



Smart Tour Guide using Machine Learning

¹Muzammil Khan, ²Samad Khan, ³Areeba Khan, ⁴Anupam Choudhary

¹Student, ²Student, ³Student, ⁴Professor

¹Computer Engineering,

¹Rizvi College of Engineering, Mumbai, India

Abstract: Online Tourist Guide using ML is a tourist comfortable. We are proposing for all the type of tourist. Country-wise, State-wise or any type of tourist who is working on an online booking system like ticket booking, hotel booking or any type of the online booking. In our proposed system, we are using machine learning as a tool and we will work on Android, Java and PHP platform wherein we will provide many facilities to the tourist and we will give them a simple user-friendly online tourist guiding system. The image capturing and classification method is quite similar to that of Google lens in some functionality. The application is developed using JAVA as a programming language and designed and coded in Android Studio. For now, our application is used for monument or landmark recognition, but in the future version, we plan to include a very high profiled booking system that can help the users to plan their trips ahead of time. To execute the application first step will be User registration then log in then Take a picture and last the user can select from the gallery. The project will use Python syntax. As a framework, it will use Kera. The app is an android application used for image classification. The user has to capture the image with his camera inside the app (there is a camera button on the user dashboard) and then the image is classified by Tensor Flow and then the landmark information is given back to the user. In this proposed system we will use a recent advanced algorithm based on machine learning and we will propose a simple and user-friendly technique. In our proposed output, we will give all kind of guidance like Hotel booking, location's Wikipedia (Information). The Propose conclusion of our project will contain a machine learning-based standard platform wherein any kind of tourist or the tourist which are searching for online guidance, our proposed system is the best guide for them. Our proposed system is advanceable and can be modified on any platform as technology changes.

Index Terms – Java, Python, Google lens, Tourist Guide, Tensor Flow, Android Studio, Kera, Inception

I. INTRODUCTION

The image capturing and classification method is quite similar to that of Google lens in some functionality. The application is developed using JAVA as programming language and designed and coded in Android Studio. The source image is uploaded by the user himself and then the image enters the image classification n procedure. In the Android application the image will be saved and then sent to the server. The server then checks for the image in our database and provides the information about the monument or the place. The database is MySQL. The image recognition process is done with the help of TensorFlow. We are using one of Google's best image classifier library called 'Inception'. **Inception v3** is a widely-used image recognition **model** that has been shown to attain greater than 78.1% accuracy on the ImageNet dataset. The **model** is the culmination of many ideas developed by multiple researchers over the years.

II. EXISTED DESIGNS

1. India Tourist Guide: This App is guide app for Indian tourist locations. It shows detailed information about each and every Indian tourist locations like Near place, Map, Direction, location information. It also shows place address, timing for visits. Recent pics of the place to be shown when we click on location details. It also helps you by showing map to reach at that location from your current location through Google Map.
2. Tour Guide: This application provides contact with guides and people of the place where user wants to visit. It will link you up with some stranger or a guide that will guide you in that place

III. LIMITATION OF EXISTING SYSTEMS

Above two application doesn't have any smart capabilities to learn and adapt itself to the changes happening in the places? India tourist guide is just an application that provides the information which has to be changed the application administrator while the tour guide application act as an agent between you and guides and real peoples in the tourist places to help the users. Our application will learn from the inputs provided by the users and add new places which tourists can visit as well as it will recommend places to visit the user according to the ratings given by the existing users of the application. As far as connecting with the real-time tourist it opens a gap for error from the tourist guide that will be contacted and it can open a way for crime by fake people to register on the application and misled the user. Thus, removing the concept of contacting the tourist is altogether removed from our application.

IV. SYSTEM IMPLEMENTATION

The proposed system should have following features. The proposed system should be able to register the new user and authenticate them perfectly. It should properly recognize the images and match the corresponding image in the database and present the appropriate information to the user. The proposed system should also save the image clicked/provided by the user and further use it to learn form the image about particular monument of tourist visiting sites.

4.1: Designed Methodology

A Convolutional neural network (CNN) is a neural network that has one or more convolutional layers and are used mainly for image processing, classification, segmentation and also for other auto correlated data. A convolution is essentially sliding a filter over the input. One helpful way to think about convolutions is this quote from Dr Prasad Samarakoon: "A convolution can be thought as "looking at a function's surroundings to make better/accurate predictions of its outcome."

Rather than looking at an entire image at once to find certain features it can be more effective to look at smaller portions of the image.

Common uses for CNNs

The most common use for CNNs is image classification, for example identifying satellite images that contain roads or classifying hand written letters and digits. There are other quite mainstream tasks such as image segmentation and signal processing, for which CNNs perform well at.

CNNs have been used for understanding in Natural Language Processing (NLP) and speech recognition, although often for NLP Recurrent Neural Nets (RNNs) are used.

A CNN can also be implemented as a U-Net architecture, which are essentially two almost mirrored CNNs resulting in a CNN whose architecture can be presented in a U shape. U-nets are used where the output needs to be of similar size to the input such as segmentation and image improvement.

Interesting uses for CNNs other than image processing

More and more diverse and interesting uses are being found for CNN architectures. An example of a non-image based application is "The Unreasonable Effectiveness of Convolutional Neural Networks in Population Genetic Inference" by Lex Fligel et al. This is used to perform selective sweeps, finding gene flow, inferring population size changes, inferring rate of recombination.

