

Mobile Tourism Application Based On Situation Awareness

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Abstract: *The process of searching, selecting, grouping and sequencing destination related products and services including attractions, accommodations, restaurants, and activities included in the travel and tour planning. In tour planning, there are many mobile tourism applications developed. These tourism, mobile applications is changing the way of travelers plan and experience tourism in the future. The previous research investigated the development of context awareness, mobile applications for the tourism industry. Various aspects of context awareness are applied in tour guide companions and recommendation systems. However, these contexts awareness, mobile applications do not improve travelers' situation awareness, especially in pre-visiting and during visiting phases. In other words, when using mobile applications, travelers may not perceive the situation correctly, fail to comprehend the situation or they are unable to anticipate the future development. We propose mobile tourism application using situation awareness. The semantic web technology and MES technique for showing Situation Awareness is discussed here. The proposed design shows scenarios of traveler visiting experiences are shown and suitable designs for each scenario are discussed. The proposed design will implement the mobile tourism application for Mumbai region.*

Keywords: situation awareness, context awareness, semantic web technology, MES technology.

1. Introduction

There are many mobile applications developed for research purpose. Majorly many services provided by the smart phones. A smart phone is defined as a mobile phone that is equipped with a mobile operating system. The most common mobile operating systems are: Apple's iOS, Google's Android, Microsoft's Windows Phone and RIM's BlackBerry OS. Instead of confining to simple activities such sending and receiving text, pictures and video messages, smart phone users are able to download various applications from application stores [1]. So, by using Google's Android OS I am developing Tourism application based on Situation Awareness.

Therefore, to develop such type of application Location Based Services and Personalized Recommendation Services are of the most important type of mobile services, location-based services focus mainly on providing point of interest information to mobile users based on their current positions. On the other hand, personalized recommendation services aim at suggesting products and services to meet users' needs and preferences. By combining both the Location based and recommendation system another system is developed called Personalized location based recommendation system [2].

Context awareness is a property of mobile devices that is defined complementary to location awareness. Whereas location may determine how certain processes in a device

operate, context may be applied more flexibly to mobile users, especially with users of smart phones. Context

Awareness deal with linking changes in the environment with computer systems, which are otherwise static. The limitation of Context Awareness is that this does not support dynamic data like route change, weather forecast information. To support these situation dependent data there is a need of Situation awareness.

Situation awareness is the perception of environmental elements with respect to time and space, the comprehension of their meaning, and the projection of their status after some variable has changed, such as time, or some other variable, such as a predetermined event. It is also a field of study concerned with perception of the environment critical to decision-makers in complex, dynamic areas of aviation, air traffic control, ship navigation, power plant operations, military command and control, and emergency services such as fire fighting and policing, driving automobiles.

There are three levels of Situation awareness:

1.1 Perception Level

Travelers may fail to correctly perceive the situation due to unavailability of relevant data in mobile application. A survey conducted showed that mobile travelers ranked street maps, transport, tourism, destination, airport and emergency

contact as most required information. The details of nearby tourist spots, such as operating hours, transportations

1.2 Comprehension Level

Travelers may fail to comprehend the current situation when mobile application does not properly integrate the disjointed data. The challenges are smart phone has small screen size, large amount of data needed to be perceived, and travelers want to understand the presented information so that they can quickly take action.

1.3 Projection Level

Travelers may fail to foresee the future situation if mobile application does not provide the forecasting feature. According to, projection is defined as using information about the element's status and comprehension of the situation, then extrapolating this information forward in time to determine how it will affect future states [1].

Situation awareness involves being aware of what is happening in the vicinity, in order to understand how information, events, and one's own actions will impact goals and objectives, both immediately and in the near future. One with an adept sense of situation awareness generally has a high degree of knowledge with respect to inputs and outputs of a system, i.e. an innate "feel" for situations, people, and events that play out due to varying the subject can control. Lacking or inadequate situation awareness has been identified as one of the primary factors in accidents attributed to human error. Thus, situation awareness is especially important in work domains where the information flow can be quite high and poor decisions may lead to serious consequences. For example, piloting an airplane, functioning as a soldier, or treating critically ill or injured patients.

2. Related Works

The tourism application is a well-known area for the research. Chiu and Leung (2005) propose a ubiquitous tourist assistance system that is built upon multi-agent and semantic web technologies for providing personalized assistance and automation to the tourists with different preferences and often changing requirements during their trips [4]. Ricci and Nguyen (2007) present a critique-based mobile recommender system that lets users expressing session-specific preferences in addition to the long-term collected preferences. The objective is to provide on-tour system support to mobile travelers for selecting products or services based on the integration of both types of preferences [5]. Driver and Clarke (2008), on the other hand, point out that most research related to mobile, context-aware activity scheduling to date has focused on tourist guide applications. This type of application provides the user with a static tour on a mobile device, but does not support dynamic and context-based trail management [6]. Then personalized location based recommendation system designed by Chien-Chih Yu and Hsiao-ping Chang for tour planning in mobile tourism application in 2009 [2]. After that A conceptual framework for personalized location-based Services (LBS) tourism, mobile application proposed using the semantic web to enhance tourism experience by Fadhlun Mohamed Mahmood and Zailan Arabee Bin Abdul Salam in 2013 [3]. Then many research related to the situation awareness. Combining Fuzzy Logic and Semantic

availability, the entry price, special event or promotion, and others, should be provided in the mobile application.

