Tourist Guiding design based on iPhone

Songke Li
Abstract

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This paper presents the designing process of Tourist Guiding app on iPhone. This app aims for assisting tourists to schedule their trip plan in detail. The designing process consisted of three phases: research, interface design, user evaluation. In order to focus on user-centered research, two methods were carried out questionnaire survey, interview with participants. After the research was done, the results of research were analyzed and summarized so that the potential requirements were collected. Those requirements would decide the inclusive features of this app, such as navigation, plan a trip, search for transportation. Meanwhile, the interfaces of this app were designed on the platform: Photoshop. Lastly, the paper prototype's evaluation was conducted with four participants. The valuable feedbacks was given and the improvements of the interfaces were done.

Key words: tourist guiding, app on iPhone, user-centered research, interface design, user evaluation, plan a trip, assist tourists, Photoshop.
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1. Introduction

1.1 Background

Nowadays, travel is one of the most significant parts in people's life. Generally, there are two main targets why people have a travel.

- Business travel: traveling from one region to another region, they always have business or job to finish for economic gains.
- Vacation, entertainment: they try to release the pressure and enjoy the landscapes during the process of travel.

In recent years, the number of the tourists aiming for second purpose increases strongly. Due to the competition is more serious in working environment, the most workers live in the life which is full of nervousness and anxiety. They have to find a practical way to relax and release pressure in order to keep themselves in good condition. On the other hand, the traveler could feel and touch the various different cultures so that they can expand their view and perspective.

With the latest technology development, large numbers of people fonding of travel have iPhone, iPad or other kinds of smart phone. As mentioned above, the main purpose of people traveling is to enjoy the tourist attractions and relax themselves. But usually, the travelers initially face a tough situation: they have to spend much time on preparing the specific travel route before they start to travel, for instance, searching for which tourist attractions is to be worth visiting, finding out the specific address of tourists' most favorite restaurants, estimating which is the shortest path between your living hotel and the expected tourist attraction and so on. So the tourists has to visit hundreds of tourist-related websites to look for the useful information. Meanwhile, they have to write it down or print it out, which is time-consuming.

How to find planned destinations if tourists lost themselves or they suddenly eager to search for a well-known restaurant when they are on the way of trip. Those urgent event always happen during the process of traveling. It is impossible to get a laptop or desktop instantly to search, so there are only one way to get tourists out from the current difficult situation is to ask passerby for help. By this way, this problem could be solved easily in language-understanding countries, but how to deal with it when the tourists is in language-barrier country. Due to the restriction of language, the tourists has to rely on mobile-network on smart phone or pad.
At present, few apps are specially design for not only assisting users to plan the trip, but also help them modify and implement the existing trip plan. Even if some apps are related with dealing with travelers' problems on Market, those apps can not effectively solve the travelers' problems. Most of their features are focused on introduction of city or navigation.

1.2 Aim

The most significant aim of this project is to design and simulate an interactive app as a travelers' assistant on iPhone and iPad. In order to reach this goal, it will be necessary to
- Mine the potential users from the various group in society
- Collect the requirements from the potential users
- Built of the structure of app's features and functions
- Visualize the functions in interactive way
- User evaluation in paper-prototype

1.3 Design Concept

The original inspiration came from the moment we were on travel in France. At that time, we didn't found out a suitable app to plan our trip. Most of related apps is focusing on a part, rather than taking the whole process of travel into consideration.

