

Designing and Developing A Web Application for Tourism

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ABSTRACT

Currently, the industry of tourism is meeting many challenges; one of the key challenges is the deficiency of having smart tourism systems which take advantage of the recent progresses in communication and information technology. Another problem is the design of a smart tourism systems while adopting diversified sustainable values of experience of the tourists (emotional values, social values, functional values, and epistemic values). The Kingdom of Saudi Arabia is characterized by the presence of many places of tourism, whether religious tourism or eco-tourism. The aim of this work is designing and implementing a web application named "travel key" that will help the tourists to get accurate and relevant information about the tourism places such as location, restaurants and events. The proposed application was designed and implemented by the Unified Modeling Language (UML), Microsoft Access 2010, and ASP.net, HTML, CSS, Visual basic programming languages. The proposed tourism system will be able to provide the tourists with recommendations for places to visit based on their preferences.

Keywords : Tourism, Information Systems, Unified Modeling Language.

I. INTRODUCTION

Recently, the extensive proliferation of the Web led organizations and companies to employ the Web in many different applications. Over the years, tourism has gained huge interest as an application of e-commerce. Many chief tourism and new comers (mainly the information technology companies) have a recognized Web presence, and have thousands of visitors daily, which offer opportunities for business to customer (tourist) or business to business transactions [1-4].

In the Web, one of the most important tourism applications is Destination Management Systems (DMS) or Destination Information Systems (DIS) [5]. These systems usually provide information about the tourism offerings at the given destination and may

possibly encourage e-commerce activities to the potential tourist [1-3]. Tourism is considered as stimulator for new economic activities and it is a mechanism for regional development, it has a positive impact on the balance of payments, on gross income and production, and on employment. Additionally, information explosion given rise to the development of intelligent systems or mechanisms that aid quick access to related content found in the Internet and help in the process of decision making [1-3].

The technological revolution influenced everything [6-83], even the approaches that aim to improve the tourism industry by introducing a free electronic application for encouraging the tourism industry. Today, the use of Artificial Intelligence (AI) algorithms is expansive, particularly in providing solutions to challenging problems including image segmentation

[7], information retrieval [53] and Healthcare Monitoring system [46, 57]. Therefore; many technologists have used AI as an effective techniques for introducing new system for encouraging the tourism industry [84-87].

The Kingdom of Saudi Arabia is characterized by the presence of many places of tourism, whether religious tourism or eco-tourism, as religious tourism in the Kingdom is one of the most important sources of income and one of the largest pillars of the economy in the Kingdom, and environmental tourism is an important element of the tourist's attractions [88-90].

For countries like Saudi Arabia, tourism (other than the religious tourism) is one of the unexploited but potentially is a big income generator [90]. There are more than 150 tourist destinations that spread across the 13 region of the Kingdom Saudi Arabia. Whereas some exist naturally, others are manmade [3].

II. Related Work

The Saudi Commission for Tourism and National Heritage (SCTH) launched the "Tourism Navigator" application which offers information about the tourism in the Kingdom of Saudi Arabia and shows it spatially. The geographic information system (GIS) which is compatible with iPhone and iPad is provided by the app which lets the tourist to explore the nearest tourism places and shows the services available, offers virtual tours of particular sites, and helps the user to find the route of driving directions on the map between two points. The application has bilingual interface (Arabic & English) [91].

- **TravelDiv**

TravelDiv application is the largest Arab application specialized in European tourism, specifically in Austria and Switzerland, the application contains tourist maps for many European countries and a lot of information,

advice and instructions that help the tourist to make his/her trip decision easily and easily, through the application the tourists can coordinate and arrange his trip [92].



Figure 1: Screenshots from TravelDiv application [92].

- **TripAdvisor**

This site was founded by Langley Steinert and Stephen Kaufer in 2000, it is a travel website which provides information and reviews for customers about destinations of travellers around the world. It also includes reviews of restaurants, hotels, booking of accommodation and interactive tourism forums. In addition, TripAdvisor compares prices in more than 200 hotel reservation sites, so travelers can find the lowest price for their perfect hotel. TripAdvisor branded sites are available in 49 markets and have the largest traveling community in the world, attracting an average of 390 million unique visitors per month, all looking to make the most benefit of every trip [93]. Figure 2 shows the homepage of the Tripadvisor website.

