

WanderLust: A Virtual Tour Assistant

CPG-102



THAPAR INSTITUTE
OF ENGINEERING & TECHNOLOGY
(Deemed to be University)

Submitted By:

Kashish Tayal(101803022)

Aditi Dona(101803029)

Rachit Khanna (101803031)

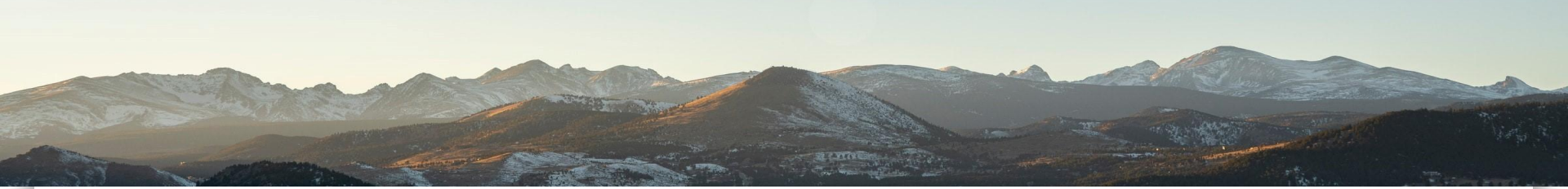
Ayush Kumar Bhatt(101815001)

Under the Mentorship of:

Dr. Jasmeet Singh

Assistant Professor

Thapar University, Patiala



Project Overview

1. Tourism sector in india contributes about 200 billion dollar to the indian GDP. Hence this sector needs to be modernised and needs to be more accessible to people with multiple linguistic backgrounds.
2. Though there are many travel portals available like MMT, Golbibo etc. but they seem obsolete to the modern day needs.
3. Hence we are proposing to revolutionise tourism sector by proposing a VIRTUAL TOUR ASSISTANT- one stop solution to all travel needs.



Need Analysis

We did extensive research about the existing portals and their shortcomings and found out that they lack these features:

- None of the portals fulfill all the requirements of a user while planning a holiday.
- Provide location specific information like locally famous dishes and where to find them, local shopping markets etc.
- Provide a real-time language translator as language causes an immense discomfort to tourists.
- Feature of providing more information about the things the tourists see on the tourists sites, like translate an ancient text, understand the history behind the painting etc by extracting information from the picture the user clicks.
- Tourist safety is also not addressed in the existing situation.



Literature Survey

1. **Natural Language Understanding Tool:** In this paper, we get knowledge about AI virtual guide system architecture that can be developed fast and that is flexible enough to be used in multiple scenarios.
2. **ChatBot through Pattern Matching:** In this paper, we get the basics of chatbots and the core technique used to develop it. Chatbot is a rudimentary form
3. **ChatBot using Natural Language Processing[NLP]:** It provides us with the technique of developing a chatbot using Natural language processing by giving the description of each step required.
4. **Maximally Stable Extremal Regions (MSER), Tesseract-OCR :** This paper proposes the use of Optical Character Recognition (OCR) to develop a recognition application that recognizes characters from images captured by a smartphone
5. **Location-based services and Google maps based information master system for tour guiding:** This paper aims to develop a location-based service supporting a master multiagent system on what the information is, using Google maps and an image recognition technology as a tourism information provider and as a route planner for tourists.
6. **Handwritten Optical Character Recognition (OCR):** The objective of this paper is to summarize research that has been conducted on character recognition of handwritten documents and to provide research directions.



7. Representative Sights Identification Algorithm which will automatically identify the potential tourist sights of a location : The paper suggests using images, as it will facilitate the travel plan as much as text.

8. Bluetooth and various Android Technologies like On Route Information Server (ORIS), the Android Client Application (ACA) and the Information Services Provider (ISP) : This paper has proposed to provide the user with the on-route information using Bluetooth devices installed at relevant public places and Android Technologies

9. Natural Language Processing, Google Street View : This paper has proposed to have an enhanced user experience in museums by the development of a virtual museum assistant.

10. Machine Translation (MT) : This paper has explained the concept of MT. It also explains the various APIs available which are used for this purpose of translating speech from one language to another

11. ASR- Automatic speech Recognition, STT-Speech to text, Example based machine translation (EBMT), Recurrent neural networks : The main aim of the project is to develop a system that will change voice input voice into text format.

12. Discrete Cosine Transform (DCT), Mel Frequency Cepstral Coefficients (MFCC), Feature Matching, Fast Fourier Transforms (FFT), Dynamic Time Warping (DTW) : This paper explains about the speech-based voice authentication system for Tamil language that has two major phases.

Problem Statement

Travel and tourism is one of the most important source of revenue for the government, and as easy as it looks, it is very cumbersome to plan a perfect Holiday. There are many Travel portals working to serve help the travelers plan a successful and convenient tour, but none of them seem to fulfill all the requirements. Hence, there is a need to create a one stop solution to all the travelling needs i.e. A Virtual Travel Assistant.

The group will focus on designing and constructing a Virtual Tour Assistant which will be a complete package needed for a hassle-free holiday. Starting from planning a tour to its completion, this revolutionary application should be able to satisfy travel needs.