The app will be designed on two devices: iPhone and iPad. The major topic is identical: travel guiding. The reason why we want to designed this app on two platforms is that the difference size of screen between iPhone and iPad. Therefore, the features and interface will be very different. During the process of designing, the interfaces of those two apps will be designed separably. This paper will concentrate on the work of app-interface design on iPhone. One of critical points is that some features of app on iPhone are able to connect interactively with the corresponding functions of app on iPad. Those interactive functions could offer the convenience for users between iPad and iPhone. At the network-coverage place, users can set up the specific travel plan in iPad instead of the heavy and inconvenient laptop. Then, the information of this trip plan could be shared between the iPad and iPhone by user's account. Surely, the app on iPhone also can set up or modify the travel plan and shared it. If users set up a travel plan on iPad, they are able to watch the whole plan on iPhone. Therefore, the tourists are able to watch easily what is next destination or what they planed to eat on iPhone, rather than on iPad when they are in outside.
Both of the apps on iPhone and iPad are able to independently create and modify a trip plan. Due to the characteristics of iPad is powerful, easy to operate, and can edit the travel plan conveniently and fastly, the app on iPad is a fast tool to schedule the travel plan. Considering the size of screen of iPhone, it is not convenient to set up the trip plan. But there are several advantages of iPhone: tiny, light, convenient. It is easy to take iPhone with users and it could be get contact with Internet anytime. After the app on iPhone receives the information(travel plan) from iPad, this app will read those information and show it in a concise way on iPhone to assist users. Of course, users also could set up the trip plan on iPhone directly.

1.4 Delimitation

- This project is focused on the interfaces designing and usability testing, rather than implementing this app in programming.
- Usability testing can't find out all the underlying problems on the interface of the app.
- In the process of the designing in this project, it is hard to say this kind of design must be more interactive and innovative than other apps. Sometime, it is hard to decide which interface should be adopted, because there must be several advantages and disadvantages for each interface. So the designer has to sacrifice or ignore some features in order to retain some features.
- Due to limited project timeline, it is not possible to cover all the features for this app.

1.5 Similar Existing Apps

On current market on iPhone or iPad, most product related with tourist is about travel raiders, for instance, the app on iPhone PARIS, which offer the local information of Paris. This app is called disposable product after you buy it on iPhone or iPad. On the other hand, the features of this app is really inadequate for a tourist. The main content of this app is about instruction of tourist attractions and navigation. Although there are a lot of information this app cover, this app doesn't have extensibility.

On the aspect of navigation, one of the representative apps is named Day Trips Around San Francisco, which is a tool for a travel to explore natural wonders, regional history, and small town within a short drive from a major city. Most of the important aspects the tourist need is covered during the process of trip, but the connection between the app on iPhone and iPad aren't be created
relatively. The design is only focused on keeping the structure identical between the app on iPhone and iPad. And the features can't be sacrificed by the tourists, and it is short of the transportation information, such as the flight information, or airport information.

2. Methodology

2.1 Interaction Design

Interaction design is the practice of designing interactive digital products, environments, systems, and services (http://en.wikipedia.org/wiki/Interaction_design). From the point view of users, the interaction design is the way how to make the product easy and effective to use. So the designer should fully understand the target users and their expectations.

2.2 Usability testing

Usability testing is defined that a group of representative users operate the product. During the testing process, the observers and developers should be nearby and record the relative notes. The product could be a website, software, or any other products. The products may be not formed yet. The testing could be conducted by paper prototype testing.

ISO/IEC 9126-1 described six aspects of software quality in the product development process (Nielsen 2000): Functionality, Reliability, Usability, Efficiency, Maintainability, Portability.


<table>
<thead>
<tr>
<th>Aspect of software quality</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>Effectiveness is the measure that describes the accuracy and completeness of operate the various tasks for users by the system or product.</td>
</tr>
<tr>
<td>Efficiency</td>
<td>The user complete the task in accordance with the accuracy and the resource consuming, such as time, material or economic resources.</td>
</tr>
</tbody>
</table>
Satisfaction

Satisfaction is the subjective response as the users decide for themselves if they like to use the product and if they are satisfied with the product.

2.3 User centered Design

The term User-Centered design (UCD) was introduced and described by Norman and Draper(1986,P.61). They point out:

User-centered design emphasizes that the purpose of the system is to serve the user, not to use a specific technology, not to be an elegant piece of programming. The needs of the users should dominate the design of the interface, and the needs of the interface should dominate the design of the rest of the system.

