IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 3, May 2024

Medicinal Plant Classification and it's Identification

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Abstract: *Indian Ayurvedic Medicine reached international level The basis of Ayurveda is herbal medicine. The pharmaceutical industry is starting to pay more. Be careful with herbs because their side effects and consequences are less than modern medicine and at the same time they are very expensive. The company efficiently and reliably uses leaf images from many deep and machine learning algorithms developed in recent years. In this study, leaves of 45 different medicinal plants were used and the deep learning method was used. A number of classification and identification methods were used using computer vision technology to achieve the best results. There are many medicinal plants according to the classification of the paper plant.*

Keywords: Deep study, classification, medicinal plants, medicinal herbs, medicinal herbs

I. INTRODUCTION

Since then, Ayurveda has been called the mother of all medical sciences. It is an ancient healing method using medicinal plants common in the Indian region. According to historical records, the tradition of Ayurveda dates back more than 5,000 years and was developed by the sages of ancient India. Early researchers believed that plants could cure various diseases. illness. They tried to find the medicinal properties of various plants. Drugs developed today have fewer side effects. Manual identification of medicinal plants is time consuming and requires procedures. Automated methods to identify and classify medicinal plants will ultimately bring many benefits to societies needed to solve this problem. One of the currently most active research areas in the field of image processing is related to the detection and classification of various medicinal herbs/plants. This required various procedures; the most important of these were applied to the extraction and classification of features, both with an accurate definition of the classification system as a whole. Professionals, herbal and cosmetic industries benefit from this solution due to the type of information and storage provided through the identification and classification process. To distinguish between similar types and different types, Clarity is the most important parameter to consider. It is quite suitable for detection purposes.

II. LITERATURE SURVEY

This section provides an overview of various methods for identifying and classifying plants. Species in leaf photographs. In [1], CNN architecture was used to train the collected data and develop a high-level real-time system. 96.67% success in finding the right herb is a direct result of using deep learning methods. It is used in this research [2]. Support vector machines, transfer model-VGG16 and you see the only way to classify medicinal plants from their leaves. Actually the transfer is 98% complete, SVM GridSearchCV has completed 97 of the hyperparameter optimization, and I won't check it until you get to 84%. Paper [3] used CNN to identify Indian leaf species. Three pre-trained CNNs were selected using architectural transfer: InceptionV3, VGG16, and ResNet101. Validation of InceptionV3 accuracy and F1 scores were 0.9732 and 0.9653. In this work [4], CNN was combined with dynamic classification results using entropic pollution. VGG16, ResNet50 and Inception V3 are used. The robustness method was CNN Resnet50 97. 4. The aim of this study [5] is to develop a neural network. "AousethNet" is a modified version of AlexNet. Feed AousethNet 98. 61. Used in this work [6]. Borders are based on region and color. HOG and LBP were used in the sampling process. Two-way SVM offers 99% accuracy. In this study [7], deep learning was used to classify paper images. Five medicinal herbs. The success rate of the study was 86%. Drug detection methods are described in

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[8]. plants according to leaf characteristics and preparation techniques. In this paper [9] the authors focused on image extraction and classification of various plants in Malaysia, including Belalai Gajah, Rerama, Sirih, Mexican Mint and Senduduk. Each image has a total of 14 features: 7 geometric features and 7 structural features . Learn how Sobel can accurately distinguish images and calculate the shape of green leaves. ResNet50 [10] was used to accomplish this task. The architecture was validated on four different datasets. One of them is an original dataset of leaf images collected from the internet. The remaining three data sets were obtained from publicly available sources. MK-D1 and MK-D2 have 99.05 and 99.89% specifications. , Flavia's dataset has a staggering . The article [11] describes research on various methods of identifying medicinal plants from the shape and form of leaves. Computer vision methods have proven superiority and provide examples from tree leaves. A study [12] classified different leaf types and growth stages using a CNN-based system. It is a CNN-controlled computer display with tenfold cross-stepping and 99% accuracy. Scores achieved when sorted by leaf type and growth stage. K-NN algorithm is used in the classification process.

The aim of this study [16] is to investigate how different legal masks affect the labeling of vegetal leaf images. It was observed that the filter derived from the law source with length 9 had the highest classification (90.27%). Various techniques reviewed and presented in this paper include image enhancement, feature extraction, and classification [17]. All deductions are approximate. Finally, they found that up toK-nearest neighbors (KNN) classifiers can be developed automatically. In this article [18] researchers look at the history of machine learning techniques used to classify plants based on the images of their leaves and discuss their effectiveness and reliability. Techniques used in image processing to identify leaves and extract important leaf features for use in various machine learning processes are discussed.