Objectives

1. Personalised Travel Plan
2. General Customer Care Services
3. Storytelling
4. Language Translator
5. Additional Features:
 - Tourist Safety
 - Offline Services
 - Connect to people

Assumptions

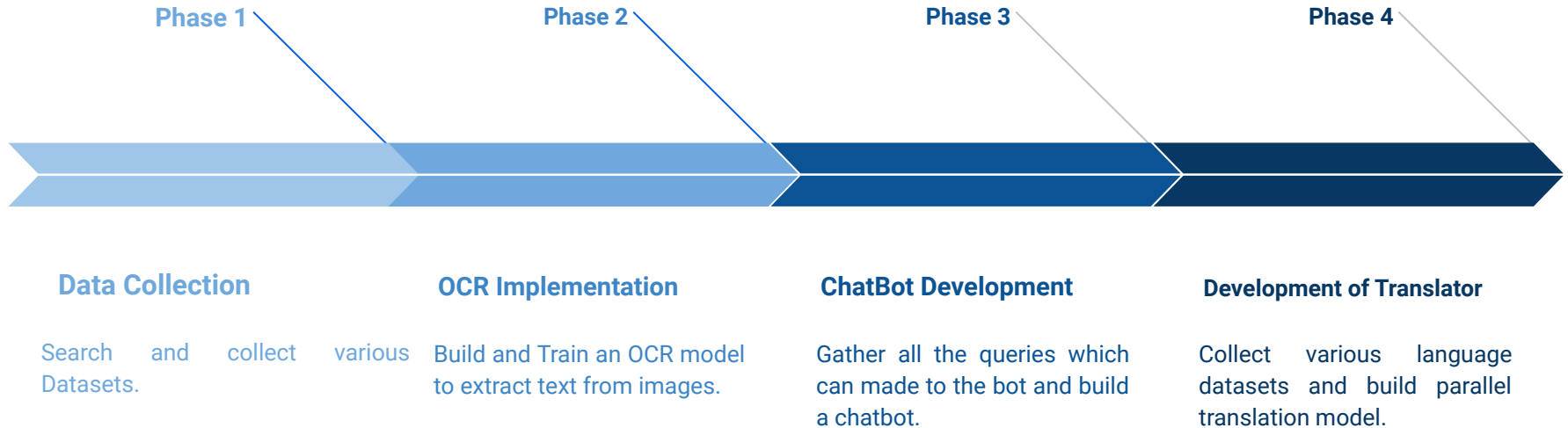
- User should have access to a smartphone and should know how to access a smartphone.
- User should have access to internet connection (until the offline feature is explored and constructed)

Constraints

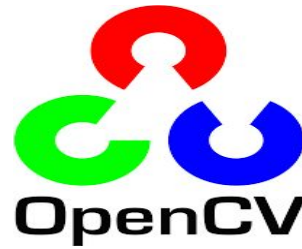
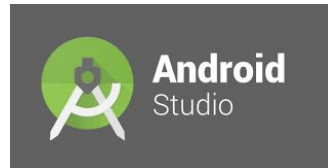
- Non-availability of internet connection.
- Non-availability of storage in the smartphones.



Project Execution Plan :-



Project Requirements:





Project Outcome

- The most important and significant feature of this application would be to understand the interests and likings of the user and provide them with a personalised tour plan of the chosen place of interest.
- It will have information about upcoming local tourist attractions and unexplored facts about the islands by using the process of image processing.
- It will have an inbuilt translator which helps the travellers to read or listen to what the locals are speaking in their desired language and help them to understand better about the place in their Native Language.
- Application will contain customer help service chatbot along with the customer care support(if required).
- It will contain all your travel experiences and you can store your memories which can only be seen by you.

[illegible]

Roles and Contributions of Individual Team Members

- Aditi Dona : OCR, Language Translator and Application Development
- Ayush Bhat : Voice translation, chatbot
- Kashish Tayal : Voice translation and chatbot , OCR
- Rachit Khanna : Team Leader ,Application Development, OCR and Chatbot

References:-

- [1] Duguleană, Mihai, et al. "A Virtual Assistant for Natural Interactions in Museums." *Sustainability* 12.17 (2020): 6958.
- [2] Dahiya, Menal. "A tool of conversation: Chatbot." *International Journal of Computer Sciences and Engineering* 5.5 (2017): 158-161.
- [3] Abdul-Kader, Sameera A., and J. C. Woods. "Survey on chatbot design techniques in speech conversation systems." *International Journal of Advanced Computer Science and Applications* 6.7 (2015).
- [4] Lee, Gyu-Cheol, and Jisang Yoo. "Development an Android based OCR Application for Hangul Food Menu." *Journal of the Korea Institute of Information and Communication Engineering* 21.5 (2017): 951-959.
- [5] Yang, Sheng-Yuan, and Chun-Liang Hsu. "A location-based services and Google maps-based information master system for tour guiding." *Computers & Electrical Engineering* 54 (2016): 87-105.
- [6] Memon, Jamshed, et al. "Handwritten optical character recognition (OCR): A comprehensive systematic literature review (SLR)." *IEEE Access* 8 (2020): 142642-142668.
- [7] Jing, Feng, Lei Zhang, and Wei-Ying Ma. "VirtualTour: an online travel assistant based on high quality images." *proceedings of the 14th ACM international conference on multimedia*. 2006.
- [8] García, Carmelo R., et al. "On route travel assistant for public transport based on android technology." *2012 Sixth International Conference on Innovative Mobile and Internet Services in Ubiquitous Computing*. IEEE, 2012.
- [9] Taučar, Aleš, Antonya Csaba, and Eugen Valentin Butila. "Recommender system for virtual assistant supported museum tours." *Informatica* 40.3 (2016).
- [10] Duarte, Tiago, et al. "Speech recognition for voice-based machine translation." *IEEE software* 31.1 (2014): 26-31.
- [11] Kavitha, R., et al. "Speech based voice recognition system for natural language processing." *Int J Comput Sci Inf Technol* 5.4 (2014): 5301-530.