Plant & Tree Recognition

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Abstract— It is a simple task for humans to visually identify objects. However, computer-based image recognition remains challenging. So, this is an approach for image recognition with specific focus on automated recognition of plants and trees. The aim of the application is to provide an information about the plants or trees by recognizing an image which is taken by the user. Also, that information will be used further to expand and improve the database. Also, this app will provide the map facility for finding the nearby plants and trees. Automatic plant and tree recognition with image processing have application in leaf identification, species discovery, plant taxonomy, natural reserve park management and so on. It is considered a fine-grained image recognition problem and hard to solve. In this report, I describe my exploration with this problem, using traditional handcrafted features and features extracted from pretrained deep convolution neural network.

Key words: Plant, Tree, Image Recognition, Image Processing

I. INTRODUCTION

It is a simple task for humans to visually identify objects. However, computer-based image recognition remains challenging. So, this is an approach for image recognition with specific focus on automated recognition of plants and trees. The aim of the application is to provide an information about the plants or trees by recognizing an image which is taken by the user. Also, that information will be used further to expand and improve the database. Also, this app will provide the map facility for finding the nearby plants and trees. Automatic plant and tree recognition with image processing have application in leaf identification, species discovery, plant taxonomy, natural reserve park management and so on. It is considered a fine-grained image recognition problem and hard to solve. In this report, I describe my exploration with this problem, using traditional handcrafted features and features extracted from pretrained deep convolution neural network.

II. LITERATURE REVIEW

1) Main Aim is to build this app to provide information about plants and trees. This app is based on image processing and built in android. This app will help people to learn about plants and trees, And the most important is that it will help people to learn about the most common plants and trees, which they are surrounded by, but don't have knowledge about it.

2) Main objective of this application is to provide simple an easy design, so users can operate or use the application efficiently and get the appropriate information. It's so easy to use this application that user must click only one button to get the data, it's either upload from the phone or capture the photo from the camera, it's that simple.

3) Application development is a part of the creative industry that provides numerus opportunities to those who are passionate about coding and designing their own imagination.

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5) Application development is the process of coding and designing, where the application developer and his team undertakes developmental tasks for creating an application through a software development process. These applications are the one of the best forms of creative outlet that allows developers to develop ideas from scratch and take it to another level.

6) Developers are putting their faith in Android, and Android Studio is the best when it comes to Android application development.

7) Now that everyone is aware that, android Studio is one of best tool for app Development, let's look at the reasons, why android Studio is popular and what makes it a go-to choose for app developers. (1.1) Most popular option among developers. (1.2) Easy to use and its wide community. (1.3) Open source community. (1.4) Unrivaled community support. (1.5) Low learning curve.

8) Now that you have all the facts, number, and are confident about taking the next step toward app development, here's more positive news to your beliefs. (2.1) AI will be on the top right now. (2.2) AI and ML will be a major portion of new investments in future. (2.3) app companies will explore the possibilities of AI or ML. (2.4) The app development market in India and Brazil will be game changing in the coming years in both platform PC/Console and Mobile. (2.5) The traditional app developing will leave way to new and innovative ways of reaching users with better user experience

III. STUDY FINDINGS

1) Recent high-profile into the world of software technology by industry giants such as Facebook, with their recent purchase of other software companies, point to a shift towards another era of mobile application development and have once again began to capture the public's imagination.

2) Presently, social apps as a new media is imposed more and more requirements. The number of users is expected to increase in future, including through the spread of mobile era. Also, market revenue is predicted to rocket. In addition, mobile app segment will significantly high.

3) The app is very easy to control with just few taps only. The app must be opened on android mobile and that mobile should be able to use internet for the results. The app must feature all kind of details and photos, perfect Sync with local client.

4) Application helps user to build knowledge. Application should be having many helping functions. App should be having share option and with chat tab include. App

should be having latest material design. App should be available on android first. Device should be able to capture photos or should be able to share photo to get it in working mode.

IV. FUTURE ENHANCEMENT

Work Aim is to build a system that can assist people in many different environments and situations. This project is my first step towards this goal. I have found that I can add numerous features in this app to help people understand their surroundings better than before. Some of the features that we have identified are as follows: Better Design: The main challenge that I have identified is related to the design. I am constantly working on design to make this system easy to use. Better efficiency: We are constantly working on our algorithms to improve the accuracy and performance. Social experiences in gaming: I am planning to add a new feature which I call measurements in image. This feature provides the information about the distance of the objects in an image, depth of an object or a hole and many other things related to measurements.

V. CONCLUSION

This is a better approach to make people aware about their surroundings and nature. I found that usually people don't know about common plants and trees even those in which they are surrounded by. Currently, app is still under development and needs a work done in backend. It can only identify individual objects present in an image, which is not enough. I show that I can have a better sense of what's happening around us and subsequently, we can take informed decisions when we know what type of actions are taking place in front of us. Plants & Tres Recognition leverages state-of-the-art deep learning methods to achieve this goal. I hope to solve this long going problem and help people become aware about their surroundings and nature. This application provides the easy and simple interface with minimal and Google's material design standards, so it is very easy to operate. Also, user needs to do nothing, just tap one button and information of the specific object is displayed on the user's phone screen. There are 2 main options to choose and those are capture the image to get the information about specific object or upload the image to get the information about specific object. Also, this app provides the map feature, so you can locate the usual spot of the plants or trees, this is the must have feature for some peoples like botanist or environmental students and rest curious peoples. And application provides the feedback and F.A.Q. section for helping the users understand the application in more details. The app allows user to share their result with other peoples who also uses the application to discover information about plants and trees, and another optional feature which depends on the users to let the developers store the result for improving the dataset or not.

ACKNOWLEDGMENT

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