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HIRING AND RECRUITMENT PROCESS USING MACHINE LEARNING

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ABSTRACT

When plants and crops are suffering from pests it affects the agricultural production of the country. Usually, farmers or experts observe the plants with eye for detection and identification of disease. But this method is often time processing, expensive and inaccurate. Automatic detection using image processing techniques provide fast and accurate results. This paper cares with a replacement approach to the development of disease recognition model, supported leaf image classification, by the utilization of deep convolutional networks. Advances in computer vision present a chance to expand and enhance the practice of precise plant protection and extend the market of computer vision applications within the field of precision agriculture. a completely unique way of training and therefore the methodology used facilitate a fast and straightforward system implementation in practice. All essential steps required for implementing this disease recognition model are fully described throughout the paper, starting from gathering images to make a database, assessed by agricultural experts, a deep learning framework to perform the deep CNN training. This method paper may be a new approach in detecting plant diseases using the deep convolutional neural network trained and finetuned to suit accurately to the database of a plant's leaves that was gathered independently for diverse plant diseases. The advance and novelty of the developed model dwell its simplicity; healthy leaves and background images are in line with other classes, enabling the model to distinguish between diseased leaves and healthy ones or from the environment by using CNN. Plants are the source of food on earth. Infections and diseases in plants are

therefore a big threat, while the foremost common diagnosis is primarily performed by examining the plant body for the presence of visual symptoms [1]. As an alternative to the traditionally time consuming process, different research works plan to find feasible approaches towards protecting plants. In recent years, growth in technology has engendered several alternatives to traditional arduous methods [2]. Deep learning techniques are very successful in image classification problems.

1.INTRODUCTION

The problem of efficient disease protection is closely associated with the problems of sustainable agriculture Inexperienced pesticide usage can cause the event of long-term resistance of the pathogens, severely reducing the power to fight back. Timely and accurate diagnosis of plant diseases is one among the pillars of precision agriculture. It is crucial to stop unnecessary waste of monetary and other resources, thus achieving healthier production during this changing environment, appropriate and timely disease identification including early prevention has never been more important. There are several ways to detect plant pathologies. Some diseases do not have any visible symptoms, or the effect becomes noticeable too late to act, and in those situations, a classy analysis is obligatory. However, most diseases generate some quite manifestation within the visible spectrum, therefore the eye examination of a trained professional is that the prime technique adopted in practice for disease detection. To achieve accurate disease diagnostics a plant pathologist should possess good observation skills in order that one can identify characteristic symptoms. Variations in symptoms indicated by diseased plants may lead to an unsuitable diagnosis since unprofessional gardeners and hobbyists could have more difficulties determining it than knowledgeable plant pathologist. an automatic system designed to assist identify plant diseases by the plant’s appearance and visual symptoms might be of great help to amateurs within the gardening process and trained professionals as a confirmation system in disease diagnostics [3]. Advances in computer vision present a chance to expand and enhance the practice of detailed plant safety and extend the market of computer vision applications within the field of precision agriculture [4]. Exploiting common digital image processing techniques like color analysis and thresholding were used with the aim of detection and classification of plant diseases. In machine learning and science, ANN [5] is an information processing paradigm that was inspired by the way biological nervous systems, like the brain, process information. Neural networks or connectionist systems are a computational approach used in computing and other research disciplines, which is predicated on a large collection of neural units (artificial neurons), loosely mimicking the way a biological brain solves problems with large clusters of biological neurons connected by axons. Each neural unit relates to many others, and links are often enforcing or inhibitory in their effect on the activation state of connected neural units. Each individual neural unit may have a summation function which mixes the values of all its inputs together. There could also be a function or limiting function on each connection and on the unit itself, such the signal must surpass the limit before propagating to other neurons. These systems are self-learning and trained, instead of explicitly programmed, and excel in areas where the answer or feature detection is difficult to express during a traditional computer virus. Neural networks typically consist of multiple layers or a cube design, and therefore the signal path traverses from front to back. Back propagation is that the use of forward stimulation to reset weights on the "front" neural units and this is often sometimes wiped-out combination with training where the right result's known. More modern networks are a touch freer flowing in terms of stimulation and inhibition with connections interacting during a far more chaotic and sophisticated fashion. Dynamic neural networks are the foremost advanced, therein they dynamically can, supported rules, form new connections and even new neural units while disabling others.