There are researchers such as Professor Gerald Quon at the [Quon-titative biology lab](#), using CNNs for generative models in single cell genomics for disease identification.

CNNs are also being used in astrophysics to interpret radio telescope data to predict the likely visual image to represent the data.

Deep mind wave is a CNN model for generating synthesized voice, used as the basis for Google's Assistant's voice synthesizer.

4.2. Module Description

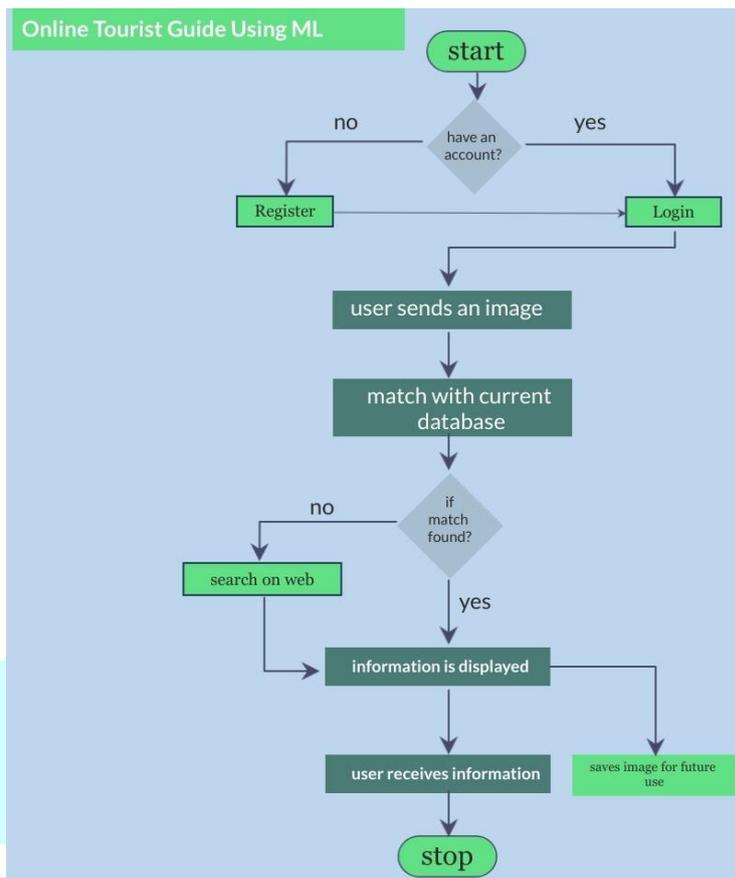


Figure No.2: Module Description

The solution comprises of the following modules

1. User registration: User need to register by filling up basic registration details and need to create a login id and password.
2. Login: User can login into his/her account by providing valid login credentials.
3. Take a picture: Use the camera to take the picture
4. Select from gallery: The user can also select the existing picture from the gallery.

V. Results and Outputs

5.Login Screen

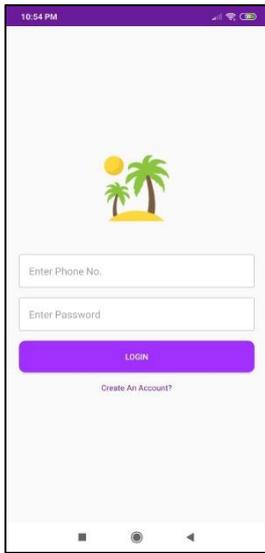


Figure 5.1 Login screen

This screen appears after installing the app.



5.2 Register Screen

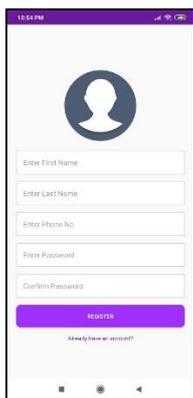
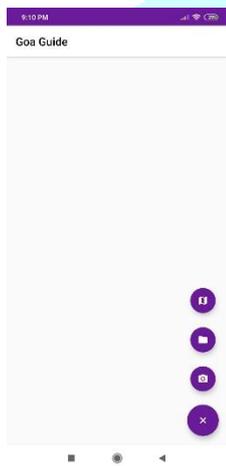


Figure 5.2 Register screen

5.3 Home Screen: The user enters the necessary information for registering. Next, the user uses the credentials entered for logging in the app.



5.4 Camera screen



Figure 5.3 Camera screen

Click the photo with the camera.

5.4 Result screen

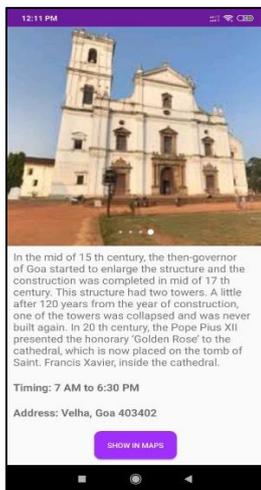


Figure 5.4 Results screen: The server gives the result back.

VI. FUTURE SCOPE

The plan is to improve the application further and add some important modules such as booking and restaurants. In the next version the users will be able to book hotels, rent cars and many more new features. Now there are many tourist guides on Play Store per say, but none of them provide the features of booking or renting cars etc.

VII. Conclusion

Guidance based placement preparation process for the student design is more advanced and useful for all kind of placement situation like online offline and it provides easy and simple placement process to a person who facing the problems of placement. It is also useful for teacher to provide the guidance with new advanced technologies. We concluded that our system is best suited in this current technology

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