Dalili: Smart Tourism Mobile application for tourists to explore the Sultanate of Oman

Asmahan Said Mohammed Said Al Harmali, Student, Department of Computing, Middle East College, Muscat, Oman
Aparna Agarwal, Faculty, Department of Computing, Middle East College, Muscat, Oman
Vikas Rao Naidu, Department of Computing, Middle East College, Muscat, Oman

Abstract

The Omani tourism sector is considered a promising sector in the local economy. The Omani Ministry of Tourism is encouraging to provide more tourism facilities to tourists through modern technological platforms, in line with the Sultanate's drive for digital transformation. Mobile applications will contribute to drawing a new scene for the tourism and travel industry by facilitating the tourist's access to all information related to tourist sites and travel reservations. This research paper aims to reveal the possibility of launching tourism smartphone applications in the Sultanate of Oman, and to what extent these applications can contribute to the development of the modern tourism industry in Oman. The research study is based on qualitative data. This data was collected from different case studies, research papers, and journal articles. Primary data was also collected in the form of questionnaires, circulated to around 50 people. The analysis suggested that people appreciated the idea of the smart tourism application and are looking forward to it. An integrated application "Dalili" will be developed to serve the tourists, for the Android system, and it will be available on Google Play Store so that users can download it on their devices. As it is expected that the application will give the tourist a lot of facilities: app-users will be able to obtain information about the tourist sites easily, then search for it in the application with the ability to review some pictures of the site, and reviewing the location on Google Maps, the tourist will be able to book the appropriate hotel easily by selecting him for the governorate, then searching for him in the application to complete the reservation process, the ability to view the important contact numbers that the tourist might need. This will also aid in the smart city initiative of the government of Sultanate of Oman.

Keywords – Mobile Technology, Smart Tourism, Tourists, Tourist Experience, Android Studio application development.

Introduction

Interest in the field of mobile application industry is gaining increasing attention in most countries of the world, in line with the growing discourse on the importance of digital transformation of countries' economies. This research paper aims to shed light on the role and contribution of mobile applications in the tourism industry. Where, it is important to develop the tourism sectors, as it is one of the promising sectors that contribute to diversifying sources of income. This is done by employing mobile applications in promoting the tourism sector, in addition to facilitating the reservation of tourists for flights and facilities (hotels and restaurants), while providing a realistic picture of the tourist sites for the tourist. From this standpoint, the proposed "Dalili" application aims to: Provide an integrated platform that provides various tourism services such as hotel reservations, enabling tourists to easily collect information about tourist sites, in addition to reviewing the location. And, the application will be available for Android devices.

Problem definition

Amidst the growing technological developments, relying on technology in various industries has become a prerequisite in order to provide high-level services in line with the technological orientation. As is the case in the tourism sector, where tourism is one of the most prominent industries of the modern era. In order to develop tourism in the required manner, it is necessary to employ smart phone applications with the digital government approach. Where applications contribute to enhancing tourism transactions and facilitating service for tourists by transforming traditional tourist service into technical services that can be accomplished through applications. As the "tourism applications" will effectively contribute to dealing with some of the problems that the Omani tourism sector:

First, Oman has unique tourism potentials, and this is what led to the diversity and abundance of tourist sites in the Sultanate. From here, the problem of poor coverage of some tourist sites appeared. In turn, may cause a decrease in the number of tourists visiting these sites, which negatively affects the projects established in those sites. This problem can be dealt with by providing an integrated tourism platform that includes the largest amount of tourist sites in Oman, while providing the necessary pictures and information about tourist sites. This will help tourists to easily identify the tourist sites through the application. As the Dalili application will include the largest

number of tourist sites in the Sultanate and classify them according to the governorate, with pictures and information about the site provided, in addition to the ability to review the location in google-map.

Moreover, tourists face some problems while visiting some tourist sites, especially sites that are "adventurous". Often some unfortunate accidents occur in rugged locations, as falling from high altitudes, which calls for urgent assistance to reduce the resulting risks as much as possible. Receiving urgent help for the injured reduces the consequences, but some individuals are not aware of the numbers that they must call to ask for help. Therefore, it would be good to provide the feature of calling or requesting assistance that includes the most prominent numbers that the tourist may need for. Where Dalili application will provide a list of the most important numbers for tourists.

