

# IDENTIFICATION OF INDIAN MEDICINAL PLANT BY USING ARTIFICIAL NEURAL NETWORK

AROKYA MARY<sup>1</sup>

*Dept. of MCA, Vidya Vikas Institute Of Engineering And Technology, Karnataka, India*

\*\*\*

**Abstract** - Therapeutic plants (spices) are plants that are known to have specific mixtures which are nutritious for wellbeing. In Indonesia there are 30,000 sorts of plants and 7000 of them are named therapeutic plants (spices). The human body is complicated and natural, while compound medications contain synthetic substances that are inorganic and unadulterated.

This examination will construct an arrangement of recognizable proof of restorative plant leaves by utilizing Convolutional Neural Networks. Utilizing preparing information that is done in a PC set and afterward carried out in portable based programming to perceive the sorts and advantages of restorative plant leaves recognized. The outcome demonstrates this strategy to be straightforward and a proficient endeavor. This undertaking presents recognizable proof of restorative plant in light of elements, for example, edge, region and variety based approach removed from the leaf pictures and this descriptor which have low aspect, straightforward and successful.

**Key Words:** Therapeutic plants , herbicides and pesticides , Medicinal plants , Artificial neural networks .

## 1. INTRODUCTION

India is a developed nation and around 80% of the populace relies on farming. Ranchers have huge scope of distinction for choosing different satisfactory yields and tracking down the appropriate herbicides and pesticides for plant. kind of leaf on plant prompts the persuading decrease in both the quality and efficiency of farming items. The investigations of plant sort of leaf allude to the investigations of outwardly recognizable examples on the plants. Then we use CNN Algorithm to recognize every single imaginable subset. SSD and KMeans order approach are proposed and utilized in this paper. Wellbeing of plant restorative leaf and kind of leaf on plant therapeutic leaf assumes a significant part in fruitful develop of harvests in the ranch.

Generally picture handling incorporates seeing pictures as signs while applying signal handling strategies, today is among rapidly developing innovations, its applications in different parts of a business. Picture Processing is projected center examination region inside designing and software engineering guideline as well.

Image processing basically contains the following three steps:

- Importing the picture with visual scanner or by computerized photography.
- Analyzing and taking care of the picture which incorporates information build up and picture improvement and spotting designs that are not to natural eyes like satellite photos.
- Output is the last stage wherein result can be changed picture or report that depends on picture examination.

### 1.1 Problem Statement:

The fundamental issues in regards to with crop is on the field, a quick and exact acknowledgment and grouping of the sort of leaf is expected by reviewing the contaminated restorative leaf pictures likewise perceive the seriousness of the kind of leaf .There are two primary qualities of plant-kind of leaf identification AI strategies that should be accomplished, they are: speed and precision. The harm determination of various yields and vegetables has generally been done physically.

### 1.2 Project description:

#### Objective:

The primary target of the current framework is to conquered the disservices of the current framework and fabricate a precise framework to recognize the sort of leaf in the plant restorative leaf.

#### Purpose:

The motivation behind this undertaking is to fabricate a framework which could identify the kind of leaf in the plants through the restorative leaf picture.

#### Scope:

The procedure developed into the framework is both picture handling strategies and advance registering methods.

Image analysis can be applied for the following purposes:

- To recognize sick therapeutic leaf picture.
- To measure impacted region by sickness.

3. To track down the limits of the impacted region.
4. To decide the shade of impacted region.
5. To decide size and state of restorative leaf.
6. To accurately distinguish the article.

## 2. Existing System

The current technique for plant sort of leaf recognition is essentially unaided eye perception

by specialists through which ID and discovery of plant kind of leaf is finished. For doing as such, a huge group of specialists as well as ceaseless observing of plant is required, which costs extremely high when we do with enormous homesteads. Simultaneously, in certain nations, ranchers don't have appropriate offices or even thought that they can contact to specialists.

### Disadvantages:

- Difficult to Identify the sort of leaf with unaided eyes
- Exactness is exceptionally low
- Tedious
- Recognize in early phase is problematic with long framework
- Low precision
- High complexity.

## 3. Proposed System

To distinguish the impacted region, the pictures of different leaves are taken with a computerized camera or comparable gadget. Then to deal with those pictures, different picture handling strategies are applied on them to get unique and helpful elements expected for later breaking down reason. A few procedures which are at present are being utilized to construct PC based vision frameworks utilizing highlights of plants extricated from pictures as information boundaries to different classifier frameworks.

### Advantages:

- Simple to characterize the Disease
- Preferred precision over the current framework
- Time utilization is diminished

### Image Preprocessing:

This is mostly used to wipe out the disturbance present in the image to get the clearly evident microcalcification.

