

The Design and Implementation of an Electronic Ticket Package System for Tourism Services

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Abstract

In recent years, the free independent travel has become a main trend. However, the tourists often have the time and financial constraints on tour plans and travel package selection. Therefore, a good backpacking service for free independent travels is import to provide the tour plans with reasonable travel expense. For solving this challenge, an Electronic Ticket Package System (ETPS) is proposed to integrate the information of tour, business, and transportation for tourism service supplement. The five main components in ETPS which include (1) electronic ticket package management server, (2) electronic ticket package sale server, (3) travel agency application, (4) service provider application, and (5) end user application are designed and implemented. In experiments, a case study for Sun Moon Lake National Scenic Area in Taiwan is given in this study. Travellers can use the end user application in smartphone to get the low-cost and convenient tour packages with group travel discounts. Service providers and travel agencies can provide precise product recommendation services to increase their sales and revenues in accordance with the analyses of consumers' behaviour and demands.

Keywords: Tour Planning; Tourism; Electronic Ticket Package; Online to Offline.

1 Introduction

In recent years, the revenues of travel and tourism activities have become a major source of national finance in many countries. The prediction report from World Travel and Tourism Council (WTTC) indicated that the number of jobs from travel and tourism industries in the world will be more than 125 million by 2023. Moreover, United Nations World Tourism Organization (UNWTO) clearly reported that the substantial growth of tourism activities was the remarkable economic and social phenomenon of the past century (Platzer, 2014). The prediction report from UNWTO indicated that the number of international tourist arrivals will be expected to reach 1.4 billion by 2020 and 1.8 billion by 2030 (UNWTO, 2014).

The free independent travel has become a main trend. However, the tourists often have the time and financial constraints on tour plans and travel package selection (Ge et al., 2011). Therefore, a good backpacking service for free independent travels is import to provide the tour plans with reasonable travel expense. For tourists, a cost-effective travelling under satisfying travel requirement is necessary (Lo et al., 2012; Zhou et al., 2014). For solving this challenge, an Electronic Ticket Package System (ETPS) is proposed to integrate the information of tour, business, and transportation for tourism service supplement. Furthermore, travellers can have the low-cost and

convenient tour packages with group travel discounts. Service providers and travel agencies can provide precise product recommendation services to increase their sales and revenues in accordance with the analyses of consumers' behaviour and demands.

The remainder of this paper is organized as follows. The ETPS for tourism services is proposed and designed in Section 2. Section 3 gives a case study for Sun Moon Lake National Scenic Area in Taiwan. Finally, the conclusions and future work are presented in Section 4.

2 Electronic Ticket Package System for Tourism Services

The concepts of ETPS are showed in Figure 1 and presented in the follows. The ETPS can be used for food, accommodation, shopping and travel, etc. Service providers can provide the information of standard and promotion products and services via this system. For tourists, they only need to carry one electronic ticket media and can get the products and services from the various cooperative service providers. With smart phones and packages applications, tourists can check the current status of electronic tickets, and the planning guide and travel route can be instantly obtained by location-based service (LBS) applications. Therefore, the ETPS can collect and analyze the tourist data via electronic media to compose the tourism tickets for attraction improvement. Then the tourists can select and purchase the ticket package of tourism services.

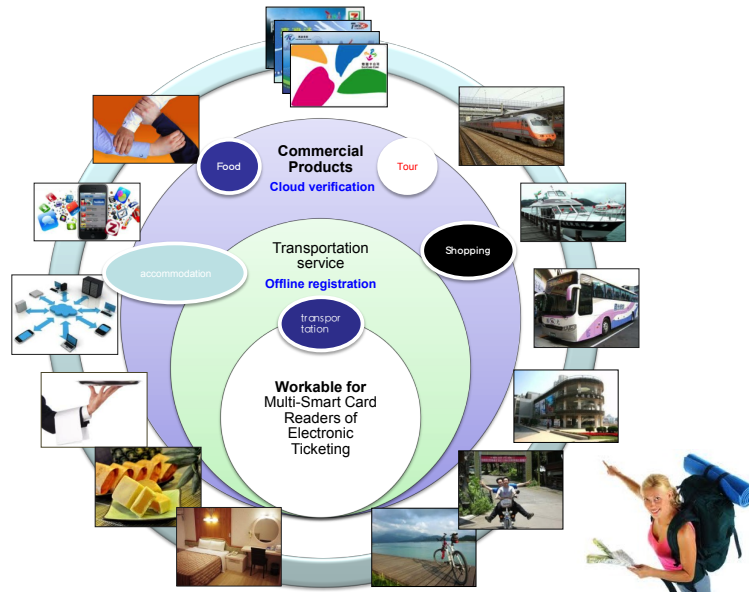


Fig. 1. The overall concepts of ETPS

Figure 2 shows the system architecture of five-component ETPS which include (1) electronic ticket package management server, (2) electronic ticket package sale server,

(3) travel agency application, (4) service provider application, and (5) end user application.

(1) Electronic ticket package management server

Travel agencies and co-operators can set the information of products and services (e.g., the discounted price) via electronic ticket package management server.

(2) Electronic ticket package sale server

Tourists can choose and purchase their interested products and services via the user interfaces in electronic ticket package sale server.

(3) Travel agency application

Travel agencies can sell the ticket packages to tourists, and the relationships of radio frequency identification (RFID) reader and administrator accounts are bound in travel agency application. Therefore, the obtained information of electronic ticket package via RFID reader is protected and secure.

