Detection of Unhealthy Region of Plant Leaves Using Image Processing and Generic Algorithm

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Abstract-*This is the fundamental issues in today's world. Mobile or Smart phones (Android based) is becoming an essential device for all types of people irrespective of the age group and literacy (literate or illiterate). In India, mobile technology has shift in the communication medium to reach out to the masses .plants need regular physical and scientific handling for proper growth. Expert advices to the farmers is a possibility in India, i.e., information was available earlier for electronic processing, and now, communication is merged with Information Technology to create ICT impacts as a whole. ICT enabled environment is becoming a day-to-day reality everywhere in India. Tele-health allows health care professionals to diagnose and treat patients in remote locations using ICT. This paper presents a method for identify plant disease based on color, edge detection and histogram matching. It has significant perspective in field of agriculture. Some technique are there for identifying plant disease. The method used in this research is divided into two major phases. First phase concerns with training of healthy sample and diseased sample. Second phase concerns with the training of test sample and generates result based on the edge detection and histogram matching.*

Keywords-Edge detection, Image processing, CBIR, Color histogram. Android; Mobile Application; Remote area; Realtime Assistance; Telehealth.

I. INTRODUCTION

The agriculture sector is changing the socio-economic environments of the population due to liberalization and globalization. About 75% people are living in rural India and still depend on agriculture. About 43% of India's geographical area is used for agricultural activity. Agriculture is crucial to India's economy. However, most of India's poorest people are s farmers who have little or no access to technology for their proper solution of the damaged crops. Farmers lack knowledge on medicine. Every year, significant amounts of agricultural products are lost in India due to some critical diseases and improper maintenance.

In remote areas, very often, the farmers do not get any suggestion regarding the correct scientific procedure to be followed for a particular cultivation. In India, problems are faced by common people in rural areas in the health sector, too. In urban areas, people get better facility in health care.

However, the qualified doctors are not always willing to go to serve in remote rural areas. Many patients in remote villages die without proper treatment . The population is increasing day by day, but the number of physicians, doctors, nurses or government hospitals serving rural population is not increasing proportionately. Therefore, the health care needs of rural population are not being addressed properly. The significant increase of capabilities in modern telecommunication and data processing enables advanced tele-service solutions to assist medical treatment at remote locations.

1.1 Motivation of the Project

1. The proposed system will help farmers to get technical details.
2. Farmers can get weather forecasting report.
3. Online chat can be provided to farmers.
4. Customer registration facility is available.
5. Discussion Forum is available for farmers.
6. Farmer can attach video clip of his destructed crop or insects or snapshots of a□ected leaves of crop showing the actual situation, to an expert, and can get the perfect solution on his problem through internet.
7. Farmer can submit his problem or solution to the web service.

1.2 Literature Survey

1. model will help the farmers in increasing their productivity by raising the yield/hectare in food grains: thus, leading to their economic growth. This system has been developed to keep track of farmers all type of information related to crops.

2. all the information regarding all the crop plants, soil information, weather information and its details have been specified.

II. PROBLEM STATEMENT

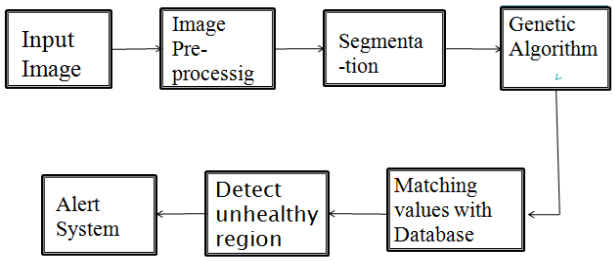

Fig -1: System Architecture

To identify the affected area, the images of various leaves are taken with a digital camera or similar device. Then to process those images, various image-processing techniques are applied on them to get different and useful features required for later analyzing purpose.

To detect diseased leaf, and unhealthy region. To identify disease type. To find the boundaries of the a□ected area(Segmentation). To Provide Solution to farmer.

This approach starts with the digital images for both the samples such as healthy leaf images and diseased leaf images. The image is captured from the environment using the Kodak digital camera of 9 megapixels. Then set the resolution of image at 390x425 dimensions. Once the database is acquired of healthy and infected images of samples, the image processing techniques are used to extract the useful features that are useful for the analysis of next phases. After that, histogram comparisons are used to classify the image according to the specific problem at hand.

The overall architecture of the developed system includes Google Application Engine(GAE) and Google Web Toolkit(GWT) functioning as server . The real-time assistance ensures information flow to remote areas using internet (GPRS) or via SMS.