2.LITERATURE SURVEY

Because the information gathered by applying image processing techniques often allows not only detecting the disease, but also estimating its severity, there are not many methods focused only in the detection problem. There are two main situations in which simple detection applies:

• Partial classification: when a disease has to be identified amidst several possible pathologies, it may be convenient to perform a partial classification, in which candidate regions are classified as being the result of the disease of interest or not, instead of applying a complete classification into any of the possible diseases. This is the case of the method by Abdullah et al. (2007), which is described in Section 'Neural networks'

. • Real-time monitoring: in this case, the system continuously monitor the crops, and issues an alarm as soon as the disease of interest is detected in any of the plants. The papers by Sena Jr et al. (2003) and Story et al. (2010) fit into this context. Both proposals are also described in the following.

NEURAL NETWORKS

The method proposed by Abdullah et al. (2007) tries to discriminate a given disease (corynespora) from other pathologies that affect rubber tree leaves. The algorithm does not employ any kind of segmentation. Instead, Principal Component Analysis is applied directly to the RGB values of the pixels of a low resolution (15×15 pixels) image of the leaves. The first two principal components are then fed to a Multilayer Perceptron (MLP) Neural Network with one hidden layer, whose output reveals if the sample is infected by the disease of interest or not. Thresholding The method proposed by Sena Jr et al. (2003) aims to discriminate between maize plants affected by fall armyworm from healthy ones using digital images. They divided their algorithm into two main stages: image processing and image analysis. In the image processing stage, the image is transformed to a grey scale, thresholded and filtered to remove spurious artifacts. In the image analysis stage, the whole image is divided into 12 blocks. Blocks whose leaf area is less than 5% of the total area are discarded. For each remaining block, the number of connected objects, representing the diseased regions, is counted. The plant is considered diseased if this number is above a threshold, which, after empirical evaluation, was set to ten.

3. OUTPUT SCREENS

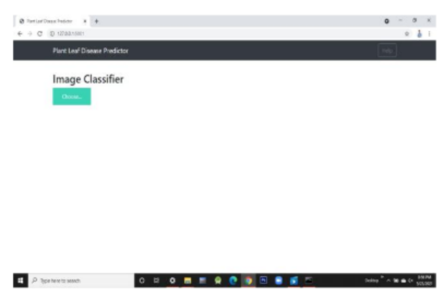

Fig.3.1. OUTPUT Results.

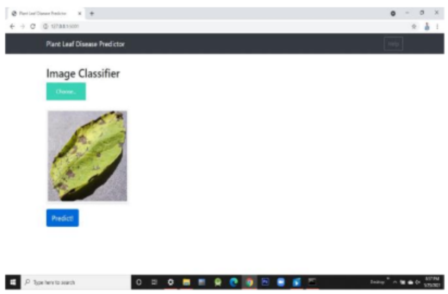

Fig.3.2. INPUT image.

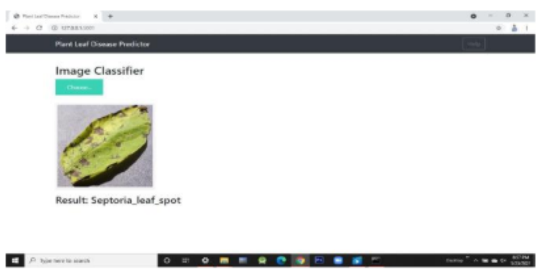

Fig.4.3. OUTPUT image.

4 . CONCLUSION

This article presents, the automatic plat leaf disease detection system using different types of features like area, GLCM and colour moment. For the selection of the extracted features, genetic algorithm is used resulting in low dimensionality and computational complexity. The segmentation is done by using the k-means clustering algorithm, which provides higher accuracy with less computational time. The proposed system also compares SVM and CNN classifiers where CNN provides higher disease detection accuracy (96.7%) than SVM (92.5%). After extracting all the features, 14 relevant features are selected using genetic algorithm. To categorize the images into diseased (plat leaf blast, brown spot) and non-diseased class, two types of the classifiers are used. Depicts the detection accuracy using CNN and SVM classifiers for individual features. A 13-D GLCM feature which describes the grey level co-occurrence matrix of the image gives the highest detection accuracy of 96.75% when classified with CNN and 88.6%with SVM. The color moment feature with execution time 0.002287 seconds gives the accuracy of 95.5% using CNN and 87.25% using SVM, and the area feature that describes the morphology of the diseased part of leaf results in accuracy of 96.5% and 95.25% when classified with CNN and SVM respectively. It shows that CNN provides better detection accuracy than that ofSVM for all the extracted features. It is also evident from the table that area features contribute less in disease detection.

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