

Virtual Garden for Ayurvedic Plants

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Abstract - The Virtual Medicinal Plant Garden is an online resource that focuses on the cultivation and application of AYUSH (Ayurveda, Yoga, Naturopathy, Unani, Siddha, and Homeopathy) medicinal plants. The audience can rotate and see the various plants displayed as 3D models. The user gets valuable insights into each plant model like its family name, pharmaceutical uses, techniques of planting, etc. This comes along with pictures and videos as additional learning. This Virtual Herbal Garden endeavors to make the wisdom of herbal medicine traditional and modern at the same time. It's an attempt to combine the traditional way of thinking with that of today's multimedia techniques.

Keywords: Virtual Garden [Virtual Herbal Garden, 3D plant models, AYUSH, medicinal plants, multimedia learning.]

I. INTRODUCTION

An Virtual Herbal Garden is a potential solution for the lack of simple and appealing materials on conventional medicine plants, specifically those in the AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy) area. Sociologists and practitioners frequently draw attention to these plants, but the information is mostly presented in dull informational and resource books that are uninspiring, static in nature, and unappealing to the contemporary audience. The project solves this problem as well – it is aimed at creating interactive 3D tutorials about medicinal plants, which reveal their characteristics, medicinal properties, and methods of cultivation. Enriched with graphic support in the form of pictures and movies, the platform serves to make the subject of medicinal plants easy to understand .

II. LITERATURE REVIEW

The non-existence of interesting and engaging interactive resources on traditional medicinal plants, which I would urge is a particular problem in the case of AYUSH, has always been a stumbling block in the spreading of knowledge regarding its effectiveness. The significance of medicinal plants has been stressed by sociologists, researchers, and even practitioners of the AYUSH systems, but most information is still available in texts and non-interactive formats which

don't attract people of the virtual world. Even though traditional and reference books and materials are informative, they are often not interactive in nature and the subject is neither entertaining nor user friendly in terms of visual presentation.

III. RELATED WORK

The use of interactivity and engaging content through the use of immersive tools in e-learning platforms has been on the rise- with the hope of increasing participation and comprehension. Just like in the use of AI-based chatbots for providing better services, digital resources, which are focused on medicinal plants, began to transform from dull and wordy documents to vibrant and engaging content. It has been confirmed that educational platforms leveraging 3D models and other immersive forms of content together with customization have the potential to not only improve educational experience, but also the content itself. For example, 3D images, sound and in some cases, videos as well as other forms of interaction make it easier for users to learn about difficult concepts in a realistic way and therefore improve understanding and retention. For instance, a number of educational websites in the fields of botany and herbal medicine used 3D graphics for the virtual interaction of users and vegetation. The models in question facilitate comprehension of the configuration of plants, how they are used for treatment, as well as the methodologies of growing them, which are hard to pass using textbooks. The addition of multimedia, such as images and videos, further enriches the learning experience, making it both educational and engaging. Unfortunately, despite the advances in technology many educational tools currently available are still limited

IV. SYSTEM DESIGN

The Virtual Herbal Garden machine, advanced using Unity three-D, is designed to provide a seamless, consumer-pleasant academic enjoyment, integrating interactive 3D models, detailed plant information, and customized functions right into a unified platform. The machine leverages Unity's capabilities, together with

the 3-person controller and terrain system, to create an engaging, interactive environment where users can discover virtual plant life. At the core of the gadget is the User Interface Layer, which incorporates a homepage with featured plants, designated plant pages, and an interactive search bar for easy entry to plant statistics. The Application Layer includes interactive 3-D fashions of vegetation, created using pre-made plant fashions included in Unity 3-D, which users can discover to learn about plant characteristics, medicinal uses, and cultivation methods. The terrain machine in Unity is used to create realistic virtual environments for the flora, improving the overall immersive experience. Additionally, the machine contains search and clear-out functionalities to help customers find particular flowers primarily based on standards like medicinal uses or boom conditions. The plant records layer shops detailed data on botanical descriptions, medicinal homes, and cultivation techniques, presented in a reachable and tasty layout. The Data Layer shops plant-associated statistics, permitting the device to it should respond to personal queries. The Integration Layer allows easy interactions among the system's additives, ensuring steady, real-time record exchanges between the frontend interface and the backend database. This integrated design prioritizes ease of navigation, short-load instances, and reliable get-right of entry to statistics, offering a cohesive, dynamic getting-to-know enjoyment.

V. METHODOLOGY

The development of the Virtual Herbal Garden follows a well-organized approach to create an engaging and user-friendly platform. This platform is designed to educate users about medicinal plants, especially those from the AYUSH sector. The methodology consists of four key steps: survey and data collection, system design and development, content integration, and testing and deployment.