After that, a variety of definitions and prospects of UCD have been evolved by different specialists. Gulliksen et al. criticize this kind of definition is a concept with no real meaning(Gulliksen et al. 2003, p. 397). He built a new definition(Gulliksen et al. 2003, p. 398):

While the importance of having good understanding of the users is stressed, the users’ involvement in the design process is now also emphasized.

Meanwhile, Gulliksen et al.(2003) defined twelve key principles for building the successful user-centered design process.

<table>
<thead>
<tr>
<th>Key principles</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>User focus</td>
<td>The focus is on mining the potential user's needs and requirements.</td>
</tr>
<tr>
<td>Active user involvement</td>
<td>Look for the active and representative users who represent the intended user group.</td>
</tr>
<tr>
<td>Evolutionary systems development</td>
<td>The system should be developed interactively and incrementally as new and changing requirements occurs</td>
</tr>
<tr>
<td>Simple design representations</td>
<td>In early stage of development, the users should be able to understand the design easily, otherwise it will be also difficult for the users to understand the future design.</td>
</tr>
<tr>
<td><strong>Prototyping</strong></td>
<td>Prototypes is a effective way to visualize and evaluate the design ideas and solution with real users.</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Evaluate use in context</strong></td>
<td>This operation should be started in early stage to evaluate the design.</td>
</tr>
<tr>
<td><strong>Explicit and conscious design activities</strong></td>
<td>The development process should contain dedicated design activities</td>
</tr>
<tr>
<td><strong>A professional attitude</strong></td>
<td>The development process are supposed to be operated by multidisciplinary and effective teams.</td>
</tr>
<tr>
<td><strong>Usability champion</strong></td>
<td>The usability experts or specialists should be involved during the development life-cycle.</td>
</tr>
<tr>
<td><strong>Holistic design</strong></td>
<td>All aspects that influence the use situation should be developed in parallel.</td>
</tr>
<tr>
<td><strong>Processes customization</strong></td>
<td>The process of user centered design must be specified in each organization.</td>
</tr>
<tr>
<td><strong>A user-centered attitude should always be established</strong></td>
<td>At end, the user centered attitude also should be collected and established.</td>
</tr>
</tbody>
</table>
3. Process overview

This paper will cover the relative work of designing interface of app on iPhone. The work consists of three phases: research, interface design, user evaluation.

Firstly, the project will be started with a research which is conducted to get what the requirement the user have on this kind of app and analyze their expectation of this app. The two research methods will be used in this process: Questionnaire and User interview.

Then, The next step is to design the interfaces. The design work will also divided into two parts: interfaces on iPhone, interfaces on iPad. As mentioned in sub-section Design Concept, the designing interfaces will be different between iPhone and iPad. This paper is focused on the interfaces on iPhone. The innovative and interactive operational ways will be designed. This section will be the largest section in the project.

At last, usability testing will be hold on the paper prototype. Firstly, several scenario will be caught out and some participants are recruited. The analysis is also necessary after usability testing. During this process, some problems could be found and some useful comments are supposed to be offered by users. After that, the modifying work will be proceeded. And the previous design will be redesign according to the founding problems.
Phase One: Research

4. Research

In this section, the two research methods: Questionnaire and Interview were done to collect the requirement of people. The goal of this research is to find out what kind of features are supposed to be implanted into the apps.

4.1 Questionnaire

At the beginning, the questionnaire was conducted for collecting some basic information about ordinary travel of people. Two ways were used to send the questionnaire: Electronic Questionnaire and Paper Questionnaire, each of which takes half percent. The reason why using paper questionnaire is that it would be easy to interview with them after they finished the questionnaire. In totally, the number of respondents for the questionnaire was 40.

4.1.1 Method

The method probability sampling was used in this research. The probability sampling method is a method of sampling that utilizes some form of random selection (Graziano, A. 2004). Considering this design is based on the electronic product, two ways are used to survey: online and paper in order to keep samples of this questionnaire are covered in different group or population. The paper questionnaire were send to respondents in front of the building of Information Technology and the supermarket Willis separately.

