Plants are the backbone of all life and there are about 40 million plant species on Earth providing us with oxygen, food and many essential products helping for the existence of human life. A good understanding of plants is essential to help in the process of identification of new or rare plant species to improve the balance in the ecosystem. Species knowledge is important for biodiversity conservation as well. Identification of plants by conventional approach is complex, time consuming, and frustrating tor non experts due to the use of botanical terms. This project uses convolutional neural network models to perform plant species identification using simple leaves images of plants, through deep learning methodologies. Training of the model was performed by using a dataset of 184 distinct classes of plant containing 7744 plant species images.

The aim of the project is to develop an application that helps people to identify plant species using simples’ leaves images of plants without begin concerned about the knowledge of botany (study of plants). This will help us to identification of new or rare plant species to improve the balance in the ecosystem.

We are going to implement these by building our own CNN model on 184 distinct plant species. The deep learning model with conventional neural network is going to be implemented using Tensorflow and will be used in the application using an API.

A detailed study and analysis of the leafsnap datasets will be carried out in order to make conventional neural network model.

Preprocessing will be done on datasets: such as image resizing, image rescaling and data augmentation.

A CNN model is implemented with 2 dense layers.

The model is to be trained for 50 epochs with ‘adam’ optimizer and ‘accuracy’ as a metrics.

On achieving the desired results, the visualizations and a comparison between training accuracy with validation accuracy and training loss with validation loss is done.

Used FAST API as a backend for deployment and testing through postman.

The web application is created to access the model and identify the plant through plant leaves.