BotaniX : Herbal Insights at Your Fingertips

Category 6 : Medicine & Pharmacy   **Slot No:**   **Level: UG**

Introduction

- India, with a rich heritage of floral diversity, is well-known for its medicinal plant wealth, but their identification is one of the major burning issues in Ayurvedic Pharmaceutics.
- Several crude drugs are being sold under the same name in the market leading to confusion and their misidentification.
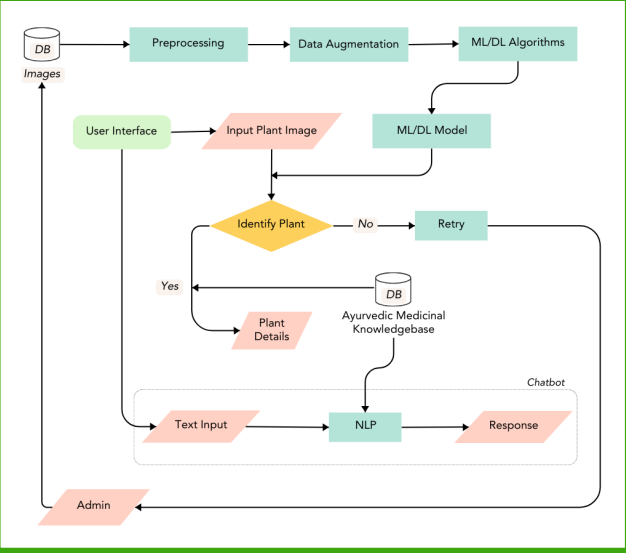
Objectives

- Comparative analysis of existing image processing algorithm for plant identification.
- Develop an image processing algorithm for accurate plant identification.
- Design an intuitive user interface for a user-friendly chatbot for additional details on plant properties, cultivation, and usage.
- Implement a machine learning model using LLMs as a chatbot feature.

Literature Survey

Dataset	Model used	Accuracy	Ref.
Dataset from Vaidyaratnam Ayurveda College 64 classes	CNN	95.79%	1.
	VGG16	97.8%	
	VGG19	97.6%	
LeafSnap Dataset	Inception-V3	96.61%	2.
Custom, Ayurleaf	Ayurleaf-AlexNet	96.76%	3.

System Architecture

Convolutional Neural Network

Workflow

DL Model

EfficientNetB7 & customized layer

Results and Discussion

Output:

Image Identification Output

Chatbot Output

Comparative Analysis:

Precision, F1 Score and Accuracy

Outcome

- **"BotaniX: Herbal Insights at your Fingertips"** stands as a pivotal resource that aligns with the **Ministry of AYUSH**'s vision for promoting Ayurveda and traditional herbal medicine.
- Its development represents a significant step towards harnessing technology to preserve, disseminate, and leverage the rich heritage of Ayurvedic plants for the benefit of humanity.
- "BotaniX" empowers individuals, practitioners, and researchers to make informed decisions.
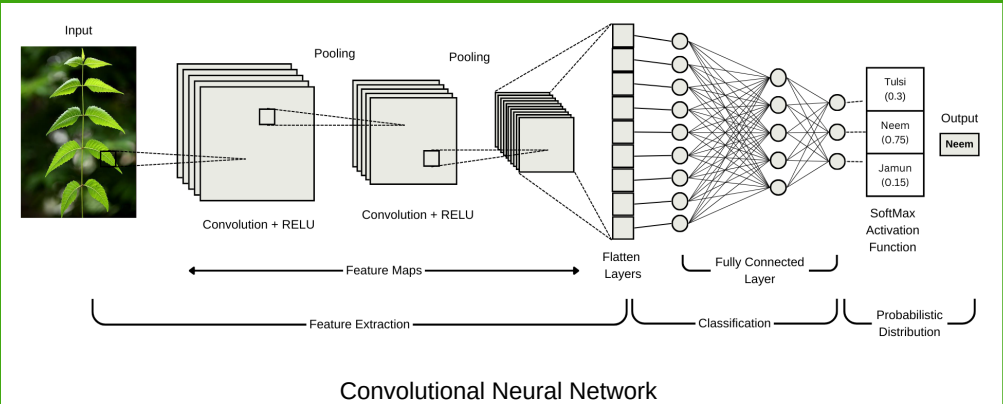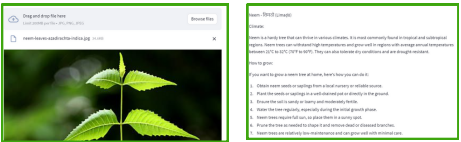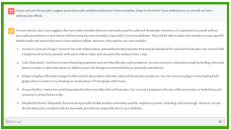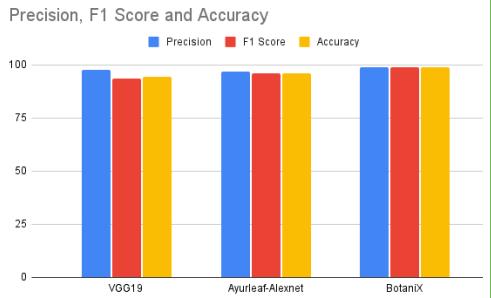
Conclusion

- **"BotaniX: Herbal Insights at your Fingertips"** epitomizes the convergence of advanced technical methodologies such as **Machine Learning (ML)**, **Computer Vision**, and **Convolutional Neural Networks (CNN)** with the profound wisdom of Ayurveda.
- Through the application of these cutting-edge technologies, the program provides a seamless and intuitive platform for identifying and accessing detailed information about Ayurvedic plants.

References

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2. C. Sabarinathan, A. Hota, A. Raj, V. K. Dubey, and V. Ethirajulu, "Medicinal plant leaf recognition and show medicinal uses using convolutional neural network," Int. J. Glob. Eng., vol. 1, no. 3, pp. 120–127, 2018

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