Also, tourists face the problem of finding the right hotel according to the governorate in which they are located. This leads to an increase in the time spent by tourists searching for the right hotel. To overcome this problem, it is necessary to provide an integrated application concerned with the Omani tourism service, which protects the various features under one wing, such as displaying tourist sites and executing hotel reservations. From this point of view, Dalili app will provide a hotel reservation feature, as hotels will be classified according to the governorates.

Scope of the Project:

Dalili application has been developed precisely for tourists visiting Oman. It facilitates their trips to provide them with a safe and convenient travel experience to boost tourism in the Sultanate. The total duration of the project development is 3 months. The stakeholders are the tourists, the developer and the ministry of tourism.

Objectives

1. Providing the tourist with information related to the selected destination, through images and real time information about the destinations

2. Facilitate reserving the hotel under one tourism platform

3. Providing emergency contact numbers to the tourist that might be required during the trip.

Literature review / Study of existing system

Literature review is considered a comprehensive review to discuss some research and studies that deal with a topic, allowing the writer to clarify his idea and position while preserving the main source of information. The literary review of this research paper will include two main parts: similar work (discussion of implemented tourism applications), and the literature review that will discuss the relationship between the tourism industry and mobile applications and the relationship between them.

a. Similar work

In recent times, an increase in the number of applications that have been launched in the market to serve the tourism sector or to promote tourism. This section will discuss some of these applications:

The "Hopper" app, is a pioneering application in the field of travel and tourism, as the application gained wide popularity. Among the most prominent features that the application includes: it allows users to search for flights, send notifications for users in the event that the ticket prices are lower, the app is free and the user does not need to pay, easy to use and a clear application (tripadvisor 2016). But how does the app work? Me.pcmag.com mentioned that the work of the "Hopper" application is summarized in: Sorting and classifying airline tickets according to their prices, as the lowest prices are represented by "green" while the higher prices are represented by "red" (me.pcmag.com 2016). This makes it easy for users to easily notice the price difference.

Whereas, the opinions of the application's customers in general indicate that the application is "trustworthy". However, there are still some mixed opinions about the extent of the application's integrity; Most of the users agree that the app is good, but it needs more improvement. As the application does not include only one feature, which is a review of tourist trips with a comparison of trip prices. So, personally, I expect that the application will be a good idea to add new features: hotel reservations, tour guide reservations, etc. On the other hand, a large percentage of app users said: "The app management response to user inquiries is very slow, although the application policy provides for responding to consumers inquiries throughout the day."

Skyscanner is an application concerned with providing travel services and facilitating them for tourists. Among the most prominent features included in the app: booking flights, hotel reservation, car rental (Worldinsure 2019). The app also sends alerts to application users with the latest offers on hotel and flight prices (Worldinsure 2019). In addition, the application provides a service for suggesting tourist sites that are close to the tourist's site, and it also provides the user with at least one suggestion about recommended hotels and restaurants (Global Insurance 2019). Moreover, the app provides a price comparison tool to recommend the lowest prices between flights, hotels, and so on (worldwideinsure 2019).

With regard to the evaluation of the application's users, the majority agree that the application's performance is "very good", as the application is used by nearly 70 million people according to the latest statistics. However, there are some gaps that exist in the application and users have mentioned them in their reviews about the application; According to the Trustpilot publication, most Skyscanner users agree that "customer service" is weak and slow. So personally, I see if this problem is dealt with perfectly, the application will become integrated app, in view of the features it includes.

b. Reviewing literature

Mobile applications have become the first main source from which the individual "tourist" derives tourism information. From this standpoint, a large number of applications that serve the tourism sector have recently spread, in line with the increase in individuals' use of applications on their trips. This part of the literature review will discuss some articles on "Mobile Applications in the Tourism Industry".

➢ <u>Advantages of Having Mobile Apps for Your Travel and Tourism Business</u>

Travel and tourism industry has managed to grow very rapidly in the past few years. It reached 147.7 billion dollars, and its growth is expected to double in the coming years (mindinventory 2020). Whereas, Mr. Mehul Rajput stated, that statistics issued by (UNWTO) indicate that the number of international tourists increased to reach 1.2 billion in 2015 (mindinventory 2020). So, figures confirm the prosperous future of the tourism industry. In this context, modern technology has effectively contributed to improving the tourism scene, especially when it comes to using tourism applications to promote tourism. And this confirms the estimates that 85% of users of travel applications use them to better plan their trips (mindinventory 2020).