To determine the pH value of the soil the image processing techniques are used. For capturing the images the phone camera is used and after processing the captured image the pH value of the soil is determined and accordingly crops or plants are suggested that can be grown in that field.

2.1 INNOVATION

The proposed system will help farmers to get technical details. Farmers can get weather forecasting report. . Online chat can be provided to farmers. Customer registration facility is available. Discussion Forum is available for farmers. Farmer can attach video clip of his destructed crop or insects or snapshots of a□ected leaves of crop showing the actual situation, to an expert, and can get the perfect solution on his problem through internet. Farmer can submit his problem or solution to the web service.

III. RESULTS

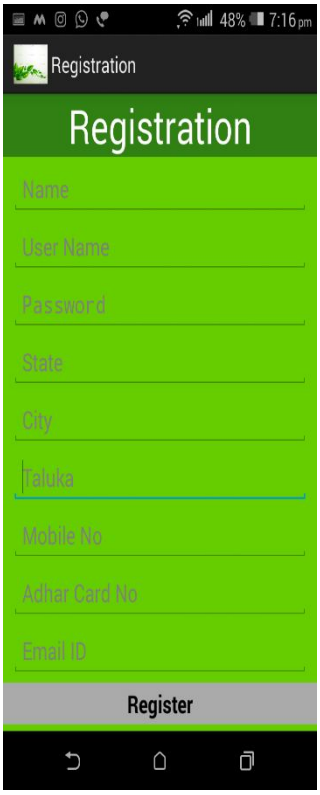

Fig.1.admin side

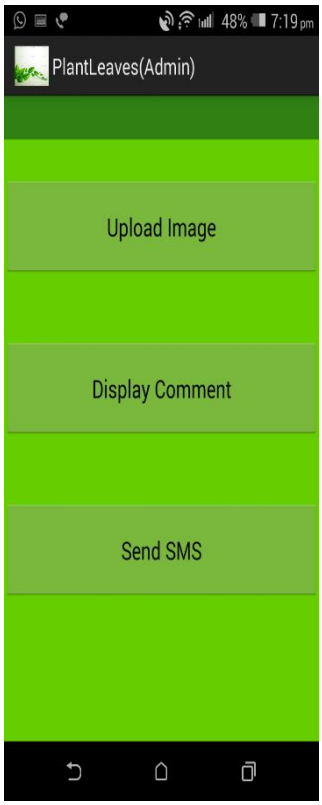

Fig.2. registration form

Fig.3.login form

Fig. 4.Weather report

Fig.5. uploading Image

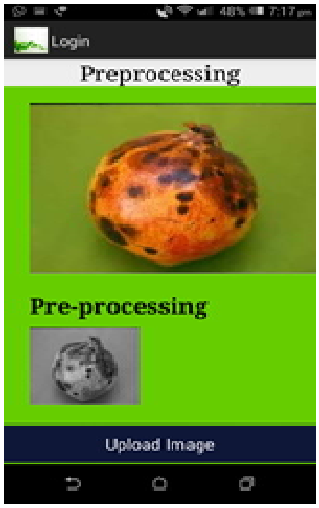

Fig.6. Segmentation

Fig .7 Gray Scale image

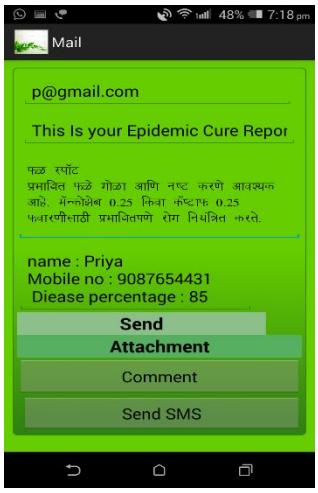

Fig.8 Admin side mail

IV. CONCLUSION

The most common benefit of mobile devices, as found by the survey is its penetration in rural India as the largest basic medium of basic communication. The mobile phone is the only convenient mode of communication to which farmers have access. So it would help the farmers and the rural people if used properly and would be beneficial to most of them. As far as infrastructure is concerned in India, the Mobile communications services reach to each and every remote place. The basic requirement for running the application is available easily which Indian rural people can afford. The training process includes the training of these samples by using layers separation technique which separate the layers of RGB image into red, green, and blue layers and edge detection technique which detecting edges of the layered images. Once the histograms are generated for both samples and the testing image, immediately we applied the comparison technique based on the histogram. The future work mainly concerns with the large database.

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