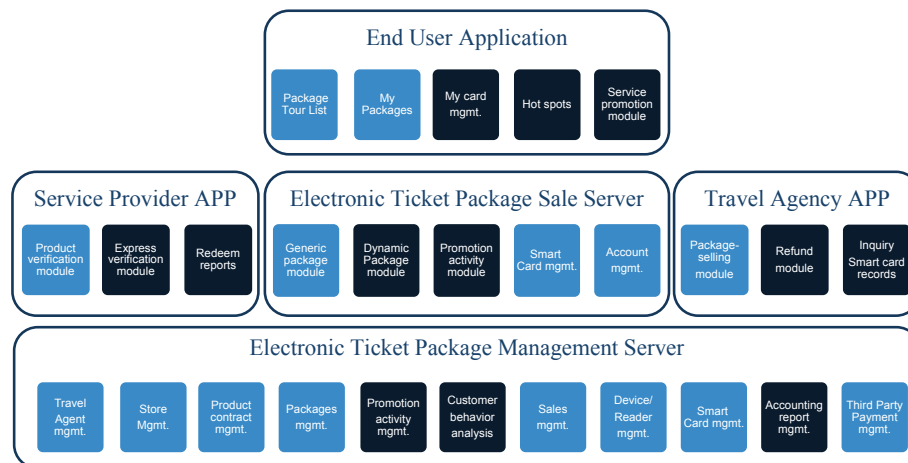


Fig. 2. The architecture of ETPS

(4) Service provider application

Service providers can use service provider application in smart phone or tablet personal computer (PC) to verify the tourist's certificates which are generated from online shopping. The tourists can be served quickly and securely.

(5) End user application

Tourists can use end user application to query the status of purchased electronic ticket packages and get the planning guide and travel route in accordance with LBS application.

3 Case Study

This section presents a case study for Sun Moon Lake National Scenic Area in Taiwan. Tourists can choose their interested ticket set, and the ticket package can be bound with the ticket certificates and end user application in their smart phone. Tourists can carry their smart phone to get tourism services conveniently during travels. The scenarios and system implementation are described in following subsections.

Figures 3 and 4 show the service scenarios in this case study and the layouts of electronic ticket package, respectively. Service providers can provide the information of their products and services, and travel agencies can design the content of ticket package. Tourists can use end user application in smart phone to set their budgets and interested tickets to get the customized and recommended ticket package. Then tourists can choose their interested tourism services and bind the electronic ticket package with end user application in their smart phone. Service providers can use smart phone or tablet personal computer (PC) to verify the tourist's certificates and provide tourism services.

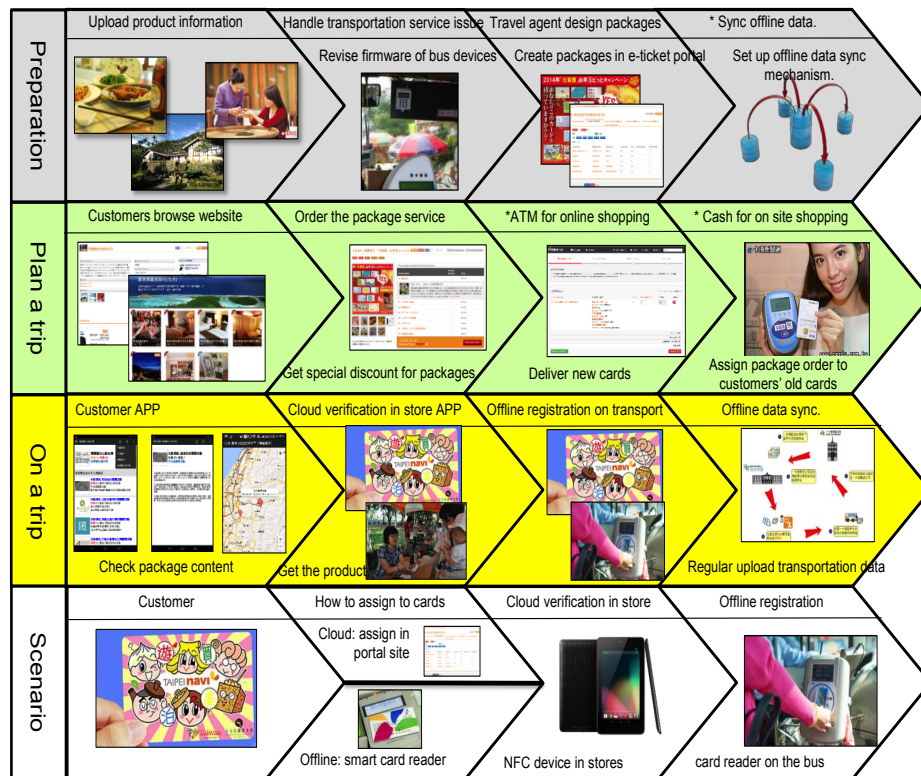


Fig. 3. The service scenarios in the case study for Sun Moon Lake National Scenic Area in Taiwan



Fig. 4. The layouts of electronic ticket package

4 Conclusions

In recent years, the revenues of travel and tourism activities have become a major source of national finance in many countries. Moreover, the free independent travel has been a main trend. Designing a system to satisfy tourists' requirements with LBS applications is an important issue. Therefore, this study proposed an ETPS to integrate the information of tour, business, and transportation for tourism service supplement. Furthermore, travellers can have the low-cost and convenient tour packages with group travel discounts. Service providers and travel agencies can provide precise product recommendation services to increase their sales and revenues in accordance with the analyses of consumers' behaviour and demands.

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