➢ <u>Factors Influencing Tourism Mobile App Development (Updated August 2020)</u>

Mobile applications dedicated to the travel and tourism industry help tourists to plan their trips. Where, there are new features can be added that make these applications more effective:

First, the addition of GPS and maps features, which allow the "tourist" user to view the location accurately, to facilitate access to it (rishabhsoft 2020). Secondly, reviews, and this feature allows the tourist to add his opinion about the tourist sites that he had previously visited (rishabhsoft 2020). Third, safety, and this feature is very necessary because it allows the tourist to make emergency calls in the event of exposure to some danger easily, for example; call the emergency (rishabhsoft 2020). Fourth, marketing, as tourism applications can be used to promote tourism sites in an intelligent manner that attracts tourists easily, by sending notices containing "tourism recommendations" to users of the application (rishabhsoft 2020).

There are a number of factors that will affect the applications of tourism in the next few years: First, the weather recommendations, as forecasting weather conditions and constantly alerting tourists to the weather, will help tourists to plan their trip according on weather (rishabhsoft 2020). In addition to warning the tourist in case of bad weather to be careful. Moreover, direct tracking, as tourism apps are provided with a feature of direct tracking of tourists' trips (rishabhsoft 2020). In addition, cashless travel, unfortunate incidents of theft of tourists often occur during their visit to some sites, as this feature depends on the "digital economy", which in turn allows the tourist paying online using tourism applications (rishabhsoft 2020). Furthermore, tourism promotion through visual tours, where apps are equipped with an artificial intelligence feature to provide "virtual tours" (rishabhsoft 2020).

Tourism applications are currently playing an effective role, but in the near future, tourism applications will be more flexible. This is due to improving tourism applications by enhancing them according to work experience, and adding features for the first time helps tourists greatly.

➤ The Significance of Travel Mobile Apps

Figures and statistics on the use of tourism applications indicate that "tourism applications" have become an indispensable component of the tourism industry. Socialhospitality cited some statistics on "mobile applications and the tourism sector":First, 42% of all world travelers already use apps to plan their trips (Socialhospitality 2019). Where, the majority of tourists prefer to complete travel reservations through applications rather than traditional methods. As this rapid shift towards "mobile phone technologies" makes it good for this strategy to be adopted to improve tourism because of its role:

First, converting traditional hotel reservations to smart reservations through mobile applications, as hotel reservations based on mobile applications have become commonplace, while traditional reservations have become rare (Socialhospitality 2019). Socialhospitality indicated that there is a direct relationship between "check-in" and "reservation through travel and tourism applications"; Whereas, whenever the check-in is far away (in months), the reservation of individuals using applications is estimated at only 6%, and in the event that the arrival time is close (i.e. within 24-48 hours), 42% use travel applications to complete their hotel reservations (Socialhospitality 2019).   Second, travel and tourism applications encouraged travel agents to join them to provide their services through mobile applications. This, in turn, greatly helps tourism and travel agents to make their experience with the (consumer) tourist fast and effective (Socialhospitality 2019). Socialhospitality added that travel agents will be able to send e-mails and alerts to their former clients informing them of any offers, and this will attract more customers to these agencies that have relied on smartphones instead of offices (Socialhospitality 2019).   Third, travel and tourism applications have contributed significantly to promoting small tourism companies specialized in providing travel and tourism services. As the article published on the Internet stated, marketing in the past was a difficult and expensive task, but with the presence of travel applications, the marketing process became much easier (Socialhospitality 2019). As marketing through mobile applications, by attracting application users by sending notifications of attractive travel offers that have competitive prices compared to market prices (Socialhospitality 2019).

In sum, the place occupied by the travel and tourism applications of the modern tourism industry cannot be denied, as they have effectively contributed to the promotion of tourist sites in a shorter time and with less effort. It has also contributed to transforming the traditional travel and tourism agencies' services into services provided through travel and tourism applications. Travel applications may witness a rapid development in the past few years due to the addition of some unique features that help tourists during their trips.