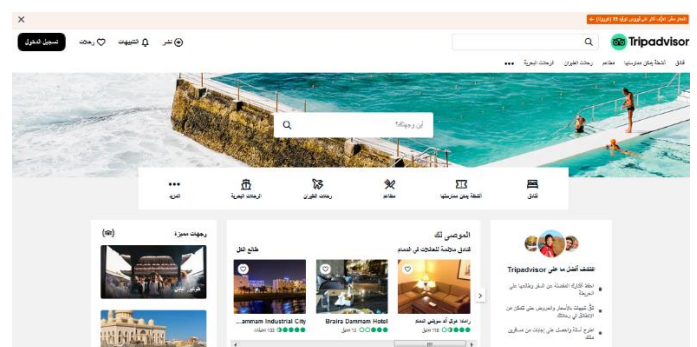


Figure 2: The homepage of the Tripadvisor website.

- **TravelerPedia**

TravelerPedia is the first Arabic website that deals with travel and tourism news and offers it to the visitor quickly through modern means of communication from e-mail and social networks. The site provides comprehensive reports of hotels around the world with real pictures and important information and addresses of these hotels. TravelerPedia won the Tourism Information Award as the best Arabic website specializing in tourism media for 2012, and was awarded the Sheikh Salem Al Ali Al Sabah Award for Informatics for 2014 for the best Arab bloggers in the field of tourism culture. About 15,000 visitors (average) visit the TravelerPedia every day, read the news and reports, and follow up on social networks more than 200,000 subscribers interested in everything related to tourism and travel [94].

- **Tourist guide in Azerbaijan**

It is a website that provides an overview of Azerbaijan, its cities and major tourist attractions. The site is rich in pictures that add beauty and vitality to the site and give the visitor a first impression of the places he/she wishes to visit. The site provides information and pictures about the most famous hotels in the country of Azerbaijan and it also linked to the famous booking sites of hotel reservations, about the most famous restaurants in Azerbaijan and have comprehensive information about the restaurant such as: restaurant pictures, dishes and restaurant evaluation. It also provides information about the most famous places and sights in the cities of Azerbaijan such as historical landmarks, health resorts, fitness centers, shopping centers, parks, gardens, museums and also contains a tourist program [95].

- **Google Trips**

Google Trips application assist the user to get the information needed when traveling quickly and easily [96]. The application finds travel-related info saved in

the Gmail account of the tourist (hotel reservations, bus tickets, airline tickets, etc.) automatically and displays it intuitively. Using the interface of Google Trips, the tourist can quickly view his/her reservation times. The tourist also can check everything he/she can do at the destination, the application demonstrates all attractions in an organized and elegant way. When the tourist clicks on any activity or location, the business hours or fees (if any) will be seen. Another important feature is the tab of 'things you need to know' in which the tourist can check all types of information about hospitals, emergencies, money, shopping, and so on. Figure 3 shows screenshots from Google Trips application.



Figure 3: Screenshots from Google Trips application [96].

III. Methodology

Systems analysis an important technique for providing a broader and systematic outlook to understand, create and examine or modify system to achieve specific target. System design and analysis is a creative and interactive process. The system analysis helps the designer of the system to determine whether the system is the open type or closed, and a probabilistic or a deterministic. Such a system understanding is necessary before designing the process, to guarantee the required design architecture

The Unified Modeling Language (UML) is a graphical language used to visualize, specify, construct, and document the software-intensive system artifacts. [97-101]. The UML was mainly utilized for designing the proposed system.

3.1 Use Case Diagram

A Use Case diagram shows communications between transactions of the system (Use Cases) and external users (Actors) in the system boundary context. The objective of Use Case diagrams is providing a high-quality view of the system and convey the requirements of the system for all stakeholders, including project managers, customers, engineers and architects [19, 100, 102, 103]. In the proposed system, the actors are the Manager, Visitor, Member and Admin. Figure 4 shows the use case diagram for the proposed system.

