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Mobile Smart Travelling Application For Indonesia Tourism

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Abstract

Indonesia is a country that has seventeen thousand islands and located in a very strategic location. That reason makes Indonesia becoming a place that is interesting to be visited by many tourists either local or international. Every year the number of tourists who visited Indonesia has greatly increased^{1,2} and transformed the tourism to be an important sector for Indonesia economical. The rapid development of tourism sector in Indonesia must be equilibrated by the evolution of technology and the supported facilities. Now, the usage of a smartphone technology is one of the important things and a part of modern people daily activities. By taking the advantages of a smartphone, this study is conducted to develop an android application that is named Smart Travelling. Smart travelling has many features that can facilitate every tourist who visited Indonesia, such as recognizes any tourist attractions, shows any events that nearby visited attractions, displays the nearest police station and hospital for an emergency case, and saves the history of the recognized objects. The main idea of the tourist attractions recognition here is to implement an image recognition using landmark detection feature from Google Cloud Vision Application Program Interface (API)³ technology which helps the tourist to easily remember and access any information regarding the visited attractions. In this study, the result is a completed application which is evaluated using questionnaires to 35 randomly selected participants. Based on the evaluation, the smart travelling achieves positive inputs and mostly the participants agree that the image recognition feature is really helping them. Furthermore, we also obtained a significant result for the scan landmark testing, which is 86% for the accuracy.

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1. Introduction

Nowadays, the outgrowth of technologies and globalization era demand ease and automation in various aspects of human life, including tourism. In Indonesia, the tourism is an important economic sector. Based on the ministry of tourism data in 2016¹, the number of local tourists in 2016 has been growing exponentially with over 6.6 million people, which had increased 1.97% comparing to the previous years. Furthermore, the foreign tourists that visited Indonesia had also increased 10.29% or approximately 10.4 million people in 2015².

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The rapid development of tourism sector in Indonesia must be equilibrated by the evolution of technology and the supported facilities. Now, the usage of a smartphone technology is one of the important things and a part of modern people daily activities. The utilities of the smartphone are not only in telecommunication but also in various fields, such as looking for information, entertainment, work supporter, data storage, photography, guidance, etc. By taking the advantages of a smartphone, this study is conducted to develop a mobile application.

Currently, there are many kinds of platforms installed in a smartphone and the most popular platforms used are Android, iOS, and Windows Phone. Based on the number of smartphone users in 6 ASEAN countries⁴, most of the users used smartphones Android-based. Especially in Indonesia, at 2015, the Android users had reached 41 million users compared to 2.8 million iOS users. Therefore, this application is built in the Android smartphone.

Indonesia is a country that is located mainly in South-east Asia and consists of seventeen thousand islands. Its strategic location makes Indonesia has many interesting sights to be visited by tourists both local and foreign. However, there is still not many applications that specific for all tourist attractions in Indonesia. In this paper, we report a tourism mobile application for Indonesia, which is named "Smart Travelling" and is built only for the Android platform. The smart travelling has several functionalities, such as recognizes any tourist attractions, shows any events that nearby visited attractions, displays the nearest police station and hospital for the emergency case, and saves the history of the recognized objects. Furthermore, this application has a special feature that is not available in other similar applications. The feature is an image recognition that can be used to automatically recognize an object and give any information about it. The main purpose of this application is to help tourists to recognize any tourist attractions in Indonesia and get all related information.

The remaining of this paper is organized as follows. In Section 2, we describe the relation of other studies for tourism purpose to ours. Next, all features in the proposed application and its methodology will be discussed in Section 3. Section 4 explains how we evaluate the application and its results. Finally, Section 5 concludes this paper and discusses the future development.

2. Related Works

Tourism is an essential economic sector in a country. By focusing on tourism, many advantages can be achieved, such as an improvement in various sectors especially provision of employment, income, production, etc. Due to the necessity of tourism, several applications are built in order to endorse its process^{5,6,7,8}.

The work of Tobing⁵ is one of the studies that conducts an android application for tourism in Samosir Regency, North Sumatera-Indonesia. It mainly focuses on the implementation of Google Map Application Program Interface (API) and integrated social media. Similar to Tobing⁵, Chao⁶ developed the android application by integrating global positioning system (GPS). However, Chao⁶ concentrated on Taiwan tourism and folk-cultural education instead of Indonesia tourism. Furthermore, Tian et al.⁷ proposed an augmented reality technology in developing tourism application that can be used on any mobile platforms. In contrast to the other approaches, Bandung⁸ implements digital signage system and Raspberry Pi 2 Model B as its client for supporting e-tourism in Indonesia.

This study proposed an application for presenting Indonesia tourism with special features. Like Tobing⁵ and Chao⁶, this application runs on the android platform. However, we focused on tourism area for entire Indonesia, which is a generalization of Chao⁶'s approach. Unlike Tian et al.⁷, we applied the image recognition technique instead of augmented reality technology.

Compared to the existing similar applications such as Pesona Indonesia and Wisata Lokal Travel Indonesia, our application has the combinations of all their features and offered a special feature which has not implemented in the others. The special feature here means the image recognition that can automatically recognize any tourist attractions which had taken by the tourist. Furthermore, our application also has a comprehensive tutorial which definitely helps the tourist to access and use our application in the proper way, and it is not limited in several Indonesia areas only.

3. System Overview

As mentioned in the previous sections, the purpose of this study is to construct a mobile application for facilitating any tourists who are visiting Indonesia. The application is namely Smart Travelling and developed in Android platform. It has several main features that described in Fig. 1 and will be detailed as follows.

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