Abstract—Automatic identification and recognition of medicinal plant species in environments such as forests, mountains and dense regions is necessary to know about their existence. In recent years, plant species recognition is carried out based on the shape, geometry and texture of various plant parts such as leaves, stem, flowers etc. Flower based plant species identification systems are widely used. While modern search engines provide methods to visually search for a query image that contains a flower, it lacks in robustness because of the intra-class variation among millions of flower species around the world. Hence in this proposed research work, a Deep learning approach using Convolutional Neural Networks (CNN) is used to recognize flower species with high accuracy. Images of the plant species are acquired using the built-in camera module of a mobile phone. Feature extraction of flower images is performed using a Transfer Learning approach (i.e. extraction of complex features from a pre-trained network). A machine learning classifier such as Logistic Regression or Random Forest is used on top of it to yield a higher accuracy rate. This approach helps in minimizing the hardware requirement needed to perform the computationally intensive task of training a CNN. It is observed that, CNN combined with Transfer Learning approach as feature extractor outperforms all the handcrafted feature extraction methods such as Local Binary Pattern (LBP) by using VGG19 pretrained model Architecture we are obtaining 88.77% accuracy for the project

Keywords—Deep Learning, Artificial Intelligence, Convolutional Neural Networks, Transfer Learning, Flower Recognition

Existing system:

identification and recognition of medicinal plant species in environments such as forests, mountains and dense regions is necessary to know about their existence. In recent years, plant species recognition is carried out based on the shape, geometry and texture of various plant parts such as leaves, stem, flowers etc. Flower based plant species identification systems are widely used. While modern search engines provide methods to visually search for a query image that contains a flower, it lacks in robustness because of the intra-class variation among millions of flower species around the world. Hence in this we are proposing deep learning model to predict efficient detection of flower species

Proposed system :

In this project we took a data from kaggle and below I am specifying description corresponding to the data set

**About Dataset**

Context

This dataset contains 4242 images of flowers.  
The data collection is based on the data flicr, google images, yandex images.  
You can use this datastet to recognize plants from the photo.

Content

The pictures are divided into five classes: chamomile, tulip, rose, sunflower, dandelion.  
For each class there are about 800 photos. Photos are not high resolution, about 320x240 pixels. Photos are not reduced to a single size, they have different proportions!

Acknowledgements

The data collection is based on scraped data from flickr, google images, and yandex images.

Problem Statement

What kind of flower is that?

In this project after downloading the data from kaggle we preprocessed the data by using computer vision package and after preprocessing the data we randomly viewing few images from data set by taking help of seaborn and matplotlib libraries and after that we are applying VGG19 architecture on the data after training model we are plotting the performance evaluation graph and confusion matrix and we added custom flower species detection also in the project so whatever the model we designed it is giving 88% accuracy