Web to Enable Situation-Awareness in Service Recommendation by A. Ciaramella et al. In this paper proposes a situation-aware framework for providing personalized resources in a proactive manner [10]. Modelling situation awareness for Context-aware Decision Support by Yu-Hong Feng, Teck-Hou Teng, Ah-Hwee Tan. This paper presents a Context-aware Decision Support (CaDS) system, which consists of a situation model for shared situation awareness modelling and a group of entity agents, one for each individual user, for focused and customized decision support [8]. A situation aware resource recommender based on Fuzzy and semantic web rules by A. Ciaramella et al. In 2010 [9].

3. Existing System

There are many applications which supports static data not dynamic. In these applications, travelers can enjoy interactive and personalized tours that match their interests. They can acquire better knowledge about the place (within walking distance) and explore the place at their own leisure using this application. Thus, mobile applications are equipped with pre-defined pathways to interesting sights (such as maps), multimedia information about interesting sights (such as photos, audio and video), and mobile positioning (such as current traveler locations and orientations). Recommendation systems, on the other hand, are for travelers to plan and select a suitable service option for their trip. This system calculates a traveler's preference based on his/her profile and current mobile location. Typical services supported are recommending hotels, sightseeing, restaurants, and tour plans. So, when a traveler enters his/her pre-specified needs into a recommendation system, a list of services closely matched will be shown to him/her. Besides that, the traveler also can share his/her comment by submitting a new review.

3.1 Context Awareness

Most mobile tourism applications are equipped with context awareness to cater the new trend of mobile travelers. Context awareness can be defined as data management in term of scope, representation, acquisition and access mechanism. The scope covers different attributes such as location, time, device, network and user. These attributes can be represented using a timeline (such as past, present and anticipated future). The representation refers to reusability and abstraction. The former emphasizes enhancing context, while the latter focuses on inference by separating contexts. Acquisition is defined as the degree of automation (either the request issued by human or system) and dynamicity (whether is static or dynamically real-time). The access mechanism can be either pulled-based (when a request being made) or push based (when context changes) [1].

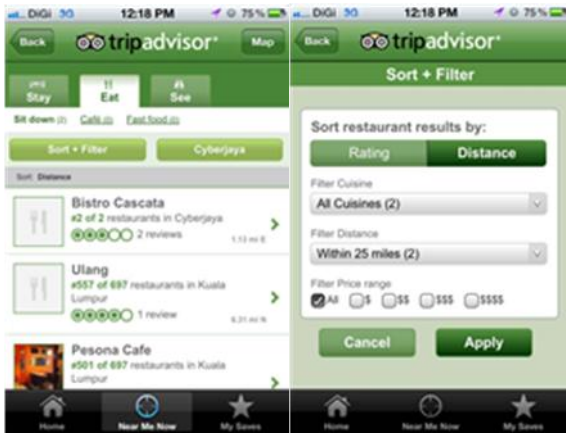


Figure1 : Screenshots of a typical recommendation system

4. Proposed System

We construct a Mobile tourism application which support timely changing data. To show situation awareness our design following modules.

- Personalization of application
- Notification
- Emergency system
- Recommendation System
- Fare, Path and Distance Calculation

The following flow diagram shows the overall flow of the proposed system.

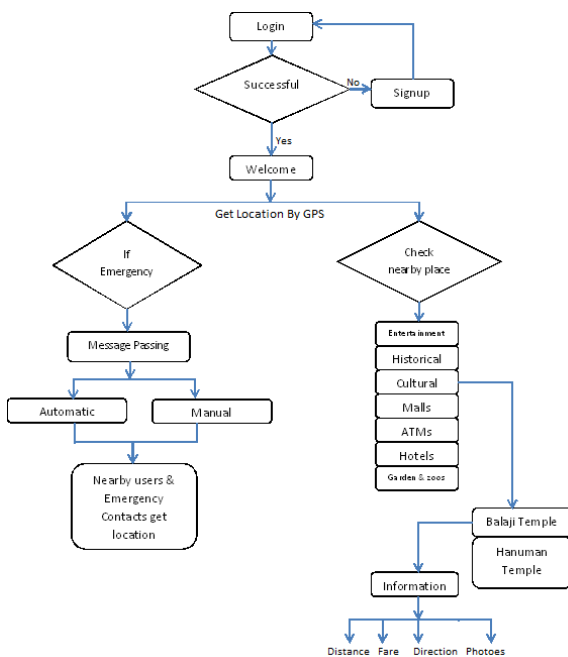


Figure 2: The flow diagram of the proposed methodology.

In the first module each user has a personal user id and password to login into the account. As well as they can add favorite places and visited places.

Second module deals with the notification of unknown places.

In the third module we construct an emergency system using MES (Mona Emergency System) technology [11]. In which the persons in emergency contact list and the persons nearby the user can get the user's location in accidental cases.

In fourth module we provide nearby recommendations by using semantic web technology. In this we use content based flirting technique.

In the fifth module we can calculate fare, path and Distance to go to the particular place by using GPS and per kilometer rate of the particular city.

5. Conclusion

We propose a new Mobile tourism application using situation awareness. We extend the features used in the traditional Context awareness application which deals with the static data. The New tourism application supports time changing environment. It can achieve users satisfaction in before visiting and during visiting phases. Our proposed method handles filtering technique using semantic web technology for a nearby location and MES system for Emergency button. In addition, these mobile tourism applications will be useful when travelers are able to access Internet anywhere and at affordable pricing. Several techniques to handles situation awareness. We expect satisfaction of the user.

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