In this study [19], pre-trained VGG16 and AlexNet networks were used to classify 11 different leaf diseases and the comparison between the two methods was shown. The classification accuracy of VGG16 was found to be higher. This work shows how traditional classifiers such as logistic regression [lR] and SVM can be combined with MPEG-7 color and feature descriptors to obtain better results on different classes [20]. In this study, [21] and in this study [23] compared ML (SVM, SGD, RF) and DL (Inception-v3, VGG-19, VGG-16) to detect citrus diseases. VGG-16 has a high accuracy (89. 5% in DL technology. In this article [24] leaves are classified according to their specific composition. When testing a large portion of the data, up to 99% of the data's characteristics are recorded. In this study [25] the researchers consider the group that recorded stages of analysis, both on the surface of the green leaf and its morphological characteristics, in order to determine the best possible conditions for determining the truth.

III. RESEARCH METHODOLOGY

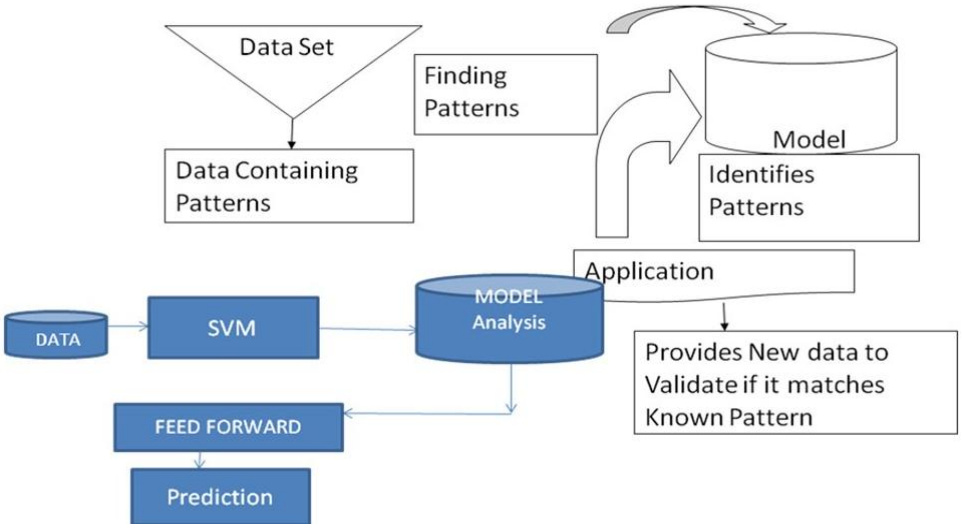

Fig. 1 System Flow Chart

All The retraining of a convolutional neural network to classify a new set of images can be accomplished with the help of transfer learning. One is able to take a network that has already been pretrained and use it as a foundation for

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learning a new task. It is typically much more time-consuming and challenging to train a network from scratch with randomly initialised weights than it is to fine-tune network using transfer learning, which can be done much more quickly and simply. With fewer training images needed, it is possible to quickly apply previously learned features to new tasks. The procedure for retraining a convolutional neural network to classify a new dataset of images using transfer learning is outlined in the following flowchart.

IV. PROPOSED SYSTEM

- User Dataset Generation
- interface model
- Data processing
- Data Analysis system
- Interfacing Algorithm
- Predication analysis

The purpose of edge detection

1. **Detection:** The probability of detecting real points should be high, and the probability of false detection of non-edge points should be reduced. This corresponds to the signal-to-noise ratio.
2. **Identification:** The detected edges should be as close to the real edges as possible.
3. **Number of solutions**: A factual party may not arise from more than one party (you can say that this is included in the previous requirement). Thanks toCanny's numbers for these parameters, Canny's Edge Detector is ideal for:a particular class of edges (known as steps). The C# implementation of the algorithm is shown here

4.1 Machine Learning

Convolutional Neural Network (CNN) is a type of deep learning algorithm that is especially suitable for image recognition and processing tasks. It consists of various parts, including assembly part, integration part and complete part.

