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Advancement of Profound Learning Model for Crop Leaf Shortcoming Identification in the Bilaspur District

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ABSTRACT

The rural land mass is something other than being a sustaining sourcing in this day and age. Indian economy is exceptionally needy of rural profitability. In this manner in field of agribusiness, identification of illness in plants assumes a significant job. The current strategy for plant infection location is basically unaided eye perception by specialists through which recognizable proof and recognition of plant sicknesses is finished. For doing as such, a huge group of specialists just as consistent observing of plant is required, which costs high when we do with huge homesteads? Simultaneously, in certain nations, ranchers don't have appropriate offices or even thought that they can contact to specialists. Because of which counseling specialists even cost high just as tedious as well. In such conditions, the proposed strategy demonstrates to be advantageous in checking enormous fields of harvests. Programmed discovery of the infections by simply observing the indications on the plant leaves makes it simpler just as less expensive.

INTRODUCTION

There are as of now a wide range of methods for performing picture division, running from the straightforward thresholding strategy to cutting edge shading picture division strategies. These parts ordinarily compare to something that people can without much of a stretch isolated and see as individual articles. PCs have no methods for brilliantly perceiving articles, thus various techniques have been created so as to portion pictures. The division procedure depends on different highlights found in the picture.

LEAF MALADIES AND SIDE EFFECTS

The nature of leafs characterizes the level of greatness or a condition of being free from deformities, shortages, and significant varieties. It relies upon numerous variables, for example, planting seeds, temperature, transplanting, and collecting and so on. Atzori, L et. al., 2010. Plant leaf maladies can be generally arranged dependent on their inclination of their key causal specialist (for example irresistible and noninfectious. Irresistible leaf maladies are affected by a pathogenic life form, for example, a bacterium, mycoplasma, parasite, infection, nematode, viroid and so forth. An irresistible specialist is capable of duplicating inside or on its host and dispersing starting with one defenseless host then onto the next host. Then again, noninfectious plant illnesses owe their inception to basic developing conditions, disadvantageous connections among dampness and oxygen, overabundances of temperature, poisonous constituents in the dirt or air, and lack of a fundamental mineral. Noninfectious causal operators are not infectious and not capable of recreating inside a host.

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Plants leafs disease symptoms	Descriptions	Plant pathogen group
Blotch	Large spot on leaf	Water molds, viruses and phytoplasmas
Bronzing	Develop a bronze color	Water molds, viruses
Blight	Discoloration, wilting	Viruses, nematodes and phytoplasmas
Chlorosis	Yellowing	Phytoplasmas
Leafs pot	Lesion on a leaf	Nematodes and phytoplasmas
Fusarium wilt	Dropping of leaf	Fungus
Distortion	Irregular shaped leaf	Nematodes
Gall	Abnormal and swelling on leaf	Water mold and viruses
Mosaic	Non-uniform foliage coloration	Fungi, bacteria and nematodes
Ring spot	A lesion with a dark outer ring	Fungi, water molds and nematodes
Rugose	Wrinkled surface of leaf	Bacteria
Scrab	Lesion like crust	Viruses and nematodes
Scroach	Browning	Viruses
Vein clearing	Leaf veins becomes yellow	Fungi and bacteria
Water soaking	Wet, dark or greasy lesions	Viruses
Downy mildew	Yellow and brown color lesion, fuzzy growth	Fungus
Gray mold	Lesion, leafs drying	Fungus
Flea beetle	Small holes or pits	Insect
Slugs & snails	Irregular shaped holes in leaf	Molluse
Cercospora leaf spot	Circular to irregular dark spots on leaf with light center	Fungus
Aphids	Small soft bodied insects on underside of leaf, yellow color, pink and brown color	Insect
Shot-hole	Lesions where centers have fallen out	Viruses and water mold

APPLICATION

There are many applications where we have to use cordic processor and those applications are:

1. Aerospace Application.
2. Discrete Cosine Transform (Image Compression Unit).
3. Different DSP and DIP Filters.
4. Multimedia Applications.

RATIONAL OF THE STUDY

As we know currently we are in the era of smart technology which is mainly focus to improve our current existing system. Now a days farming is also a very critical market where we need some of the smart technology which help the farmers to improve there farming style and generate a good quality product. So based on that there is requirement where farmer can check what type of disease are there on their crops. There are lots of research are there who work on that area but there is lots of challenges are there which really need to be solved so here are those research gap which need to be solved:

1. Lack of Real time system: Currently there is no any solution which is able to find the leaf disease on live camera.
2. Time complexity: In existing solution time complexity is main challenge
3. Not Applicable for most of the leaf: Current solutions are mostly for any specific like crop, grapes etc, there is no any solution which are able to cover most of the leaves.
4. Quality: In current existing approach there is issue with quality ,as per there extra time complexity there is no any approach who are able to provide good quality
5. Time & Quality management issue: There is no any approach which is able to make justice with both parameters.
6. Accuracy: There is lack of accuracy in most of the previous existing approach