Age distribution

As the young people under 18 seldom go travel alone or self-organize trip, they alway follow their parents or their eld friends to travel. And mostly, it is not suitable to use the iPhone app for the elder people over 60 due to their body's reason, for instance presbyopia. Therefore, the young people under 18 and elder over 60 are not included in the research.

The questionnaire was constructed with basic questions and advanced
questions. The basic questions covered the basic information, such as gender, age, frequency of travel. The advanced questions was about the aspects of travel. Those questions is related with the tourists and it also could indicate functions or feature the participants expect in the app, for instance, Are you willing to share your traveling experiences with others on Internet-sharing platform?

4.1.2 Result

After the analysis of the date, several conclusions are summarized.

Conclusion 1: Several participants support some special functions or features also should be included in this app except for the basic tourist function. The conclusion is summarized from the questions:
- Are you interesting in share your traveling experiences and pictures with their friend on Internet-sharing?

According to this chart, more than 40 percent participants like to share experiences and pictures with their friend. So the communicate features should be in the backup function list of app.

Conclusion 2: A new conclusion could be created based on the conclusion one. Most participant share the travel experiences and pictures by the platform Facebook and Twitter, which come from the question:
- Which platform would you like to share the travel experiences and pictures with friends?
Conclusion 3: Most of participants are willing to show the location information during the trip, which come from the question:
- Are you willing to show your location information during your trips.

Therefore, the navigation function could be listed in the backup function list.

4.2 Interview with participants

4.2.1 Methods

Interviewing with participants on this paper are focused on the information of design on iPhone. The face-to-face interview would be conducted with open-ended questions. The reason why choosing the open-ended questions is to enable the participants to express their perspective or ideas freely. Sometime, the open question could bring the researchers unexpected finding or opinions. Each interview lasts 10-20 minutes. The interview is conducted
with two section: iPhone app and iPad app. This paper's author guided through the interview as a monitor and in charge in inquiry information on iPhone app. Meanwhile, taking notes was done while the process of interviews.

In order to ensure that the samples of the interviewing participants is representative in society, it is really careful to pick the interviewing participants. The below form will describe the information of these four participants:

<table>
<thead>
<tr>
<th>Interviewees</th>
<th>Mr Li</th>
<th>Mrs Yen</th>
<th>Mrs Kaila</th>
<th>Mr Yang</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>25</td>
<td>23</td>
<td>31</td>
<td>35</td>
</tr>
<tr>
<td><strong>Type of mobile phone</strong></td>
<td>iPhone</td>
<td>Android</td>
<td>iPhone</td>
<td>iPhone</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>Male</td>
<td>Female</td>
<td>Female</td>
<td>Anonymous</td>
</tr>
<tr>
<td><strong>Background</strong></td>
<td>Employed in Tencent company in China</td>
<td>Studying in Uppsala</td>
<td>Studying in Uppsala</td>
<td>Anonymous</td>
</tr>
<tr>
<td><strong>Position</strong></td>
<td>IT product consultant</td>
<td>Student</td>
<td>Student</td>
<td>Anonymous</td>
</tr>
</tbody>
</table>

**Table 1**

### 4.2.2 Result

The interviews were productive, and a lot of useful information were offered by the interviewers. After the meeting with them, the notes have been summarized and concluded.

Conclusion 1: It will offer the tourist convenience if it is possible to search ordinary bus in a strange city based on personal current position.

Conclusion 2: The fact of the ticket's price of tourist attraction and which season the price is discounted are mentioned several times by different interviewee.
Conclusion 3: They are highly interesting in the feature by which they could arrange the schedule of travel.

Conclusion 4: The problem is highlighted that it is really annoying that they always has to spend some time on finding the bus between airport to city center after they arrive in destination.

**Phase 2 Design**

**5. Result of Design**

After the specific data were collected and analyzed, the next step was to research how to design the suitable interactive interface of this iPhone app. This section will show up the result of the design.