Methodology

To understand the requirements of the undertaken work and the expectations of the stakeholders, inputs were taken from different sources through a questionnaire. The tool was chosen to have a good sample size and also for an easy analysis of the requirements.

➢ Data Collection and Analysis:

In research, a specific method must be adopted to collect data on a topic, to be analyzed later in order to turn into useful results, hypotheses and information. In this research paper, the questionnaire was published on the SurveyMonkey platform, which was answered by about forty people. The following analyzes explain the results obtained:
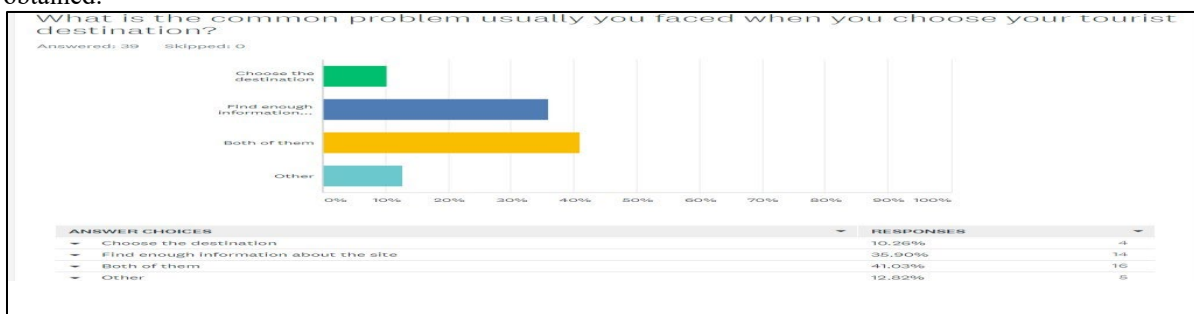

Figure 1: first question results in distributed survey

Figure No. (1) illustrates the answers and opinions of the respondents about the most prominent problem they face when choosing their tourist resort in Oman.

. From the above results, most of the respondents agree that the main problem facing them is "choosing the tourism destination and finding adequate information about it," by 41%, which is equivalent to 16 out of nearly forty respondents. And the second highest percentage saw that the problem facing them more was "choosing the tourist destination", at a rate of 35.90%, or 14 out of forty respondents. On the other hand, the lowest percentage came from the share of the first and last options. 10.26% (four out of forty) of the respondents believe that the main problem revolves around choosing the tourist destination itself. The remaining 10.26% believe that there are other problems they face other than those mentioned.

In sum, from the results discussed above, there is a real problem related to the availability of sufficient information about the tourist sites. Therefore, the proposed application will be very useful to solve this problem, as it will collect the largest number of tourist sites while providing information on all tourist sites.
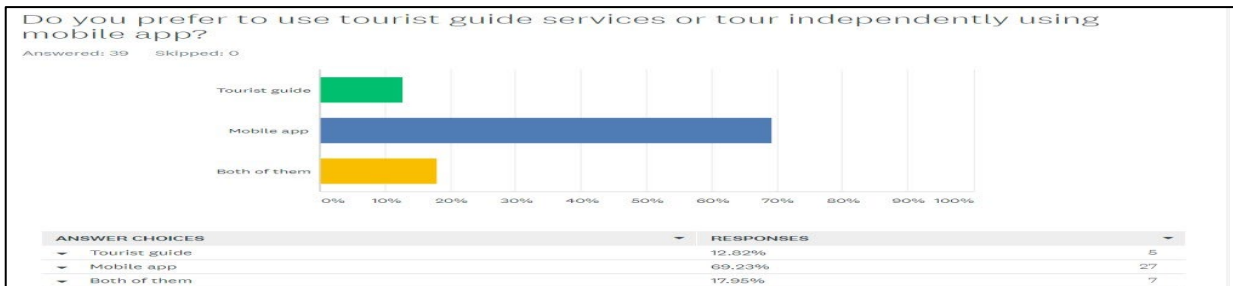

Figure 2: second question results in distributed survey

The second question of the questionnaire that was distributed clarified the opinions of the respondents regarding the use of tour guide services, or reliance on tourist phone applications, as shown in the picture above.

