

INTEGRATION OF DENSENET AND YOLO FOR MEDICINAL PLANTS AND RAW MATERIALS DETECTION

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India's rich tradition of utilizing medicinal plants, deeply rooted in its cultural heritage, underscores the importance of accurate identification for the efficacy of Ayurveda formulations. With over 8000 species, precise identification is crucial, especially considering that 80% are sourced from natural habitats. Conservation of medicinal plants is imperative for biodiversity and traditional healthcare systems, facing threats from urbanization, habitat destruction, and climate change. To address these challenges, this paper proposes a comprehensive solution for the identification of medicinal plants and the detection of raw materials using advanced technologies. Leveraging Image Processing and Deep Learning Techniques, the software accurately identifies medicinal plants, revolutionizing the Ayurveda supply chain. Integrated with the Flask framework, users can easily upload images for analysis and receive real-time results on plant identification and raw material detection. Furthermore, the project implements YOLO object detection for precise localization of plant parts, ensuring the efficacy, authenticity, and sustainability of Ayurvedic products. Beyond Ayurveda, this application extends to areas such as Ethno botany research, environmental conservation, and pharmaceutical quality control, offering versatile solutions for industries reliant on plant-based resources. In conclusion, automated identification of medicinal plants in India is crucial for harnessing their therapeutic potential, conserving biodiversity, and promoting sustainable healthcare practices. Collaborative efforts between stakeholders are essential for effective documentation, conservation, and utilization of India's diverse medicinal flora in modern healthcare systems.