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OBJECTIVES

As per the previous research there is lots of research gap which need to be solved so in this work these are our objects which we will solve:

1. Real time system: In this work we will develop a system which is able to find the leaf disease on live camera.
2. Reduction In Time complexity
3. Applicable for most of the leaves
4. Improvement in Quality
5. Proper management in Time & Quality and try to make justice with both parameters.
6. Improvement in accuracy

METHODOLOGY

The most basic picture preparing strategies with respect to ailment discovery are picture binarization ones, thinking about an edge to isolate green (sound) components from the symptomatic parts Here we will propose a novel algorithm by using of machine learning, computer vision & deep learning technology. So in this work we are basically use the approximation logic. According to approximation logic we will utilize the time in proper way.

As per this logic we will use arithmetic units as per the requirements if some part of arithmetic unit is not require so we will truncate those and utilize it smartly. Here we are try to involve the concept of Scale-Invariant Feature Transform (SIFT)& Feature extraction but in different manner using the concept of approximation.

Similar we will design a novel algorithm for a good quality filter, with help of that filter we will try to make more clear picture of the object and try to find the good result.

EXPECTED OUTCOME

In this work we are focus on the real time based crop leaf fault detection with smart solution, so as per our expectation we will able to improve the followings parameters through our novel algorithm:

1. Able to make justice with time & quality parameter.
2. Here we will try to reduce the time complexity with 10-20%.
3. Here we will try to improve the quality complexity with 10-20%.
4. Here we will try to make more accurate system.
5. We will make a real time system which is able to find fault on live camera.
6. We are try to cover atleast 10-15 different kind of leaves.

REFERENCES

1) Amara, Jihen, Bassem Bouaziz, and AlsayedAlgergawy.2017 A Deep Learning-based Approach for Banana Leaf Diseases Classification. BTW (Workshops). 2017.

2) Arivazhagan S, Newlin Shebiah R, Ananthi S, Vishnu Varthini S.2013 Detection of unhealthy region of plant leaves and classification of plant leaf diseases using texture features. Agric Eng Int CIGR;15(1):211–7.

3) Atzori, L.; Iera, A.; Morabito, G. 2010 The Internet of Things: A survey. Comput. Netw., 54, 2787–2805.

4) Bakar, MN Abu2018 Rice Leaf Blast Disease Detection Using Multi-Level Colour Image Thresholding. Journal of Telecommunication, Electronic and Computer Engineering (JTEC) 10.1-15 (2018): 1-6.

ISSN:0971-1260

Vol-22-Issue-41-December-2019

5) Bashir Sabah, Sharma Navdeep.2012 Remote area plant disease detection using image processing. IOSR J Electron Commun Eng;2(6):31–4. ISSN: 2278-2834.

6) Bashir, Komal, Maram Rehman, and Mehwish Bari.**2019** "Detection and Classification of Rice Diseases: An Automated Approach Using Textural Features." Mehran University Research Journal of Engineering and Technology 38.1 (2019): 239-250.

7) Beucher S, Meyer F.1993 The morphological approach to segmentation: the watershed transforms. In: Dougherty ER, editor. Mathematical morphology image processing, vol. 12. New York: Marcel Dekker; p. 433–81.

8) Bhanu B, Lee S, Ming J.1995 Adaptive image segmentation using a genetic algorithm. IEEE Trans Syst Man CybernDec;25:1543–67.

9) Bhanu B, Peng J.2000 Adaptive integrated image segmentation and object recognition. IEEE Trans Syst Man Cybern Part C;30:427–41.

10) Chaudhary Piyush 2012 Color transform based approach for disease spot detection on plant leaf. Int Comput Sci Telecommun;3(6).

11) Dhaygude Sanjay B, Kumbhar Nitin P.2013 Agricultural plant leaf disease detection using image processing. Int J Adv Res Electr Electron Instrum Eng;2(1).

12) Dhingra, Gittaly, Vinay Kumar, and Hem Dutt Joshi2018 Study of digital image processing techniques for leaf disease detection and classification. Multimedia Tools and Applications 77.15 (2018): 19951-20000.

13) Ferentinos, Konstantinos P. 2018 Deep learning models for plant disease detection and diagnosis. Computers and Electronics in Agriculture 145 (2018): 311-318.

14) Ghaiwat Savita N, Arora Parul2014 Detection and classification of plant leaf diseases using image processing techniques: a review. Int J Recent Adv Eng Technol;2(3):2347–812. ISSN (Online).