As it is clear, a large percentage of the respondents prefer to use tourism applications, if any, to plan their tourism trips in Oman, with a rate of 69.23% (27 out of 40). Whereas, 17.95% prefer to combine the two features "tourist applications" and "tour guide services". The remaining small percentage believes that it is better to rely on the services of tourist guides rather than relying on "phone applications", at a rate of 12.82% (i.e., five out of 39 respondents).

From these results, it can be said that the largest segment of society is well aware of the effective role of tourism applications in serving the tourism sector, and they give confidence to tourism applications to help them in planning their trips.

The figure 3. Shows the third question of the questionnaire which illustrate the respondent's opinion about" the contribution of tourism applications to the revitalization and service of the tourism sector "and to what extent they support the previous statement.
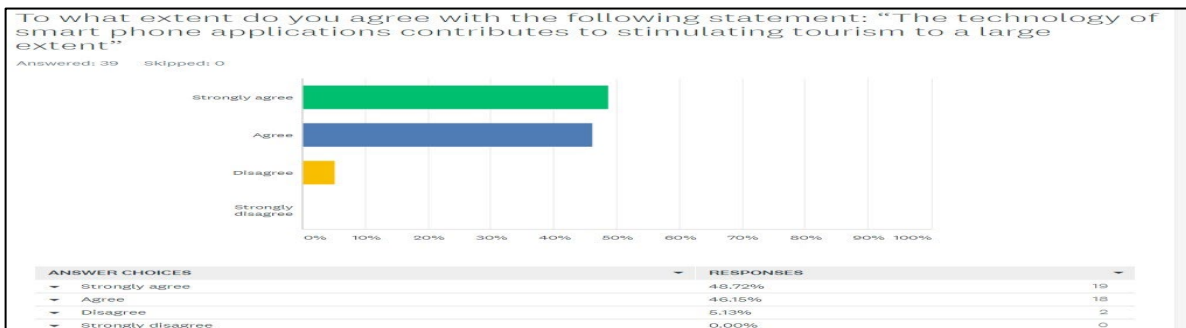

Figure 3: third question results in distributed survey

As the graph above shows, a large percentage of the respondents strongly agree that there is a direct relationship between the contribution of applications to the development of the tourism sector, at a rate of 48.72%. Likewise,

16.46 they replied that they agreed with the statement that applications have an effective role in serving the tourism sector. And, 5.13% (only 2 out of 40) do not believe in the role of apps in serving the tourism.

From the above results, it can be concluded that the community's awareness rate of the importance of mobile applications in serving the tourism sector is very high, and the level of awareness may increase when tourism applications are introduced to the market. This, in turn, confirms that the proposed app (Dalili) will be feasible, if it implemented in an ideal manner.

➢ SDLC Methodology

The work under concern is developed using Rapid Action Development (RAD). The reasons being: the short duration, low budget, skillset availability, not much interaction needed from the end users during the development.

Project design

To clearly understand how the application works and how the user interacts with the system, it is necessary to prepare some diagrams to help that: use case, context, sequence, class, ERD diagrams.

➢ Use case

Use case is interactive diagram that reviews the interaction of external elements "actors' with the system, in the application of Dalili there are three actors: the tourist, the admin, and the hotel management. Admin will responsible to add some changes. Tourist will be able to reserve hotel, review tourist sites, or place call. And, hotelMang will be able to check tourist booking details.
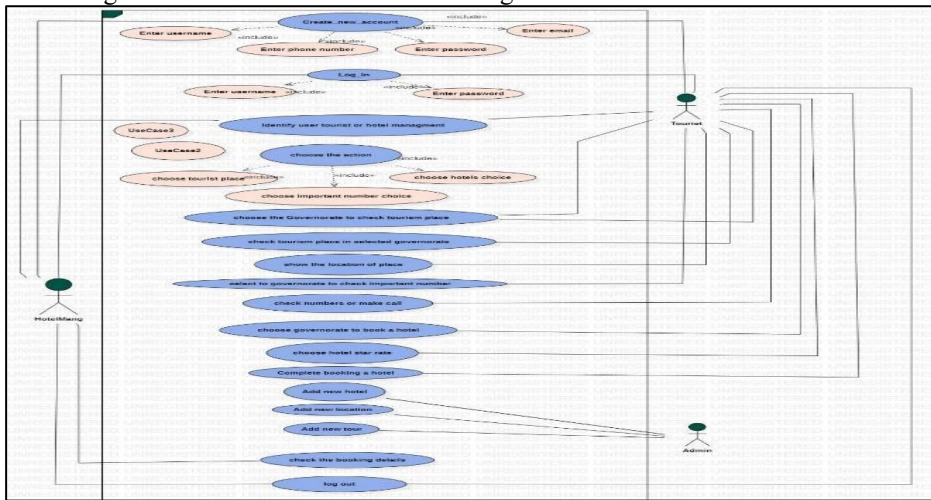

