ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 8| Issue: 7| July 2022|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2022: 8.205 || ISI Value: 1.188

APPLICATION OF PLANT IDENTIFICATION AND MOBILE LEARNING APP

Assistant Professor Dr. Dharani N.V , Meghana D.H
[1]*Professor of Dr Ambedkar Institute of Technology ,Dept of MCA,Bangalore-560056,Karnataka ,India*
[2]*Student of Dr Ambedkar Institute of Technology ,Dept of MCA,Bangalore-560056,Karnataka ,India*

ABSTRACT

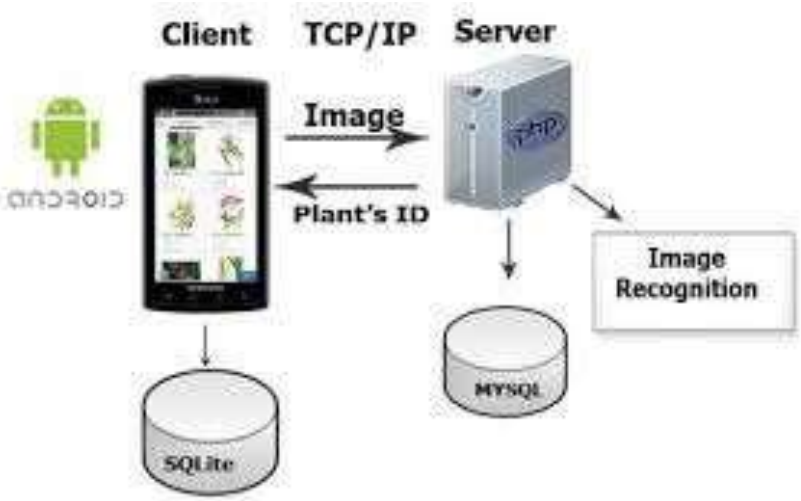
This paper presents an Android application for plant identification. The system relies on the observation of plant images. Unlike other mobile plant identification applications, the user may choose the plant characters that will guide the identification process. The application achieves good identification accuracy and provides Android users a useful system for plant identification ,Plant monitoring is seen as one of the most important task in any farming or agriculture based environment.

KEYWORD: ***Android application , plant identification, diseasesindentification.***

INTRODUCTION

Identifying plants is a challenging task considering thelarge number of existing species in the world. This application is intended for mobile devices to allow a user to identify plant on the spot. The given circuitry detects changes in the moisture, temperature and light conditions in and around the plant, and performs a machine based curation on the plant by providing necessary irrigation and illumination for the plant. Machine curation is also integrated with active weather forecasting systems which are deployed inthe cloud based server using which advanced machine curation is performed. For user based curation, the Android device provides user an option to override a machine curated operation.

".The main motivation of the project is for the user to monitor the plants or cultivation to get enough resources such as light and water without the user need to be present at the plants or cultivation area, and also could manipulate the resources provided to the plants depending on the climate of the plant's location.



ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 8| Issue: 7| July 2022|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2022: 8.205 || ISI Value: 1.188

