C . O . D . S

Learn . Develop . Grow

T-112

Problem Statement : Misdiagnosis of many diseases had lead to misuse of chemicals that lead to emergence of resistant pathogen strain. Also this eventually costs high to farmers and Significant loss to the farm produce. Manual Disease diagnosis based on Human labour is time consuming and expensive.

Abstract for solu;on : The solution to the above the problem is by creating creating a computer vision based model to have a greater efficiency. The idea of the problem is to train a model using images of dataset to do the following tasks:

1. Accurately classify the given image of leaf by testing it with the image of leaf in Dataset and catagorise it as healthy leaf or diseased.
2. Accurately distinguish between diseased leaf
3. Dealing with the symptoms and class of disease.
4. Considering the wide vision perception of angle, light, depth of leaf.
5. Output will be identification of disease, its spread, and imformation, about its cure using computer vision.

Basic Idea:

This model of Pathogen Identification for plant Disease is based on the concept of Deep learning.
The process for the model goes this way:

1. Firstly, the leaves are localised and identified for its type and to which section/class they belong.
2. Then the leaves are segmented and the spots are identified.
3. The segmented leaf if transfered to deep learning model that compares with the dataset predefined by the creator.
4. With help of this database the model can effectively distinguish between the black dots, bacterial disease and rust disease.

Extraction of Each Step

STEP 1: Leaf Retrivel:

The first task to do in deep learning is to create a model that Makes use of algorithm and retrives the leaf.
This can be done using RPN algo to get better retrivel.

STEP 2: Image Segmentation / Leaf Segmentation:

One of the most important task is to segment the given image and detect the diseased plant leaf.
There are many methods to segment the image out of which the one is RoI.

RoI or region of interest detects the defects and imperfection in segments of leaf and classify them. RoI can effectively diffrentiate between a diseased leaf and healthy leaf by segmenting spots,imperfections and colour of leaf.

STEP 3: Feature Extraction:

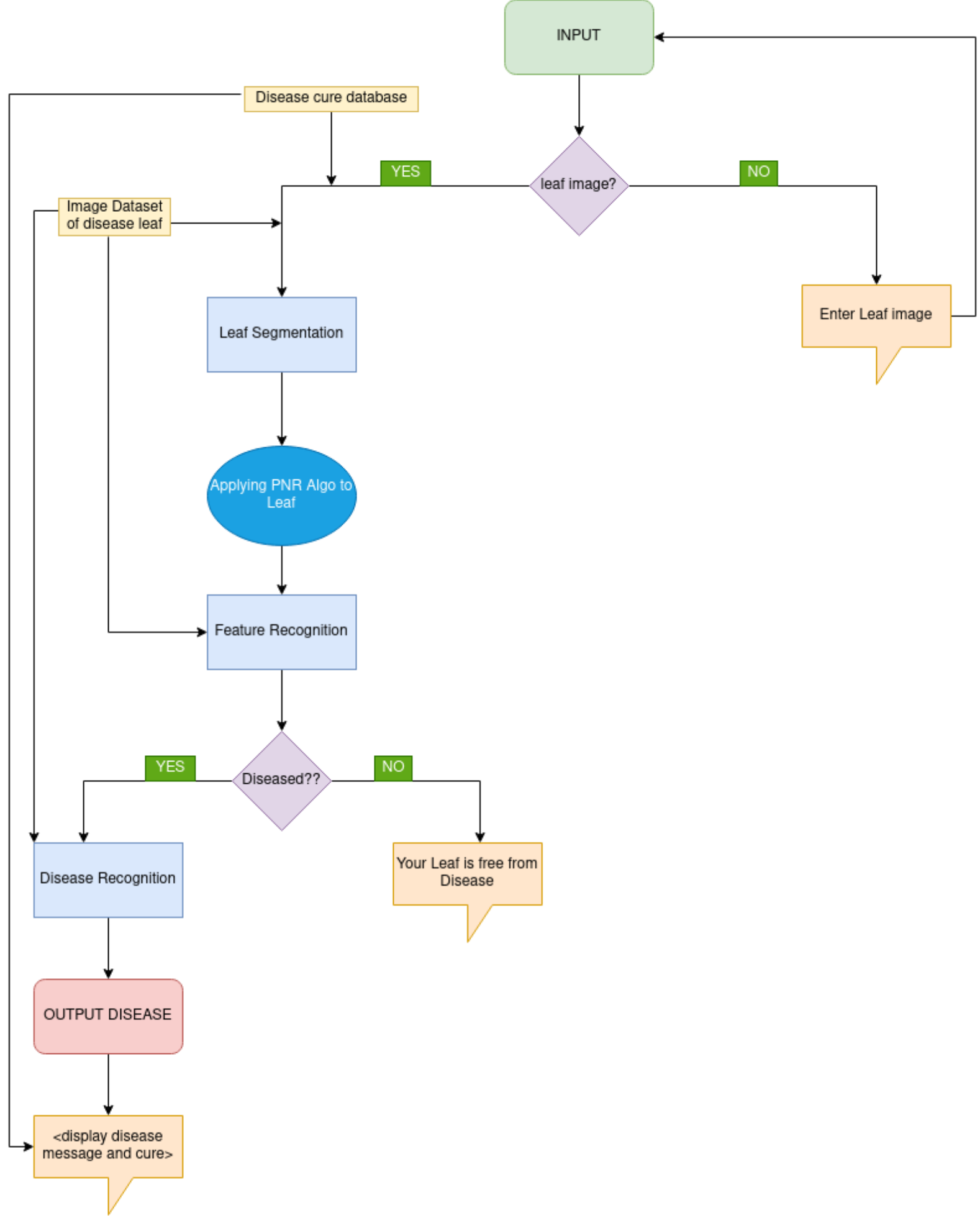
Feature extraction helps the model to extract the feature of image like texture, colour, shape, size, imperfections, etc. In segmented leaf which is one of the most crucial part of disease identification deep learning model.

STEP 4: Disease Recognition:

The extracted features of the leaf can be then send to database for any match. This model then find the most probable occurence of disease in particular leaf.

How Farmers can Use this Model:

In this project farmers will give their input as images directly from their mobile phones and model will work to give either their leaf image is diseased or not.
If it is diseased then they will get the message displaying the type of disease and cure for the same using the database of deep learning model.
Else it will show that their leaf is healthy.


INPUT
Disease cure database
YES
leaf image?
NO
Image Dataset of disease leaf
Enter Leaf image
Leaf Segmentation
Applying PNR Algo to Leaf
Feature Recognition
YES
Diseased??
NO
Disease Recognition
Your Leaf is free from Disease
OUTPUT DISEASE
<display disease message and cure>


Activities
Firefox Web Browser
Feb 14 13:45
CODS_IDEALOOP-2021
https://trello.com/b/qHreF0Vd/codsidealoop-2021
Boards
Trello
Board
CODS_IDEALOOP-2021
CODS_T-112
Free
Public
UK
Invite
Butler
To Do
Code
Add a fully functional UI for use of farmer
Add another card
Doing
Details on Image segmentation
Feb 14
Details on Feature extraction
Feb 14
Details on Disease recogniztion
Feb 14
Add another card
Done
Reading the theory aspect of farmer of India problem
Make a problem statement and an abstract solution to it.
1
2/2
Make a PDF file of Templete regarding the same
Add another card
Add another list
About This Board
Made by
UK
Urmil Kalaria
@urmilkalaria
Edit profile info
Description
It's your board's time to shine! Let people know what this board is used for and what they can expect to see.
MEMBERS CAN...
Comment on cards
Change permissions...