### Identification of oral Asymmetry:

It is one of the huge limit to investigate oral threatening development. Disparity in the image can be assessed by enrolling the questionable concentrations starting with one oral then onto the next and reduce the irregularity to centers that have an equivalent accomplice.

### Image Segmentation:

The division of the image is performed to part the microcalcifications. The recognized microcalcifications can be accumulated into bundles using RNN gathering computation for the classifier the nearest features are considered and the new component is allotted with the sign of most frequently happening name .

## 4. System design

The plan movement is frequently partitioned into two separate stage framework plan and point by point plan. Framework configuration is additionally called high level plan. At the main level spotlight is on concluding which modules are required for the framework, the details of these modules and how the modules ought to be interconnected. This is called framework plan or high level plan. In the second level the inside plan of the modules or how the details of the module can be fulfilled is chosen. This plan level is much of the time called definite plan or rationale plan.

### 4.1 USE-CASE DIAGRAM:

Use case outline is a diagram of entertainers, a bunch of purpose cases encased by a framework limit, correspondence relationship between the entertainer and the utilization case. The utilization case chart portrays how a framework cooperates with outside entertainers; each utilization case addresses a piece of usefulness that a framework gives to its clients.

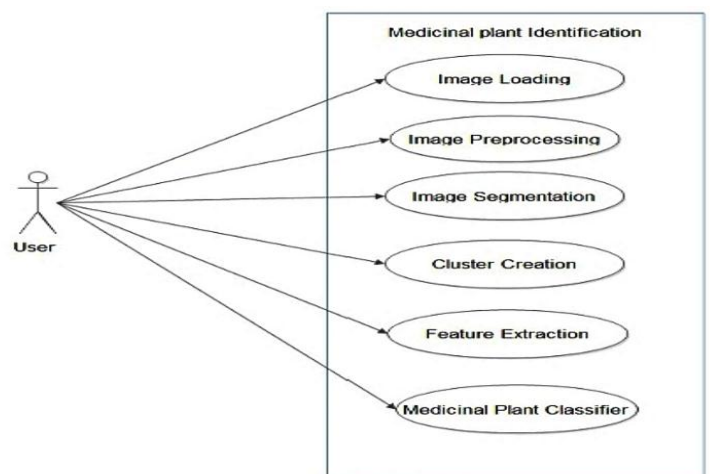


Fig 4.1: USER USECASE

**4.2 ACTIVITY DIAGRAMS:**

Movement outlines address the business and functional work processes of a framework. An Activity graph is a powerful outline that shows the action and the occasion that makes the item be in the specific state. It is a basic and natural representation of what occurs in a work process, what exercises should be possible in equal, and whether there are elective ways through the work process.

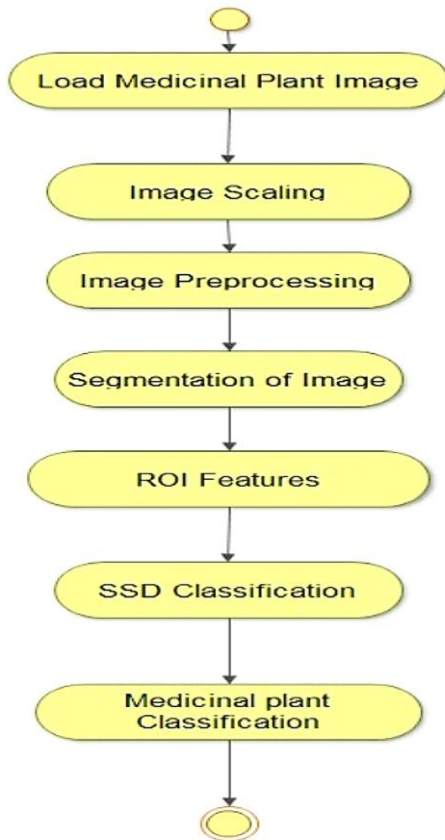


Fig 4.2 : USER ACTIVITY

**5. IMPLEMENTATION**

Execution is the most common way of changing over a new or a modified framework plan into a functional one. The goal is to put the new or modified framework that has been tried into activity while holding expenses, dangers, and individual bothering to the base. A basic part of the execution cycle is to guarantee that there will be no disturbing the working of the association. The best technique for acquiring control while embedding any new framework is utilize very much arranged test for testing every new program.

**System Implementation:**

There are three significant kinds of execution are there yet coming up next are proposed for the task.

**Phase - in method of implementation:**

In this sort of execution the proposed framework is presented stage by-stage. This diminishes the gamble of vulnerability of proposed framework.

