Travellers' Intentions to Use Facial Recognition Systems for Authentication in Hotels

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ABSTRACT

With the rapid development of this technology, facial recognition systems have become widely adopted in recent years. The application of the facial recognition systems by the hotel industry has resulted in a novel service model, as well as in high expectations. These systems can be used to improve conventional services and can also enhance hotel security. Based on theory, this paper employs a technology acceptance model to gain a deeper understanding of how travelers' intention to use facial recognition systems for authentication is formed. This paper employed the survey method and used data from 413 subjects to develop a model yielding results with both theoretical and management implications. These results highlight the advantages and potential commercial value of facial recognition systems and can provide useful analysis and suggestions for the hotel industry.

KEYWORDS

INTRODUCTION

According to a report from the World Tourism Organization, 1.5 billion tourists traveled internationally in 2019 (UNWTO, 2020). This reveals that the concepts of tourism and leisure have been established on a global basis, which is also reflected in the growing demand for hotel accommodation. The first task of staying in the hotel is authentication, which can be considered a critical service. Moreover, fast and effective authentication service in the hotel can improve guests' satisfaction (Liu et al., 2013). According to data from Marriott International, it takes an average of three minutes for each guest to check in using conventional methods, which involve authentication by the staff at the front desk employing the guest's photograph and information on the guest's ID card. When there are many guests, however, they may need to spend considerable time waiting in line. To solve this problem, Marriott International has begun to use new information technology, such as facial recognition system (FRS). Through the use of FRS, guests' check-in time can be reduced to less than one minute, and waiting time for check-in can be greatly shortened (Sickel, 2018).

When using FRS for the guest check-in, the system will automatically scan the guest's face and ID card, and will enter the guest's contact information. After the system has verified that the personal information is correct, the guest can pay and his or her room card can be assigned. There are even

some hotels that do not use room cards, and instead directly use the guest's face as a room card, such as Alibaba's future hotel (FlyZoo hotel). In these hotels, guests have access to all services through facial authentication. Compared with conventional check-in procedures, FRS provides automatic authentication, and can improve security (NEC Corporation, 2018). Thanks to these advantages, FRS can not only help a hotel improve its service quality, but also greatly streamline its manpower.

Facial recognition is the use of facial images to identify specific individuals. In other words, the machine can use images or video to capture the features of the individual's face or skin texture to identify individuals or their facial expressions (Huang & Tai, 2012). Currently, using FRS in the hotel is still in its infancy, but in other fields has been developed and used, such as self-service aircraft boarding, departure, immigration, surveillance, Internet banking, and Internet of Things. In the case of the hospitality industry, FRS is a fast and effective system for authentication, and can help ensure that guests receive satisfactory service. Due to its clear benefits, FRS can be used in the hospitality industry in new and exciting ways.

In addition, the new type of coronavirus (COVID-19) caused a global pandemic. The main route of infection is human-to-human transmission. FRS can be used to replace human labor, and can reduce human-to-human contact. In this way, the spread of the epidemic can be prevented. But despite the advantages of FRS, few hotels are currently using it. What factors affect guests and have stopped hotels from introducing FRS? This gap will be explored in this study. In addition, few papers have investigated perspectives on the use of FRS in hotels. This study therefore proposes a new model based on the technology acceptance model (TAM) concept to explore the intentions of travellers to use FRS in hotels. The survey method is used to collect empirical data from 413 subjects, and statistical methods are used to test the study's model. The results have theoretical and managerial implications, and can be used as a reference for hotel management. This study is expected to make contributions to the hospitality industry and help hoteliers determine whether they can use FRS to enhance operational efficiency.

LITERATURE REVIEW

Facial Recognition System (FRS)

Faces play an important role in communication between humans. Specific individuals can be identified through their facial features (such as texture and shape), and these forms of information cannot be readily forged. FRS is a technology that can identify people from images or video. FRS typically compares the individuals' facial features in images or video with the facial data in their databases, and can then locate the associated information. Therefore, it is widely utilized in many fields, such as human-computer interaction, video surveillance, automatic image indexing, location of criminals, fraud prevention, and public safety. (NEC Corporation, 2018).

This study focused on the use of FRS in hotel services to improve efficiency. Basically, hotel service is to sell services within a hotel to consumers, and encompass room service, restaurants, swimming pools, gym, business center, laundry service, internet, and entertainment equipment. Some of these services require applications and payment, including specific services for travellers (Chathoth et al., 2014). Upon arrival at a hotel, travellers must not only pass authentication procedures, but must also complete payment procedures before a room card can be obtained and hotel services can be used. Hotels require authentication for procedures including reservation, check-in, check-out, payment, and use of hotel equipment and service (Murphy & Rottet, 2009). Authentication is therefore a very important process for both travellers and hotels, and if the time required for authentication is too long, this will reduce service quality and consumers' satisfaction. In view of this situation, the existing hotel service model should be change. The hotel industry consequently hopes to introduce automatic information systems, including FRS, to improve this situation (Sickel, 2018).

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