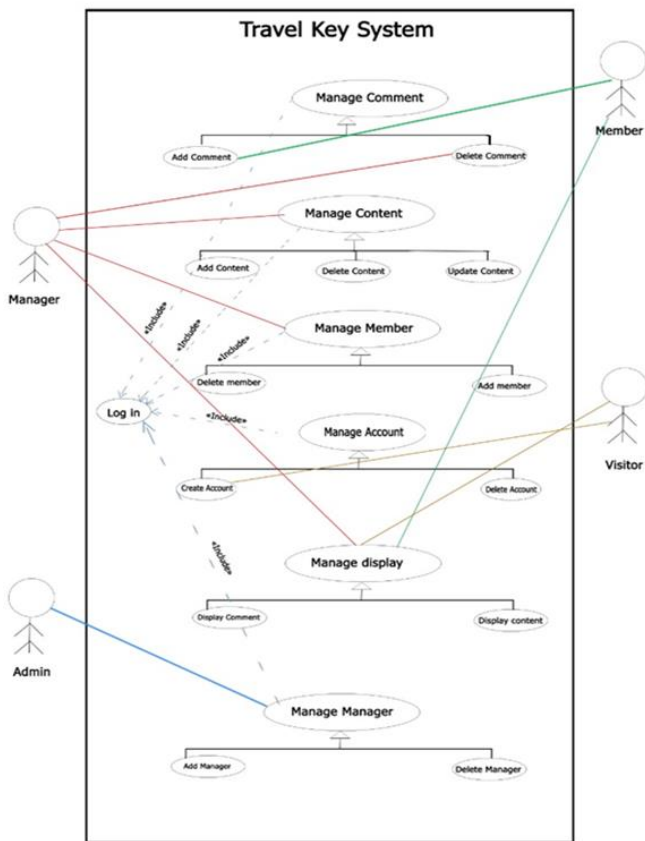


Figure 4: Use case diagram for the proposed system.

3.2 Context Diagram

Context diagrams illustrates the interactions among the system and the other external factors that the system interacts with. System context diagrams are useful to understand the context that the system is part of. They are utilized in a project early to achieve

agreement on the scope and can be involved in the document of requirements. A context diagram displays the whole system as a single process [104, 105]. Figure 5 represents the context diagram of the proposed system.

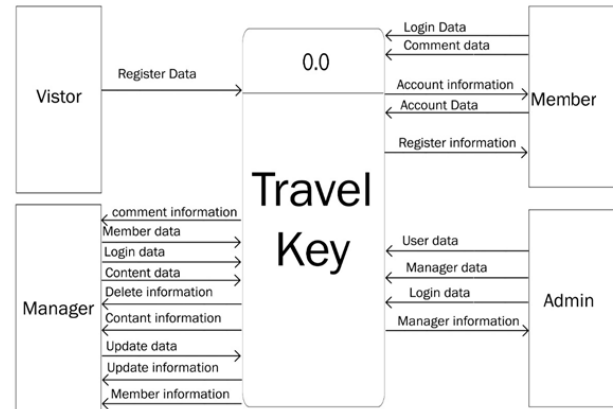


Figure 5: The context diagram of the proposed system

3.3 Entity Relationship (ER) Diagram

An entity-relationship ERD diagram, is a graphical illustration of entities and their relations with each other [106-112]. ERD Diagram is used typically in computing regarding the data organization within information systems or databases. The ER Diagram purpose is to denote the framework infrastructure of the entity. Figure 6 shows the ER diagram for the proposed system.