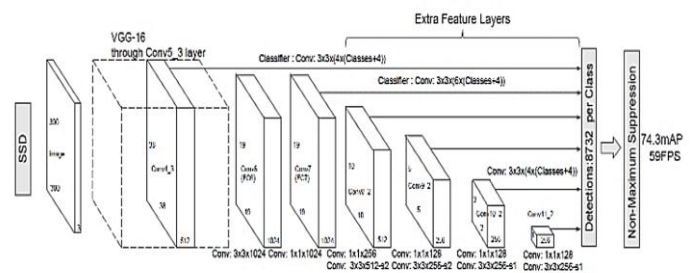
Each program is tried separately at the hour of advancement utilizing the information and has checked that this program connected together in the manner determined in the projects particular, the PC framework and its current circumstance is tried as per the general inclination of the client. The framework that has been created is acknowledged and ended up being good for the client.

**SSD Algorithm:**

The errand of item location is to distinguish “what” objects are within the given info picture and “where” they are. By giving an information picture, the calculation yields a rundown of items, each related with a class name and area (with jumping box organizes). Object discovery has been a focal issue in PC vision and example acknowledgment.

SSD makes the identification moderately extremely simple. Summing up the reasoning with a couple of perceptions:

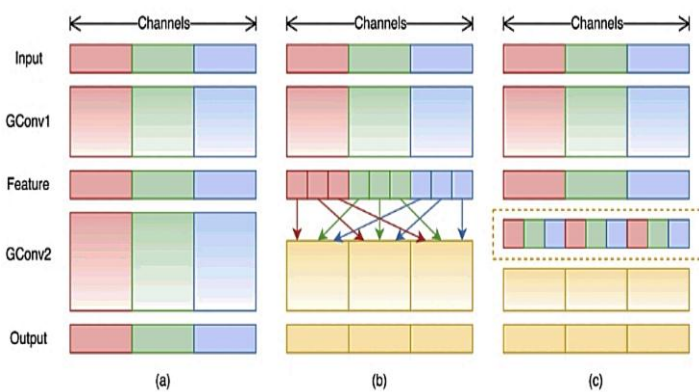
- Profound convolutional brain organizations can arrange object unequivocally against the relating change, because of the outpouring of pooling tasks and non-direct actuation.
- Profound convolutional brain organizations can foresee an item’s class as well as its exact area. SSD can plan similar pixels to a vector of four drifting numbers.



**CNN:**

A convolutional brain organization (CNN) is a sort of fake brain network utilized in picture acknowledgment and handling that is explicitly intended to deal with pixel information.

Rearranging the Dataset - Irregular rearranging of information is a standard methodology in all AI pipelines, and picture grouping isn’t an exemption; its motivation is to break potential predispositions during information planning.



6. S.Perumal<sup>1</sup> and T.Velmurugan<sup>2</sup> " Preprocessing by Contrast Enhancement Techniques for Medical Images"; published in International Journal of Pure and Applied Mathematics Volume 118 No. 18 2018, 3681-3688 .

7. Nourhan Zayed and Heba A. Elnemr "Statistical Analysis of Haralick Texture Features to Discriminate Lung Abnormalities"; Published in International Journal of Biomedical Imaging / 2015 Article ID 267807

## 6. CONCLUSIONS

In this project we have implemented a technique for medicinal plant identification using CNN, SSD, K-MEANS, an ensemble supervised machine learning algorithm based on color, texture and geometrical features to identify the correct species of medicinal plant. The combination of shape, color and texture features result in correct leaf identification accuracy of 94.54 %. The results shown in this technique are very promising and thus indicate the aptness of this algorithm for medicinal plant identification systems. This work can be extended to a larger number of plant species with improved accuracy in the future.

## REFERENCES

1. Arti N. Rathod, Bhavesh A. Tanawala, Vatsal H. Shah, "Leaf type of leaf Detection using Image Processing and Neural Network", International Journal of Advance Engineering and Research Development (IJAERD) Volume 1, Issue 6, June 2021.
2. Dileep M.R., Pournami P.N. "AyurLeaf: A Deep Learning Approach for Classification of Medicinal Plants"; published in TENCON 2019 - 2019 IEEE Region 10 Conference (TENCON)
3. Manojkumar P., Surya C. M., Varun P. Gopi "Identification of Ayurvedic Medicinal Plants by Image Processing of Leaf Samples"; Published in 2017 Third international conference on research in computational intelligence and communication network (ICRCICN) .
4. Sujit A. , Aji. S "An Optimal Feature set With LPB for Leaf Image classification"; Published in Proceedings of the Fourth International Conference on Computing Methodologies and Communication (ICCMC 2020) IEEE Xplore Part Number: CFP20K25-ART; ISBN: 978-1-7281-4889-2 .
5. Amala Sabu, Sreekumar K, Rahul R Nair "Recognition of Ayurvedic Medicinal Plants from Leaves: A Computer Vision Approach"; Published in 2017 Fourth International Conference on Image Information Processing (ICIIP) .