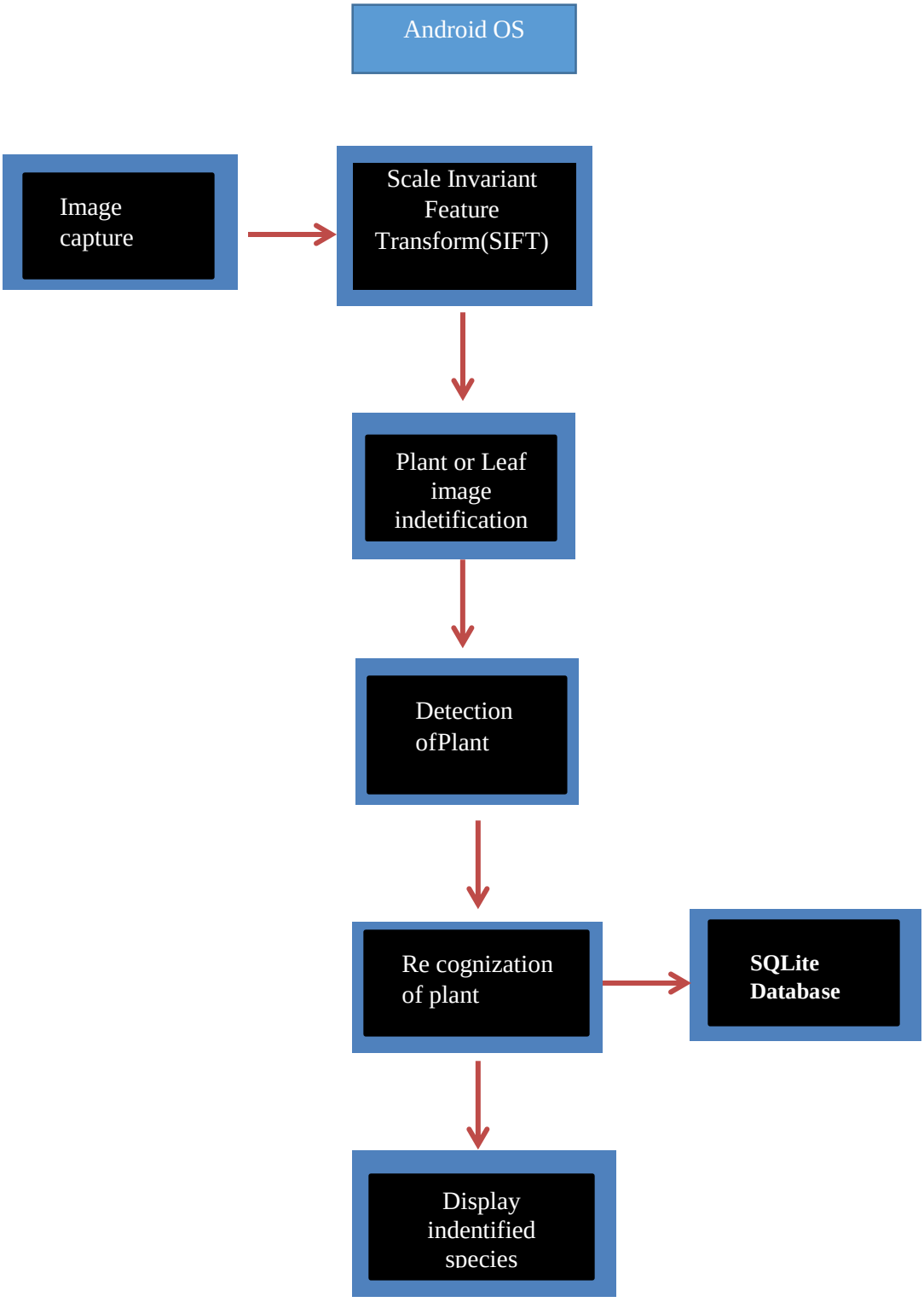
PLANT IDENTIFICATION PROCESS

The plant identification process is summarized in Figure1. The user captures a leaf image with an Android device. Hypotheses made on the taken images are the same as those in [4]: the image contains a centered single leaf on a uniform background. Before launching the identification, the user has to select a leaf character that will be the basis of the identification (margin, venation points). Then, the leaf image is sent to a primary intermediate server with a degrade DE quality to save bandwidth.For this purpose, a 3G network are required. The identification step is performed on the second server using the descriptor previously selected by the user.

Figure 2: Screenshots of the Android application

(a) Leaf image taken on a uniform background
(b) Identification results.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 8| Issue: 7| July 2022|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2022: 8.205 || ISI Value: 1.188



ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 8| Issue: 7| July 2022|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2022: 8.205 || ISI Value: 1.188

SYSTEM DESIGN

The following are the modules which are being used in the design of the system they are given as
1.Designing User Interface
2.Plant Identification
3.Detection of plant
4.Recognization of plant
5.Information of the plant
The architecture diagram is given above.