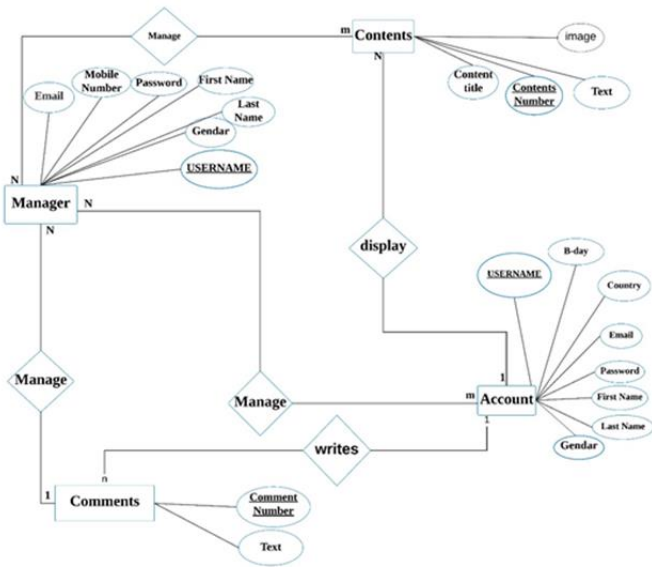


Figure 6: ER diagram for the proposed system

represent the work of the application and the way it operates. The figures below are examples of the implemented interfaces.

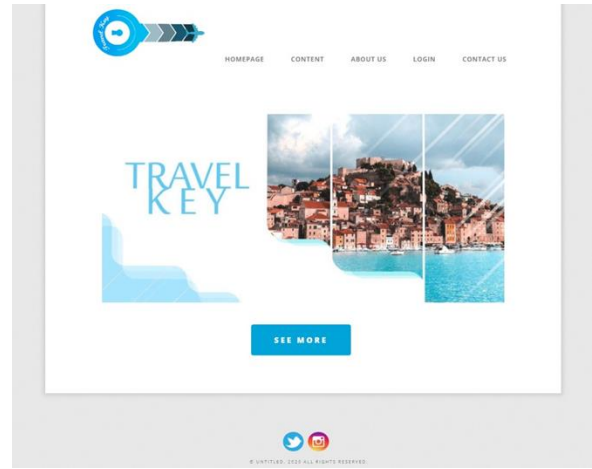


Figure 7: Homepage of the proposed system.

3.4 Database Testing and Construction

Database testing is important to detect errors that disturb the consistency, security, reliability, and performance of the system. Also, it helps in validating the system against the user's specified requirements[113, 114]. For implementing the database of the proposed system Microsoft access was utilized. Tables 1 and 2 are example of the created tables.

Table 1: Managers table.

MOBILE	EMAIL	PW	F_NAME	L_NAME	GENDER	USERNAME
0674973	halima@gmail.com	B1999MS	Batool	Alsaied	F	Batool
0565939133	halim@gmail.com	DD034344	Daniah	Alrajhi	F	Da
12333	moh@gmail.com	1223344H	halara	adel	f	HA
0565939133	halima@gmail.com	B191919H	halima	alfaraj	F	Halima98

Table 2: Accounts table.

EMAIL	PW	F_NAME	L_NAME	B_DAY	GENDER	COUNTRY	USERNAME
halima98@gmail.com	12345	HALIMA	alad	1998	F	SAUDI ARABIA	halima98
Waleed@gmail.com	W056783	Waleed	Hassan	1998	F	Egypt	Waleed_9

3.5 Interface Design

The design of visual interface is the process of designing physical representation of the user interface that the users see on the electronic device screen. The aim visual interface design is to link meaning, which is accomplished by creating suitable visuals that

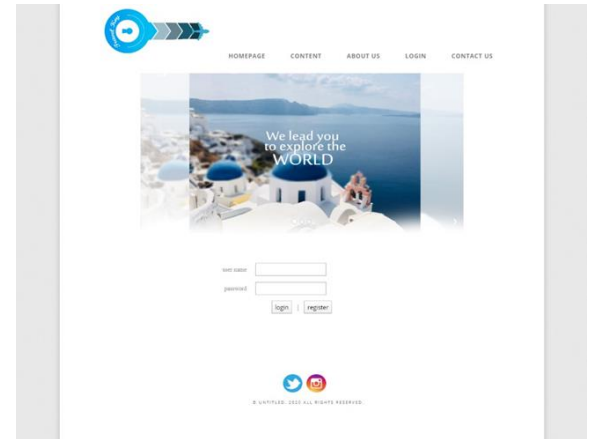


Figure 8: Log in interface.