**5.1 Main Interface and structure**

Considering the screen size of iPhone and the acquirement of user, the main interface is designed as the below prototype:

![Interface Prototype](image)

In this interface, the searching field is covered in tourist attractions, restaurant, hotel, transportation. The function of the button of *Destination* and *Nearby* is to search for the tourism attractions, restaurant, hotel, but the search in *Nearby* will activate you GPS to locate your current position. The left bottom button *My*
Trip is to modify or show up the existing trip plan and current ongoing plan.

The app's structure was constructed according to the below flow chart: The below section describing this app is going along how to create an new trip plan.

1. If the user clicked on the button Destination initially:
The operational process is: (Trip list is the database of user's account)
Some features should be mentioned in this process. Firstly, this process is a way to create a new trip. Then, the user has already setted up their home's location when they registered for their app's account, so the system automatically regards the user's home the original location in trip plan, for instance (image one).

![Image one](image_url)

Thirdly, there are two buttons named map, but the functions of those two button are different. If the user clicked the button Map in interface one, the interface would be conducted to the distributing locations tourist attractions, hotel or restaurants on google map. Differently, the button Map in interface two, the following interface is the route of this trip plan. In the interface one, there are three kinds of classifications to help user to look for their targets effectively: landscape(tourist attraction), restaurant, and hotel. And each tourist attraction is marked in scores to assist users to decide the trip's route. In interface two, the area of optional attraction (image two) aim to save the selected destination (tourist attractions, airport, hotel) temporarily, which could offer convenience to drag interactively those blocks from the area of optional attraction to the trip list area (image three).

The transportation feature is also need to be explained (image three). In this app, the transportation is divided into two group: long-distance group and short-distance group. It is obvious that the long-distance between departure and arrival is much more far than short-distance. So it is long-distance if the user need to travel from a city to another city, which is including of airplane, train, coach, ship. And it is short-distance if the user just travel inside a city, which including of walk, bus, subway, taxi in this app. Generally, the system of the app determines the mode of transportation automatically according to the departure and arrival. For instance, the default transportation is bus from the users home to the airport Nykoping, Stockholm (image three). The system takes the distance, time, and bus schedule to help user to determines the mode of transportation into considerations. It could be changed freely if the users are not satisfied with bus, preferring to take a taxi. The user only need to do simple operation that clicking on the bus and the new interface will appear as interface three. And next step is to check the detail of those four transportation and one of them should be selected finally.
Importantly, time bar is a creative method to adjust the time of each visiting. Theoretically, the system will help user to set up proper starting time and ending time once the the user select a tourist attraction. The system take the the ending time of last visiting and the time the user taking long-distance traffic. If the users are not satisfied with the planed time of visiting, they just need to drag the time line up or down to increase or decrease the visiting time in order to adapt themselves’ activities (image four).

Lastly, if the user add the Effiel Tower into the existing trip plan rather than creating a new plan, such as the button named London trip in interface four, the interface will be followed like interface five. The latest added tourist attractions is put in the area of Optical Attractions. After that, the user could drag this icon of tourist attractions into the expected position.
2. If the user clicked on the button transportation initially:
### Optional Attraction

#### Day Two in Paris

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td></td>
<td>Take the metro to the nearest point of interest.</td>
</tr>
<tr>
<td>SJM Airlines 06:45</td>
<td>From 06:10</td>
<td>From 06:10</td>
</tr>
<tr>
<td>SJM Airlines 09:35</td>
<td>From 09:15</td>
<td>From 09:15</td>
</tr>
<tr>
<td>LMJ Tours</td>
<td>To 18:00</td>
<td>To 18:00</td>
</tr>
</tbody>
</table>

**Leave at 20:30**
During this process of creating a new trip, most of importance design has been already explained above, except from one point which is the feature filter. It assist the users to reach their targeted flight quickly. It consist of filtering the departure time, airline, and model of plane.