RESEARCH STATES

Limitation of Plant Identification

With the development of science, now the identification of plant can be roughly divided into three categories (Chen et al., 2014), artificial identification method, assisted artificial identification method and automatic identification method. Artificial identification method refers to the plant characteristics of knowledge investigation form of learning, such as flora and botany etc..

Corresponding to the actual life, plant identification is divided into a visual method, smell method, somatosensory method. The method requires experts to master a wide variety of plant characteristics knowledge. Experts in the field can quickly identify plants through this method, while middle school students are not competent. Assisted artificial identification method id using the existing data in physical or chemical methods to help people identify, such as simple tools, microscopy, spectroscopy, thermal spectroscopy and other high-precision methods. However, this method is not suitable for ordinary biology classroom or outdoor experiential teaching. Automatic identification method is using automatic identification system based on computer vision to observe leaf characteristics. Computer vision technology can automatic complete plant leaf image processing and feature extraction and classification of plants. While this method is time consuming, can not provide instant feedback on mobile learning.

Relevant Research

Mobile applications contribute to project-based learning, problem-based learning, and other integrated practical activities, to develop students' ability to communicate, solve problems, innovation and innovation ability. Huang(Huang et al., 2010) developed a Mobile Plant Learning System (MPLS) based on the pad, which provides outdoor experience to recognize plant and learn botany knowledge in the primary school curriculum. MPLS belongs to the framework based expert system, in which stored a large number of plant leaf characteristics and detailed examples of information. Through the comparison between pre-test and posttest in the experimental group, it was found that through MPLS learning, students' ability of plant recognition was improved obviously, and the outdoor learning method was more popular.

Mobile applications based on interactive concept maps are also applied in middle school biology learning. (Hwang et al., 2011)Research shows that instant feedback of mobile application learning method is conducive to improve students' interest in learning and outdoor biological science teaching effect. The practical teaching system of campus plant scene teaching is designed (Xu et al., 2015), which includes pre- class learning and outdoor experiential learning in class and teaching feedback underclass.

Compared with the traditional classroom knowledge teaching, outdoor experiential learning is more helpful to improve students' interest in scientific knowledge and knowledge of plant knowledge. The mobile application expert system can promote the application of outdoor mobile plant identification and learning of middle school students not only need simple and easy to operate, plant information database based on large, there should be immediate feedback operation, help learners to quickly complete plant identification, and learn more knowledge about plant characteristics.

CONCLUSION

In this paper, an Android application for plant species identification has been presented. It is based on a set of plant descriptors that have given promising results on plant datasets. The accuracy of the identification makes this application useful to amateur stakeholders as well as experts. Future work aims to expand the knowledge database by including plant images from other species.

Future work

For future outlook, we could add certain functionality for making the system more smart by uploading the configuration of the plant at the time of set upset, through the hardware device interface.functionalities like scheduled manual override can be added. camera monitoring , live streaming of the plant , we could use wowza streaming engine which uses RTSP and RTMP.

REFERENCES

1. *Kue-Bum Lee and Kwang-Seok Hong, "Advanced Leaf Recognition based on Leaf Contour and Centroid for Plant Classification"*
2. *YuMeng and Dr. Bernard Tiddeman, "Implementing the Scale Invariant Feature Transform (SIFT) Method"*
3. *Fredrik Larsson, Michael Felsberg and Per- Erik Forssen, "Patch Contour Matching by Correlating Fourier Descriptors", Linkoping*

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 8| Issue: 7| July 2022|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2022: 8.205 || ISI Value: 1.188

University Post Print

4. *Jitendra Malik, Serge Belongie, Thomas Leung and Jianbo Shi, "Contour and Texture Analysis for Image Segmentation", International Journal for Computer Vision 43(1), 7-27, 2001, February 23, 2001*
5. *Neeraj Kumar, Peter N.Belhumeur, ArijitBiswas, David W.Jacobs, W.John Kress, Ida Lopez and Joao V.B.Soares, "Leafsnap: A Computer Vision System for Automatic Plant*