A Tourist Tracking Model by Tourist Bureau

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Abstract. Tour guides are the critical services for the Travel Bureau. Especially for the services, they provide to tourists. So, a realtime system is needed to be able to interact between the two parties, especially regarding service records in the field and information processing for the Bureau. Based on ScienceDirect library, unfortunately, until there was no reporting system facilitate both parties and recorded in realtime. This study discusses software development solutions that receive various field notes by workers and can be directly viewed online for employers. This research is in the form of a reporting model, which is a solution for the Travel Bureau to have data and be stored electronically on the server. The system was built using a platform that is on a smartphone, so the tour guide reporting system becomes a solution for the Travel Bureau and the Tour Guide to document the trips carried out.

1. Introduction

Tourism is the economic backbone of many countries and is their highest source of income [1]. This sector provides an influence on the welfare of an area, including for residents, and can employ a lot of human resources in various fields, both directly and indirectly [2], [3].

Tourism success is strongly related to the presence of various Travel Agents and Tour Operators who provide different types of tour packages that they pack in multiple forms of service [4], [5]. One of the
keys to their services is to provide various services to tourists [6]. Both before the trip, during the journey, and after the trip [7], [8].

Services in the field when the trip is part of which is served by Tour Guides [9]. Tour guides in their daily lives are always with tourists since the service starts until the service ends. So, various vital records need to documented and reported during the service [4], [9], [10].

Unfortunately, until now, based on the study of researchers through various research libraries, as Science Direct, no system has been found that processes this tour guide reporting online [11]. So from the field review, it was found that the reporting of tour guides to the Travel Bureau carried out manually. Meanwhile, the use of a smartphone in tourism is a daily style of life.

For this reason, this study examines the development of a Tour Guide Reporting System, starting with a model of a system. This system is a solution in the world of tourism, especially between Tour Guides and employers, primarily through the Travel Bureau.

The method studied is the feasibility of a system built on a software platform. An application installed on a smartphone. So that field data can be directly reported and stored on the server.

2. Material

The role of higher education is very influential in the development of science and research [12], [13]. Likewise, with research in the field of tourism development in the era of open information in all areas [14], [15].

Tourism considered a significant contributor to the economy, and its growth has increased sharply over time [2], [16]. The tourism sector is the highest source of income for many of the worlds, such as America, China, Germany, Japan, UK, France, Mexico, Italy, Spain and Brazil [17], including in Indonesia [18].

This sector is the backbone of the economies of many countries. The advancement of tourism in an area has a positive impact on various sectors, such as the business environment, education, labour, industry, and public welfare. The growth of world tourism also does not increase significantly from time to time [2].

The role of information technology has contributed to the development of tourism and holds a significant history of the presence of a worldwide network [19], [20]. Researchers have developed various applications to support this tourism sector in different forms and scales [21]. One of the developments made is how technology can bridge the needs of stakeholders to understand tourist behaviour [22], [23]. Tourist behaviour is the key to tourism success [24].

A variety of scientific article libraries available online. Such as Google Scholar, Science Direct, and Garuda. It found that several systems developed related to this tour guide service. However, the research tendency that many writers find is the replacement of tour guide positions that are not served by humans but through machines, such as tour guide platforms through virtual machines [25], as traveller systems [26], and the use of augmented reality as tour guides [27].

Based on the article search in the database of Science Direct, we did not find a system that handles the reporting of tour guides, primarily used the smartphone. It also found based on observations of researchers in Bandung. There is no online reporting system available. Meanwhile, the reporting system with smartphone-based already implemented in several fields [10]. So, reporting still do with manually. The Tour Guide Reporting System can be said to be a necessity in the world of tourism, especially with the odd behaviour of tourists served [28].

The presence of technology that provides long-distance interaction with real-time, with the use of smartphones can be a solution in the development of reporting systems, including the presence of cameras and GPS which is becoming common at this time [10], [20].

This system developed with the basic structure of the architect of system development, which involves several layers, including perception layer, network layer, middleware layer, and application layer [10], [29]. So that reporting can be sent directly from a smartphone, stored on a server, and obtained the report through a computer that is in the Travel Bureau [10].
The provision of tourism infrastructure is essential. Especially seeing the development of tourism is considered necessary. This sector can exert influence on revenue both regionally and nationally. The impact also affects the economy of the community, including opening up employment opportunities [2], [3].

3. Method
The method used in developing the model of the ICT-based tourist reporting system consists of four stages. Namely, Defining problems and objectives, the study of literature, requirements analysis, and model design.

The four stages look like in Figure 1.

4. Findings and Discussion

4.1. Tourist Guide and Smartphone
Some research has been done previously related to this tour guide and smartphone. Some research developments, as shown in Table 1.

Table 1: Previous Research for Tourist Guide and Smartphone

| Researchers                        | Country     | Description                                                                 |
|------------------------------------|-------------|-----------------------------------------------------------------------------|
| Tarantino et al. (2019) [30]       | Italy       | Interactive guide as a tourist planning guide                               |
| Rusdi et al. (2019) [20]           | Indonesia   | Provision of internet access for tourists and travel management for tour guides |
| Kirova and Thanh (2019) [31]       | France      | The role of contactual factors smartphone usage in a theme park.            |
| Yee Kuen Yi et al. (2019) [8]      | Spain       | Integral application in mobile application                                  |
| Huel-Ming Chiao (2018) [25]        | Taiwan      | Online virtual tour-guiding                                                 |
| Yang and Hsu (2016) [32]           | Taiwan      | Tour guiding location-based service                                          |
| Guha et al. (2012) [33]            | India       | Smartphone apps with the location-privacy platform                          |
| B. Seo et al. (2010) [34]          | Korea       | On-site tour guide based on Augmented Reality                               |

Source: Authors (2019)
4.2. Tracking Concept
The initial concept starts from tourists who travel to several tourist attractions. Every moment recorded by a smartphone in the form of a photo or video will be a series of travel histories that stored during his life. Travel data stored on a smartphone is expected to be able to be depicted in the form of a digital map (Figure 2).

4.3. Tracking Tourist System
The tracking system starts when tourists open the photo or video recorder form. Automatically, the coordinates of the tourist location detected via the GPS device on the smartphone. The coordinate parameters of the recorded location are latitude and longitude coordinates.

When tourists are in locations that have internet access, then the data will be stored in an SQLite database (smartphone) and sent directly to the MySQL database server. When in a location that does not have internet access, the data is stored in SQLite first. When tourists are near the BTS, or there is an internet network (move position), then automatically the data stored in SQLite will be sent to the MySQL database server with a database synchronisation process (Figure 3).

4.4. Database Synchronization
Database synchronization occurs when the SQLite and MySQL databases connected through an internet network intermediary. Either through BTS or WiFi networks. The system on the smartphone will check the network. The component parameter in the SQLite database in the system is a status field with a value of 0 or 1 (Figure 4)

When a tourist is in a location that has internet access, data sent to the MySQL database server, then the value of the status field in SQLite will be changed to 1. If the status field has a value of 1, then the data does not need to be sent to the MySQL database server (ignore).
5. Conclusion
The tourist tracking system model is advantageous in displaying historical travel data. Location-based data with photos or videos are a recommendation for other tourists who will travel to the same place. Database synchronisation is instrumental in storing location coordinates when tourists store their data in an SQLite database. The data based on storage time, not when the data sent to the MySQL database server.

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