Perceptual features are an important part of CNN, where a filter is applied to the input image to extract features such as edges, shapes, and features. The output of the verification process is then passed through a fusion layer used to compare between maps, reducing spatial dimensions while preserving important information. The output of the integration is then passed through one or more fully integrated layers, which are used to predict or classify the image.

4.2 System Implement

- Dataset Generation
- User interface model
- Data processing & Analysis system
- Predication analysis
- Feedback System

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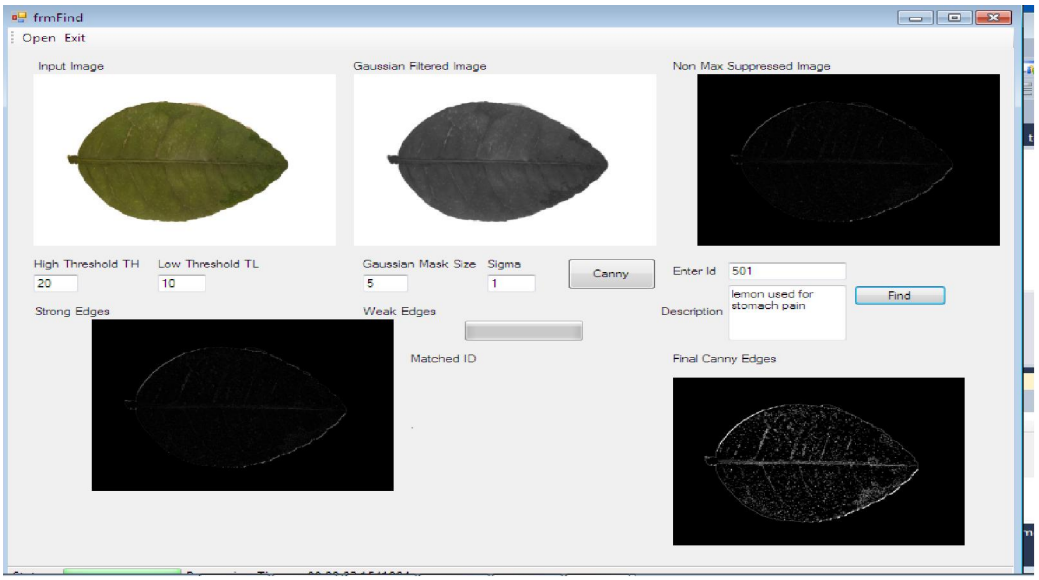