3. If the user clicked on the button nearby initially:

![Nearby screenshot](image)

What if users suddenly would like to search for a better restaurant to stop by when they are on the way to travel. These urgent event always happen during the process of traveling. So this feature could assist the users to handle with those urgent event properly. The reason why this feature was put in the main page is: 1) the using frequency of this feature is very high 2) users could easily find and touch it.

4. If the user clicked on the button my trip initially:
This is a section of showing on the acting trip plan. After Users clicked on the button my trip, the system would judge if there is a ongoing trip plan, which is be judged by the measure: comparison between current time and starting time of the trip plan, the user's location. Meanwhile, the system would automatically alarm users to start this trip plan at the starting time point. At same time, the user's position must on the route of planed trip.

In the interface one, overall, there are three classifications: ongoing plan, backup plan, footprint. The current interface show up the map of the ongoing plan. The red point is the user's current position, and the green point is the planed tourist attractions. It is worth to mention that the trip route is marked in three different color, which separably indicate the different mode of transportation. On the right top of map, the button Showing on List could guide the users to the interface of listing every activities on this plan and modify those activities(Interface two).

In the interface two, main frame is still kept in same style with previous setting-up trip interface. But the bottom bar is divide into three functions: search, Nearby, Time bar. In previous bottom bar, there are only two function here: search, time bar. The reason why adding the new feature Nearby into this bar is due to take the essential requirement of users on the way of travel into consideration. This feature could assist the users to handle with those urgent event properly when they are in this interface, rather then step back to main page.

Interface three describes the process of selecting the mode of short-distance traffic: Walk, Bus, Subway, Taxi. If user want to edit the long-distance traffic (Interface four) e.g plane, the following interface would be the interface of filtering flight. The system help the users adjust the proper time according to the deadline of last activity and the starting time of next activity. Once users postpone the flight, the original planed visitations behind this flight also are delayed (Interface five).
Phase 3 Evaluation

6. Test and Evaluation

In the last phase, the evaluation will be conducted in order to dig out the potential problems.

6.1 Method

This is usability testing is conducted with the paper-based prototype. The aim of this evaluation is to test if the users are able to fully use and understand the interface and functionality it provides. During this process of user's operation, potential interactive problems are expected to be found.

The research questions we will try to answer with this test are:

- Do the users understand what the app is about?
- Do the users understand which part they arrive in?
- Do the users understand clearly about navigation?
- Do the experienced users make less errors, go back to correct, or change things less often?
- Do the experienced users understand the process of planing trip better and makes better choices or notice each functions on the each page?
- Is there anything that the users feel are unclear or confusing during the process of planing?

After the test session a post-test interview will be conducted to collect data on the users perceived feeling after the using this app. The main reason for this is to try to answer the question:

- Do the users complete the tasks with a sense of satisfaction?
- Which interface or button you was stuck in? What is participators suggest?

Measures

The measures for this test will be aimed to the following aspects:Can the users easily find, select and get started with planing their trips on the iPhone? We will collect data on performance during the test sessions as follows.
- The error every user making.
- Overall ease of use for the app.
- Understanding and use of terms and labeling.

**Recruiting participants**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participant type</strong></td>
<td></td>
</tr>
<tr>
<td>- pilot</td>
<td>1</td>
</tr>
<tr>
<td>- regular</td>
<td>3</td>
</tr>
<tr>
<td><strong>total number of participants</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>- 20 - 30</td>
<td>3</td>
</tr>
<tr>
<td>- 31 - 40</td>
<td>1</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>- male</td>
<td>2</td>
</tr>
<tr>
<td>- female</td>
<td>2</td>
</tr>
</tbody>
</table>

**Table 2**

**Tasks of usability test**

This test is set up as three scenarios with several tasks to complete for each user. The scenarios will try to test the participants understanding of the features available for planing on iPhone. The scenarios are as follows:

Scenarios one(Planing trip plan):
The summer holiday is coming, so you are going to have a nice vacation on paris. You were heard that Tourist Guiding is an fresh app to plan specific trip. It really attract you attention, therefore you are going to try this app to plan yourself trip on paris. Now, you are at home to plan your trip by Tourist Guiding.

