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Project Title : AYUSH Virtual Herbal Garden: An Interactive Guide to Medicinal Plants and Ayurvedic Remedies with AI-Powered Plant Identification

Abstract :

The Virtual Herbal Garden is a comprehensive and AI-driven platform designed to offer an interactive, immersive, and educational experience that highlights the diverse medicinal plant knowledge rooted in India's traditional AYUSH systems—Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homeopathy. The project introduces users to a 3D virtual herbal garden, crafted using A-Frame and accessible via web browsers, where they can freely navigate through a realistic garden environment, interact with lifelike plant models, and explore their therapeutic uses. An integrated Plant Information Module enriches this experience by providing in-depth details on each medicinal plant, including scientific names, classifications, healing properties, and traditional applications, presented dynamically through Flask, SQLAlchemy, and Jinja2. To bridge tradition with personalization, the platform includes a Medicine Recommendation Module, which, based on the user's health input, suggests Ayurvedic formulations derived from classical texts, complete with ingredients, preparation methods, potential side effects, and dietary advice. Further supporting holistic health, the system suggests Yoga postures that align with specific ailments, fostering physical and mental well-being through curated yoga routines. Users can also leverage an advanced Plant Identification feature, where uploaded plant images are analyzed through a machine learning model (ResNet50 and EfficientNetB0 fine-tuned via TensorFlow and Keras), ensuring accurate species classification even with similar-looking leaves. To promote inclusivity and accessibility, the platform incorporates a voice-based search system using the Web Speech API, a text-to-speech feature for auditory learning, and multi-language support including English, Telugu, and Hindi, allowing users to interact in their preferred language. The user experience is further enhanced with search and filter functionality, enabling users to find specific plants based on names, benefits, or classifications. A feedback system is also integrated to collect user input for ongoing improvement. Each plant profile is equipped with a QR code generator and download option to facilitate easy sharing and quick access. Additionally, the platform includes a dedicated Herbal Teas Module, offering recipes and health insights into natural infusions like tulsi, ginger, and mint, promoting wellness through everyday herbal practices. Altogether, this project not only preserves and digitizes ancient Indian healing wisdom but also empowers users with modern tools to engage with it in a meaningful, accessible, and user-friendly manner.