Fig 2. Detection by image

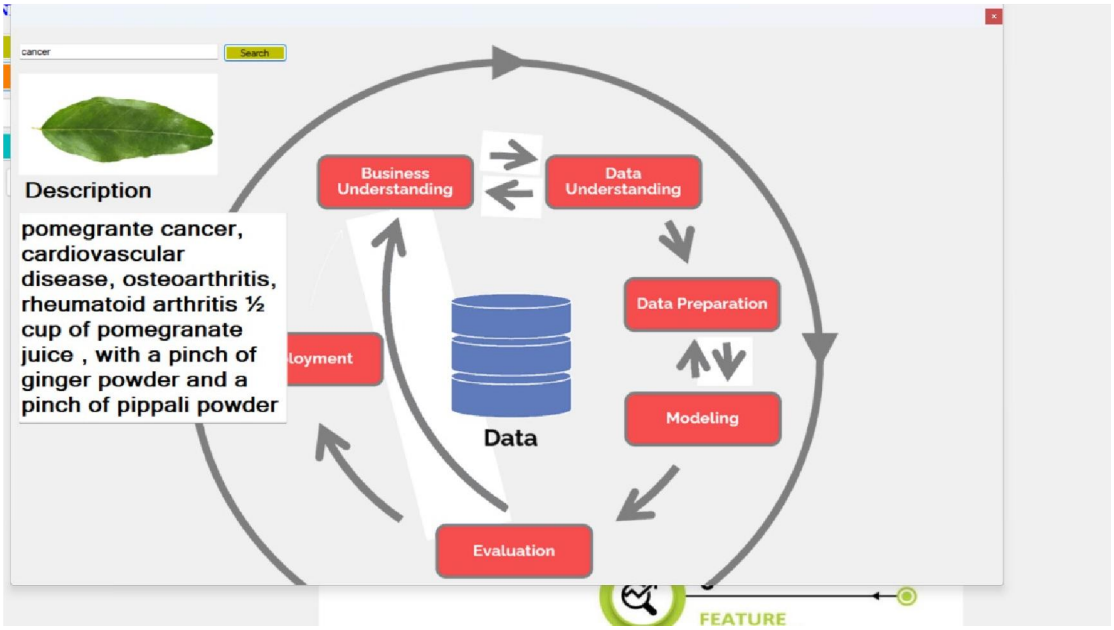

Fig 3 Detection by disease

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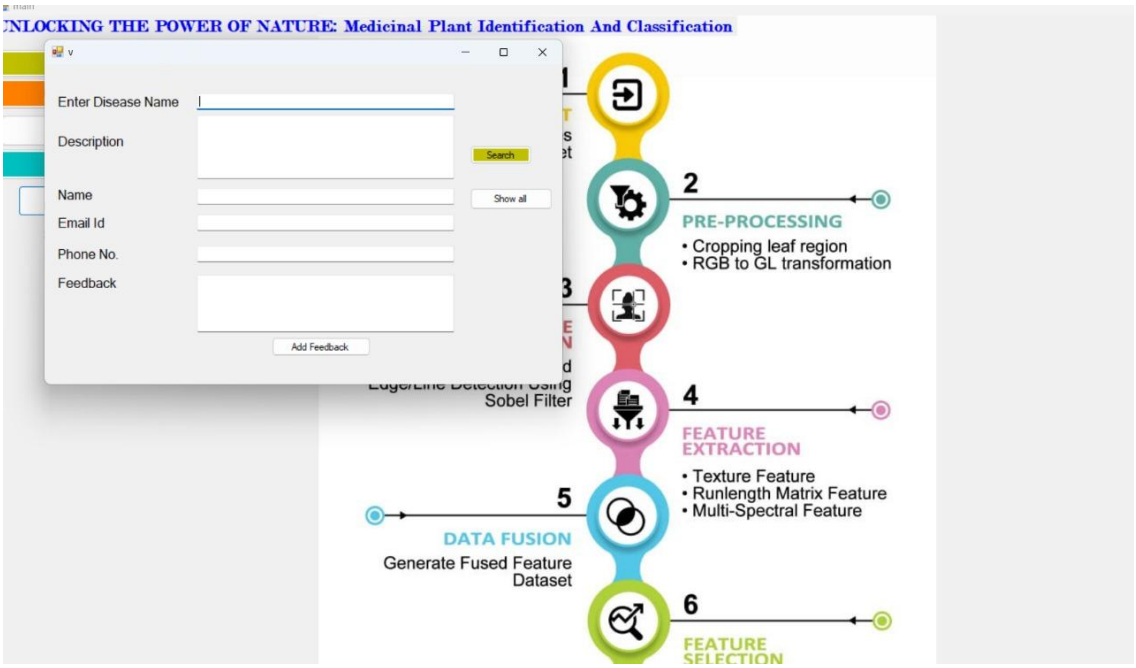

FIG 4 FEEDBACK

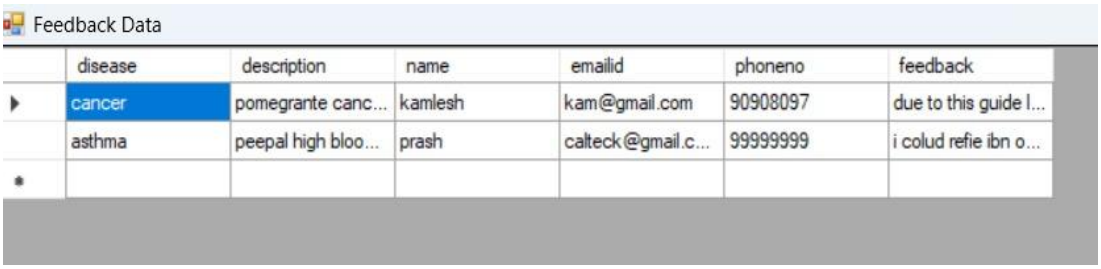

Fig 5. Feedback Output

The feedback system provide the experiences of each human according the there body condition and acceptability. so by using deep machine learning algorithm like deep belief networks (DBNs) we can provide the accurate and precise prediction and analysis for the to have the right solution for it.

V. CONCLUSION

This study analyzed 45 different plant species. Classify in all 45 categories, the accuracy of the pre-trained model was determined satisfactory and achieved an accuracy of 97.65%. It is as possible as the future to design a custom deep learning model to implement classification to recognize medicinal plants and compare the effects of different ones models.

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