

BRAINSTROMING:

The primary step in identifying diseases is the acquisition of images. In most cases, images can be fetched either from a digital camera or an imaging system. As raw images tend to contain noise, removing these impurities is required. As a result, the second step is known as image pre-processing, and involves the removal of unwanted distortions, in addition to contrast enhancement, to clarify and brighten the image features. For example, a Gaussian function that creates soft blur is commonly used to lessen the noise in the image. Subsequently, image segmentation is the third step in which the image is segmented from its background, whereas the region of interest (ROI) is partitioned to emphasize the prominent features. The fourth step is feature extraction [which unveils the information and details of an image. As a side note, the leaf features usually include shape, texture, and color, which are used to diagnose the crop. Thus, these chosen features form an input feature vector which is then fed into the classifier. Using this vector, it is possible to discriminate one class of objects from another. The final step is classification. Note that the choice of a suitable classifier depends on the specific problem. The classifier's aim is to recognize the images by sorting them into several predefined classes based on the resulting feature vector obtained in the fourth step. For this purpose, the classification task contains two phases, namely, training and testing. The training operation trains the classifier on a training dataset; thus, the greater the number of training sets, the better the accuracy obtained. It should be noted that the result, which is the crop's healthy state or diseased state associated with the species name, must be achieved as swiftly as possible.