Figure 4: Use Case Diagram

➢ Context

Context diagram showing how the user interacts with the system. In this context diagram, it is clear that there are three users: tourist, the admin, and the hotel management, and the system, which is "explore tourism in Oman system".
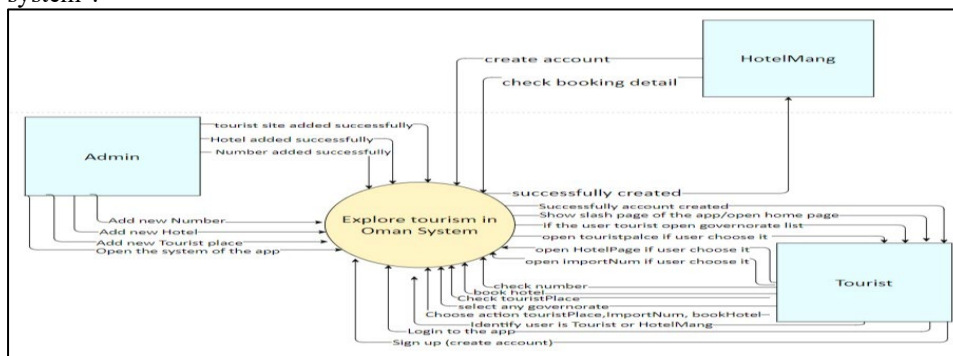

Figure 5: Context Diagram

➢ ERD

Entity relationship diagram is concerned with showing the Entities of the system and the relationship between them. As from the following figure, we can notice the system Entities are; tourist, admin, hotelMang, app, bookingDetials, and importnatNumber.
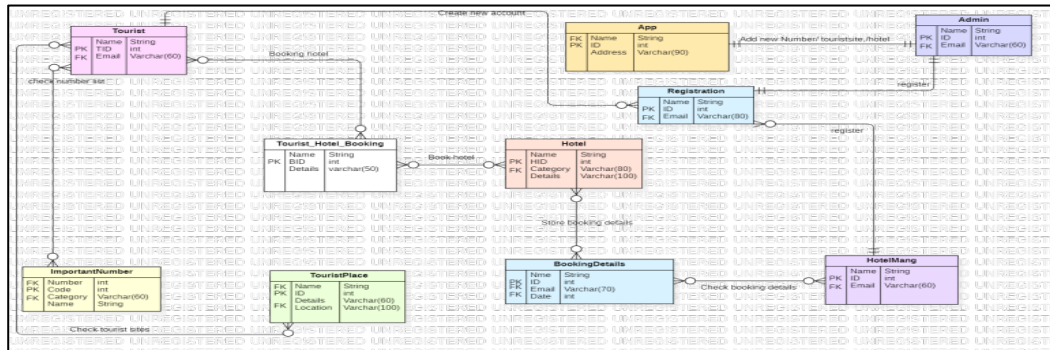

Figure 6 : ERD diagram

Deployment

To deploy "Dalili" mobile application, the minimum requirements are: Android OS, Network, memory Space, permission from developer team. For Hardware: Any Android device. The application will be available for a free download from the PlayStore.

Result

The results of concerned work will be available after deploying the application in collaboration with the Ministry of Tourism. These are not available till the time the paper has been presented.

Conclusion & Recommendations

In the conclusion of this research paper, this paper was keen to clarify the role of tourism apps in tourism industry. The research found, there is a role that cannot be ignored for mobile applications in the development of the tourism sector, by facilitating the service of tourists. Especially since the results of the questionnaire indicated that society is aware of the importance of technology participation in the development of tourism. But in spite of the role played by the mobile applications of tourism, but the research on this topic is considered relatively little. Therefore, to deal with this deficiency, I recommend that this topic be shed light from researchers.

Acknowledgement

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