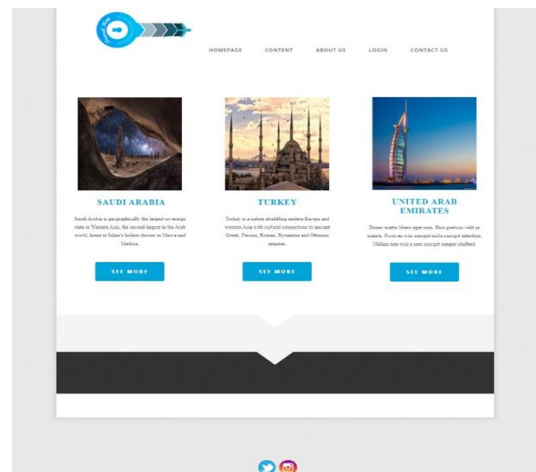


Figure 9: destination countries.

IV. RESULTS AND DISCUSSION

To evaluate the system, we invited 20 students from the Imam Abdurrahman Bin Faisal University (IAU) at the College of Applied Studies and Community Service for using the proposed system. A brief description of the system interface and usage was illustrated to the students. After testing the system, the student answered a survey which consists of 10 items to measure the user satisfaction level (as shown in figure 10). As can be interpreted from the result, the majority of users agree that the system is easy to use, beneficial and achieves the primary objective of the project.

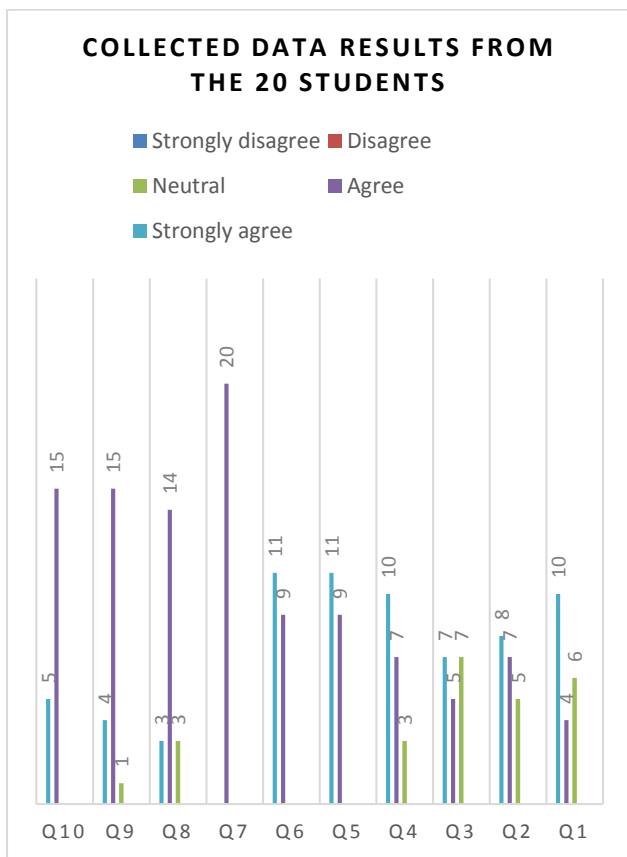


Figure 10: collected data results from the 20 students.

V. CONCLUSION

The industry of tourism is meeting many challenges; one of the key challenges is the deficiency of having

smart tourism systems which take advantage of the recent progresses in communication and information technology. This work designed and developed a web application named "travel key" that will help the tourists to get accurate and relevant information about the tourism places such as location, restaurants and events. The proposed work was designed and implemented using the Unified Modeling Language (UML), Microsoft Access 2010, and ASP.net, HTML, CSS, Visual basic programming languages. The proposed tourism system will be able to provide the tourists with recommendations for places to visit based on their preferences.

VI. REFERENCES

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