A. Survey and Data Collection

The first step is to find the needs and interests of users. A survey is conducted to gather insights into their knowledge of medicinal plants, particularly those used in traditional medicine. Through this survey, we learn what kind of information users are looking for, such as plant properties, their medicinal uses, and how to cultivate them. This research revealed that users prefer an interactive and visually engaging experience when learning about plants. They want easy access to detailed plant information, and the ability to explore

different plants at their own pace. The results from this survey inform the features of the Virtual Herbal Garden, ensuring that the platform aligns with the users' needs for both education and enjoyment.

B. System Design and Development

In this phase, we focus on creating an intuitive and immersive experience. We chose Unity 3D to develop the platform because it allows us to build an interactive 3D environment. The garden is designed to be visually appealing, with pre-made plant models that represent various medicinal plants. These models are detailed with information about each plant's characteristics, medicinal uses, and cultivation methods. Unity's third-person controller and terrain system are used to create a virtual space where users can navigate through the garden, explore different plants, and interact with the information. The user interface (UI) is designed to be simple and user-friendly, making it easy for users to navigate between plant pages, search for specific plants, or filter them based on particular traits like medicinal uses or growth conditions.

C. Content Integration

Once the system is set up, we integrate the educational content. This includes providing detailed, accurate information about each plant's botanical features, medicinal uses, benefits, and how to cultivate them. High-quality images are used to complement the 3D models and make the experience visually rich. The information about each plant is linked to the corresponding 3D model so users can click on the plant and get detailed information right away. To make the experience more personalized features like bookmarking and note-taking are added, allowing users to save and revisit plants they are particularly interested in. This gives users a way to track their learning and explore plants in-depth according to their preferences.

D. Testing and Deployment

Testing is an important phase to ensure that everything functions smoothly. We test the interactive 3D models, the accuracy of the plant information, and the effectiveness of the search and filter features. We also check that the UI is intuitive and responsive, ensuring that users can easily navigate through the garden. If any issues are found during testing, they are resolved to improve the overall user experience. After thorough

testing, the platform is ready for deployment, making it available for users to explore the Virtual Herbal Garden. Users can now interact with the plants, learn about their uses, and enjoy a unique educational experience.

VI. RESULTS AND DISCUSSION

This Unity project showed promise in the development of a Virtual Herbal Garden, its purpose specifically being to design an interactive 3D environment through the terrain system and third-person controller, thus offering the potential of increased user involvement and an immersive learning experience with medicinal plants. Including pre-made 3D models of various medicinal plants in a lifelike virtual setting also makes this a project that covers all key user needs in terms of content to be informed by and of an interactive learning experience.



Fig 1 Unity interface

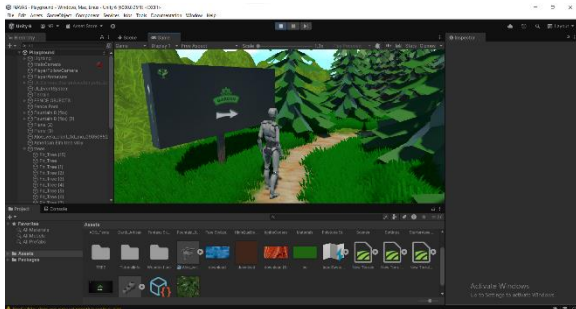


Fig 2 3-D interface



Fig 3 Tree models

VII. FUTURE SCOPE

The Virtual Herbal Garden is an excellent example of how technology can enhance the education experience. With a combination of 3D technology and nature, we can teach in a much more interactive way. The platform integrates Unity’s terrain system, utilizing prefabricated three-dimensional models and third-person navigation, enabling a highly interactive, active learning atmosphere. Learning is made entertaining and simple as students can use a virtual reality device to see and touch different kinds of medicinal plants. The aim of the garden is to make it more interactive and focus on the needs of the user while making sure everyone can comprehend and learn from the content. The platform meets its purpose of teaching botany through offering sophisticated and easy to use features. A better comprehension of plant sciences is achieved with the assistance of the Virtual Herbal Garden, while also instilling a sense of responsibility towards the environment.

VIII. CONCLUSION

In conclusion, the Virtual Herbal Garden exemplifies the transformative potential of immersive 3D environments in educational applications. By integrating Unity’s terrain system, predefined 3D models, and third-person navigation, the platform offers a dynamic and interactive learning experience that makes exploring medicinal plants both accessible and engaging. The garden ensures a tailored and inclusive experience for a diverse audience. The Virtual Herbal Garden is poised to set a new benchmark in botanical education, merging technology and nature to create lasting impacts in the field of plant sciences.

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X. REFERENCES

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