Task 1: You are supposed to set up a new trip.
Task 2: What kind of event do you most want to add in this new trip.
Task 3:  
A:If you add Traffic( Such as: Plane) in last step, your task is adding a tourist
attractions or hotel now.
B: If you add a tourist attractions or hotel in last step, your task is adding the traffic by which you could travel to your destination.

Task 4: A trip have been planed completely, but you think that the time of visiting Eiffel Tower the system automatically planed is too short. You prefer to extend the time of visiting Eiffel Tower one hour longer.

Scenarios Two(adjusting trip plan)
At present, you have a completed trip plan.
Task 1: Due to the booked flight ticket is too early, you want to delay the flight tickets one or two hour later. How to do?
Task 2: In a trip plan, the system always help you decide the traffic way between your last-destination to your following-destination. Sometime, the planed traffic is not that your satisfied with. So you want to change in the traffic between Eiffel Tower to Lurvor.
Task 3: You want to add a new tourist attraction between Eiffel Tower to Lurvor.

Scenarios Three(Acting trip plan)
Now, you are on the way to visiting tourist attraction according to the trip plan on iPhone.
Task 1: Please reach in page of the trip plan.
Task 2: You are hungry and eager to look for a nice restaurant to eat food. But there is not time to eat according to the trip plan. So you have to search for a restaurant to replace or push the next destination later.
Task 3: Due to the urgent event happened, you lost your wallet in process of visiting Eiffel Tower. You have to keep looking for it. Two hours later, you find out it. But the next destination has been expired. You hope that you could insist to apply out this trip plan. What operation will you do to adjust the trip plan.

6.2 Suggested improvements

Though the observation of participant behaviors and interview with them, some critical shortages in the design were found out. After summarizing and analyzing the notes and content of interview, the main improved results or suggestions would be described below:

1. The problem of the structure of Main page
The confused structure of Main page was proposed by the every participants. The most confused point is that three features: Destination, Nearby, Transportation did not make sense to them. They had no idea which button they was about to click on when they were asked to create a new trip plan. Meanwhile, the button: My trip is not so obvious or spark that they were not intended to click it. The fact as a participant said is that the only way to solve with the task is to try to click every button and see what happen. Three participants did not click the button: My trip, oppositely, they initially clicked on the button: Destination. Although this way could also create a new trip, it is
not most simple way. More than three steps need to be operated if users click on the button to create a new trip plan. Because the new trip plan involve with the starting transportation. The original aim of setting up the button Destination is to assist users to add new tourist attractions or hotel into the existed trip plan, which could offer the additional convenience. By the analyzing the note, there are two reasons leading to this phenomenon: 1) the position of the feature: Destination is in the first button in the main page, where is most obvious section. 2) Due the feature My trip is located in the right button area, which is not easy to look at, few participant notice this feature.

In order to amend this main page, the clicking numbers of each button was compared. The result show that the clicking numbers of the button: Nearby is almost 0 in main page. On the other hand, the feature: Nearby always is used in acting the trip plan. So the feature: Nearby will be replaced by the feature: My trip. The latest interface is like to interface two. But the feature Nearby in interface of the acting trip plan is still remained.

2. The problem of clicking on the area of time-schedule
One of participants found out a remarkable shortage when she deal with the task: extending the time of visiting Effel Tower. The way of dealing with this task is to click on the button: Time bar in the interface two and move the time-line to adjust the visiting time. But This participant persist in clicking on the area of time-schedule(image one). After she was told it is no respond to click on the ares of time-schedule, she started to confuse how to solve with this task. Next, she clicked on the bus icon(image two), the interface was led to interface three. And she realize interface two only select the mode of transportation, which is not possible to adjust the visiting time. At end, she clicked on the feature: time bar and adjust the visiting time successfully.

