Medical Plants Recognition using Image Processing

Project Context

The identification and classification of medicinal plants could be revolutionized by a method called plants recognition employing image processing. Traditional and folk medicine around the world frequently use medicinal plants to treat a variety of illnesses. However, as many species of these plants share visual traits and can be hard to tell apart from one another, correctly recognizing these plants can be difficult.

Even now, it is clear that identifying therapeutic plants is difficult. The accuracy of correctly recognizing medicinal plants remains low. Because the researchers saw this gap, they set out to create an application that would assist users in improving their accuracy in identifying medical plants. The capstone project, "Medical Plants Recognition Using Image Processing," aims to identify medical plants. The program will allow the user to capture plant leaves. The photograph will then be processed by the app, which will extract the color, texture, and shape of the leaves. The processed image will next be compared to the database, displaying the recognized medical plants.

The creation of a database of medicinal plants is one potential project setting for the recognition of medical plants using image processing. Based on their visual qualities, this database could be used to precisely identify and categorize many kinds of medicinal plants. Researchers and healthcare practitioners might utilize the database to locate and obtain details about certain plant species, including their therapeutic qualities and prospective applications.

Another potential project context for medical plants recognition using image processing is in the development of a mobile app for identifying medicinal plants in the field. This app could use image processing algorithms to accurately identify and classify different species of medicinal plants based on their visual characteristics. The app could be used by traditional and folk medicine practitioners, as well as by researchers studying the medicinal properties of different plant species.

In general, the identification of medicinal plants using image processing has the potential to be much more accurate and efficient, and it can also speed up the creation of new medications and other medical items. It could have a significant impact on the field of traditional and folk medicine and help people all over the world who use medicinal plants to treat a variety of illnesses.

Objectives of the Study

General objective – the general objective of the study is to develop a Medicinal Plants Recognition using Image processing to easily recognize essential medicinal plants.

Specific Objectives

Specifically, the project aims the following objectives:

1. To design an application that will easily identify medicinal plants.
2. Develop and app that display information coming from experts about a certain medicinal plant.
3. To provide an accessible and available source of information to identify unfamiliar medicinal plants.
4. The application will be simple, reliable and easy to use.
5. Complete the development of the system according to the timeframe or project schedule.
6. **To produce documentation that records the phases, task and deliverables of the study.**

Significance of the Study

The success of the project will benefit the following individuals or groups:

Medicine Industry. The success of the project will highly benefit the target end-users of the system. They can be individuals from pharmaceutical companies that are developing drugs that involves medicinal plants or any individuals who are trying to recognize medicinal plants. This application will help them easily recognize and identify the plants accurately.

Researchers. The success of the study will further enhance their skills and knowledge in developing successful projects.

Future Researchers. If they want to develop their version of the application they can use the study as the basis or foundation.

Using image processing, it is possible to recognize and categorize various species of medicinal plants based on their visual properties. This method is known as plants recognition application, specifically intended for medicinal plants. This technology offers a wide range of advantages in terms of precision and effectiveness as well as other possible applications.

One of the key advantages of utilizing image processing to identify medicinal plants is its capacity to deliver precise and trustworthy identification of various species of medicinal plants. Manual inspection and comparison with reference materials are two common traditional methods of plant identification that can be time-consuming and error-prone. On the other hand, image processing algorithms can correctly categorize plants based on a variety of visual traits, such as color, shape, texture, and patterns. By doing so, the possibility of identification errors is decreased and the proper plant species is employed for therapeutic purposes.

Features of the System

- **Medicine Plant Database** - this database contains all the information as well as images of specific Medicinal Plants. This is where images are compared when captured by the camera of the application to identify the plants.
- **Medicine Plant Identification Module using Camera** - this module capture the medicinal plants and process and compared it to the database of the Medicine Plant.
- **Document Search Module** - this module allow document search to process data about the captured medicinal plant.
- **Gallery Module** - this module allow managing and viewing of medicinal plants captured.
- **Output Prediction Module** - this module allow prediction of the captured medicinal plants.
- **Export Module** - this module will export the output of the captured and processed medicinal plants.
- **Summary Report Module** - this module allow viewing and printing reports of the medicinal plants images and information.
- **Social Media Sharing Module** - this module will allow the admin to share to social media the image and information of the captured medicinal plants.

Conclusion

Technology is the use of information for the goal of designing, producing, and utilizing goods and services, as well as organizing human activities. Technologies have a broad influence on our age today, and with all of this technology, the new generation is truly pioneering. The capstone project proposed the creation of Medical Plants Recognition through Image Processing. Following the development phase, the program underwent a number of tests before being delivered to the intended end users.

The result of the study showed that the developed application is highly reliable in accurately recognizing medical plants. The application will provide an easy and accessible way in identifying medical plants which is highly important in medicine industry. These applications prove to be effective and highly usable for its purpose.

Recommendations

The study's impressive findings spurred the researchers to vigorously advocate for the system's implementation. The method is highly recommended due to the effectiveness and dependability it may supply to the desired audience. The researchers of the study highly recommend that the medicine industry should adapt the use of the application to help them identify and recognized different medical plants that are used to develop various medicines.

Summary

The user will be able to capture the leaves of the plants utilizing Medical Plants Recognition using Image Processing. The photograph will then be processed by the app, which will extract the color, texture, and shape of the leaves. The processed image will next be compared to the database, displaying the recognized medical plants. The study's findings revealed that the developed application is highly accurate in recognizing medical plants. The application will make it simple and easy to identify medical plants, which is critical in the medical field. This program has proven to be useful and highly useable for its intended purpose. The study's researchers strongly propose that the medicine sector modify the use of the application to help them diagnose and recognize different diseases.