัดในวัดจันทน์เมืองฝาง บ้านสามสิบห้า ตำบลเมืองฝาง จังหวัดเชียงใหม่ ตั้งวัดในวัดจันทน์เมืองฝาง  
บ้านสามสิบห้า ตำบลเมืองฝาง จังหวัดเชียงใหม่ ตั้งวัดในวัดจันทน์เมืองฝาง บ้านสามสิบห้า ตำบลเมืองฝาง จังหวัดเชียงใหม่

EDIT LOCATION

REMOVE LOCATION

**Fig4 add attraction information page**

The trip advisors pin the location in the map to specify the location of the attraction. So then the attraction pictures and the attraction description are added to the system. In order to add the quest, the trip advisors have to create a new quest as shown in Fig5.



**Fig5 Add Quest Page**

The quest name, description, and picture are added. The link to the attractions with the given order is also required. This information is stored in the server and wait for the tourist to use via a mobile application.

### **Related Works**

The competition-based reward has been proposed for the social network marketing (Tussyadiah, 2012). The marketing agencies provide competitions for the users of the system. When the users achieve award when they achieve the competition, the agencies provide them the rewards and announce the rewards to the users' friends. The users' friends know what their friends have done and where, so if they like the same mean of the competition, they will engage in a competition to make some connections with their friend who have already completed the competition. With this marketing technique, the attractions are more interesting as some of their friends have been there. The quest is applied to be a competition so tourists can visit many attractions as their friends' journey, so they can connect with their friends in the same experience.

Location-based service (Junglas & Watson, 2008) is a service to help the tourist to complete the quest. The Location-based services take into account the geographic location of the user and provide the service according to the location. There are many tourist services provided to the tourist based on the tourist location. Barbara et al. (Schmidt-Belz, Nick, Poslad, & Zipf, 2002) proposed the mobile tourism service based on the preference of the tourist. First, the tourists provide their interests to the CRUMPET system. When the tourists send their location to the system, the CRUMPET system reads the location and finds the attractions that are nearby the tourists and in the tourist interest. The tourists receive the attractions so they can design the next location to go. Zipf (Zipf, 2002) expanded the CRUMPET by not only returning the attractions, but also returning the maps. The map is generated based on the tourists' interest. Only the locations which match with the tourist interest are generated into the map, as a consequence, the tourists will get the different maps regarding their interest.

In addition, the locations to be suggested to the tourists are not related only with the tourist interest, but also from the attraction themselves. Yu and Chang (Yu & Chang, 2009) proposed the architecture for recommending the attraction for the tour planning. A set of attractions is provided based on the

tourist preferences with the recommended hotels, restaurants, and the package tour plans. Moreover, the artificial intelligent has been proposed to be a trip advisor. The Fuzzy logic engine and the semantic engine has been proposed to recommend the attractions to the tourist in Sem-Fit (García-Crespo et al., 2011). The feedbacks from the previous tourists are used for evaluating whether the attractions are suitable with other tourists who have the same background or not. A similar system was proposed as the TuriSt system (Batet et al., 2012). The TuriSt system offers the tourist activities instead of the places; however, the personal information is also required to evaluate the interesting activities for the tourists. These techniques offer places or activities for the tourists regarding the tourists' interest. However, our works propose the attraction regarding the relationship among the places. The tourist can have fun not only from the places they see, but also the interesting of the story and the quest. Using the location-based service for traveling, the tourists can feel like they are playing the game for finding the places in the map. This will encourage the tourist to travel more attractions.

The application is developed in a mobile application as the growth of the internet mobile network. In addition, the interactive guide is more attractive for the tourists to use. Kenteris, Gavalas and Economou (Kenteris, Gavalas, & Economou, 2011) and Fino Et al. (Fino, Martín-Gutiérrez, Fernández, & Davara, 2013) proposed the interactive guide for the tourist to go. Kenteris's work created the multiplatform mobile application which can be used in multiple mobile platforms, while Fino's work aims at using the Web 2.0, augmented reality (AR) and Qr code to guide the tourists. These techniques have been applied for our work. The work is developed by the PhoneGap framework (Ghatol & Patel, 2012) which makes our application can be distributed in different mobile platform easily. In addition, the AR technique is also added to the system to make it more informative with in arealistic scenario.

### **Conclusion and Future work**

The system for suggesting the travel as a quest is proposed in this work. The tourists can use a mobile application for their travelling. The mobile application provides the quests which are a series of attractions connected by the urban stories. The tourists can travel through the series of attraction using the mobile tracking system. The trip advisors search for the stories and the related places to add to the system. The trip advisors provide the places' information, the quest stories, and the list of the places in each quest in the server. The mobile application retrieves all the quest information from the server provided by the trip advisors.

In this work, the quest for the tourist is provided by the Nirad only. However, there are many other stories in each country; for example, the places which have been photographed in the film. So the trip advisors can provide the quest for film tracking as well. In addition, the feedback from the tourist is also required to improve the attraction. The comments on each attraction or quest should be collected from the mobile application user in order that the tourist organization can develop the attraction according to the tourist feedback.

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