ABSTRACT

Tourism is a competitive industry that requires the ability to adapt constantly to customers' changing needs. With the onset of the corona, human interaction is constantly feared and the guides that promise safety do not give accurate information regarding the places we visit. The genuineness is always on the line and tourists tend to take a blind step forward. This paper proposes a pocket tourist guide – a full-stack application that provides comprehensive up to date information along with customized recommendations and services using machine learning algorithms. The application also provides information regarding present covid and vaccinated statistics along with the rules and regulations enforced in the places being visited.

Keywords: Tourism, machine learning, full-stack, covid, recommendations.

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LIST OF ABBREVIATIONS

ABBREVATIONS	EXPANSION
MERN	MongoDB, Express, React, Node
GPS	global positioning system
J2ME	Java 2 Platform, Micro Edition
iOS	iPhone OS
HTTP	Hyper Text Transfer Protocol
API	Application programming interface
ML	Machine Learning
JS	JavaScript
AI	Artificial Intelligence
JSON	JavaScript Object Notation
UI	User Interface
NPM	Node Package Manager

CHAPTER 1

INTRODUCTION

The industry of tourism and hospitality is one of the largest service industries. It has become one of the major players in international commerce, and represents at the same time one of the main income sources for many developing countries. In 2019, travel and tourism made a total contribution of 9.3 trillion dollars to the global economy. With the covid-19 pandemic, travel and tourism industry is among the most affected sectors impacting economics, livelihoods, public services and opportunities globally. The strict lockdowns have confined everyone in their homes, restricting movement in the hope of getting control over the massive corona virus spread. Now, with several measures enforced and vaccines introduced, the global situation has become better to a certain extent. This has provided people with enough courage to step out of their homes for visiting new places. However, basic human interaction is still feared. The genuineness is always on the line and tourists tend to take a blind step forward. With technology booming, tourists have access to large amount of travel-related information on the Internet. Tourists need to visit various sites to retrieve different information such as booking for accommodation and transportation, planning the itinerary for the place they are going to visit, which requires a lot of effort. Since the information needed is given in different websites, they find it difficult to compare and choose the best option. Even though there are a few websites that compare different travel rates and accommodation services and reviews, they fail to accurately index all the hotels, especially the smaller or less popular ones. In the past decade, there have been several attempts to apply technology to travel services and pervasive problems of information overloads. These systems are working but with outdated technology and separate services, therefore the tourists will still have to use multiple applications. The mobile phone has become a ubiquitous technology, a result of an increase in trend for mobile based applications. The mobile phone being small and easy to carry around, gives

the tourist an advantage when it comes to searching up data “On the go”. This paper proposes a pocket tourist guide- a full stack mobile application that provides comprehensive up to date information along with customized recommendations and services using machine learning algorithms. The application also provides information regarding present covid and vaccinated statistics along with the rules and regulations enforced in the area being visited. A prototype of the proposed application is implemented. This prototype uses APIs for delivering dynamic data to the user and uses machine learning algorithms to provide users with personalized recommendations and services

1.1 OBJECTIVES

Tourism is a competitive industry that requires the ability to adapt constantly to customer's changing needs. The objective of this paper is to provide an end-to-end application to all the users w.r.t the tourism industry. The application is designed to provide information from booking flights to places to visit , along with personalized recommendations regarding hotels and restaurants.

CHAPTER 2

LITERATURE SURVEY

Many papers have been published regarding the application of technology in travel and tourism services.

W. Boulila (2021) et al. presented a paper named GuideMe: A Mobile Application based on Global Positioning System and Object Recognition towards a Smart Tourist Guide. This paper proposes an application that is based on either manual search, using GPS to find the location or by using Deep Learning methods for identifying the image taken by a visitor. All three options are provided in the developed mobile application.

H. Dong (2020) et al. presented a paper named Design and Implementation of Intelligent Tour Guide System in Large Scenic Area Based on Fog Computing. This paper has focused its application based on the basic requirements of smart tourism, and proposes an application based on fog computing. However, Fog Computing has a disadvantage when it comes to security. Thus, the application is prone to experience network and security issues.

Alexander Smirnov (2013) et al. presented a paper named Intelligent Mobile Tourist Guide. In this paper a prototype of the application has been developed using Smart Space infrastructure to facilitate integration of services and internal processes in such complex system.

L. Liu (2012) et al. presented a paper named Android city tour guide system based on Web service. In this paper, three layer architecture of Web development into mobile phone software development is proposed. The three layer architecture, though described as an effective solution does not seem to be on par with today's technology and thus is not so very efficient.

Yaohua Yu (2014) presented a paper named Design and Evaluation of Intelligent Tourist Guide System Based on Mobile Devices. This paper presents the design and evaluation of an intelligent tourist guide system that runs on Android with

GPS feature. Here GPS is used for getting the current location. The application developed is Android based and will not hold for iOS devices.

Jingyuan Yang (2011) et al. presented a paper named Intelligent tourist attractions recommendation system based on cases. This paper describes how to meet the tourist‘s demands by using web crawlers, perceptual hashing, decision tree modelling and other technologies in city tourist attractions recommendation. However, Use of web crawlers results in increased traffic and thus required high bandwidth and space which would cause issue to the website.

R. Sood (2017) presented a paper named Intelligent mobile based tourist assistance system. This paper describes a module along with an app for tourists which would provide them all the required information about places nearby and provides emergency numbers. The information is provided by the kiosk being installed at different places via BLE Technology. But, BLE Technology cannot hold large data rates and cannot be used for long distance communications which will pose as major drawback for the proposed system.

J. Tseng (2018) et al. presented a paper named Development of Intelligent Tourism Information System Based on Virtual Reality. This paper develops a tourism information system by using virtual reality technology to show the landscape information intelligently by detecting what the user sees.

V. Singh (2014) et al. presented a paper named Web and mobile based tourist travel guide system for Fiji’s tourism industry. This paper presents a tourism information system that gives a centralized tourist travel guide system for Fiji where a number of services are available. The proposed system is a centralized system based on web services which provide all necessary information and tools that can be used by tourists to organize their trip.

Michael Kenteris (2006) et al. presented a paper named Developing Tourist Guide Applications for Mobile Devices using the J2ME Platform. This paper presents a mobile tourism research prototype which uses web-based technologies for the creation of portable tourist applications with rich content that matches the users'