After observing her clicking action, the respond of clicking on the area time-schedule should be added in this app. And the entering interface is as same as the clicking the feature Time-bar.
3. The problem of Cancel tourist attractions.
When participants faced the task: insert a tourist attraction into the trip plan. One participant tried to remove this tourist attractions after he inserted it into the trip plan. Theoretically, it will be deleted automatically if users put the tourist attractions in the area Optional Attraction when users exit from the interface. But this participant think this area's name is Optional Attraction which not mean it is deleting area. This area is ambiguous. So there is a proposal to amend this interface (Interface one). When users hold down this icon for a while, the optional list will show up. Meanwhile, the content of area Optional Attraction will not be deleted automatically after users exit from this interface.
7. Conclusion and future work:

The process of designing a iPhone app was developed and executed in this thesis project. All the great effort is for designing a sacrificed, interactive and innovative app on iPhone. Several user-centered methods are carried out, such as questionnaire survey, interview, usability testing. All the methods is aim to evaluate and improve the design.

Although this thesis did not cover the whole process of an app from start to finish, for instance, implementation of this app, the result of this thesis project is still satisfied and practical. More than 40 interfaces were designed in Photo-shop and a lot of sketches were drown on the paper or mockups. This app are supposed to assist the thousands of tourists to plan their trip easily. Of course, it need to mentioned there must be some shortages in this design although the usability test was conducted. There should be operation tips for new account group, especially, instruction of some abstract operations. And some interactive ways are still need to amended, such as interactive way of transportation. Due to limited time, it is impossible to deal with those issues properly. The future work will cover those issue. All in all, this application would have a promising future if all the interactive ways could be perfect.

8. Acknowledgments

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Reference


Gulliksen,J., Goransson, B., Boivie, I., Blomkvist, S., Persson(2003), 'Key principles for user-centered systems design', P 390-410


Interaction Design

Appendix

Questionnaire

Research on Tourist Guiding’s app

We are currently doing research on Tourist Guiding’s app. You are kindly requested to take few minutes and answer these questions to help us get useful data for our research. Your responses will be kept highly confidential. Thanks for your time.

1. Gender *
   - Male
   - Female

2. Your age *
   - < 19
   - 19-29
   - 30-39
   - 40-49
   - 50+

3. How often do you travel per year? *
   - 0
   - 1
   - 2
   - 3
   - 4
   - 5+

4. What kind of traveling style do you prefer? *
   - Private tour
   - Group tour
   - Others __________________

5. Which operation system of your mobile phone *
   - Android
   - iPhone 20S
   - Symbian 330
   - Windows mobile
   - Not clear
   - Others __________________

6. Is there a function of GPS position in your mobile phone? *
   - Yes
   - No
   - I don’t know

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7. What kind of apps do you use during the trip? * [multiple]
   - Electronic map, e.g. Google map
   - Microblog, e.g. Twitter
   - Communication platform, e.g. Facebook
   - Search box, e.g. google, yahoo
   - Others

8. Have you met the situations as followings during your trips? * [multiple]
   - It is hard to get the precise location by asking the local people
   - Looking for the public toilet, and vending store
   - Looking for my separated companions
   - I would like to know the interesting tourist attractions
   - I don’t know how to get to my target tourist attractions
   - Others

9. How do you deal with the situations above if you met? * [multiple]
   - Consult with travel agents
   - Asking help from the people around
   - Search on the mobile phone
   - Call experienced friends
   - Use the local map
   - Others

10. Are you willing to share your traveling experiences with others on Internet-sharing platform? *
     - No
     - Extremely like

11. I would like to share my travel experiences and pictures with my friend through: * [multiple]
     - Twitter
     - Facebook
     - LinkedIn
     - Others

12. How often do you share pictures with your friends by Phone’s apps? *
     - Never
     - Frequent

13. Are you willing to show your location information during your trips? *
     - No
     - Extremely like
14. Do you think it is fun to travel together with other unknown tourists who have the same destination with you? *

☐ Yes
☐ No
☐ I don’t know

15. Have you made new friends during your trips? *

Never ☉ ☉ ☉ ☉ ☉ Always