Grapes (Vitis Vinifera) is basically a sub-tropical plant having excellent pulp content, rich color and is highly beneficial to health. Generally, it is very time-consuming and laborious for farmers of remote areas to identify grapes leaf diseases due to unavailability of experts. Though experts are available in some areas, disease detection is performed by naked eye which causes inappropriate recognition. An automated system can minimize these problems. The disease on the grape plant usually starts on the leaf and then moves onto the stem, root and the fruit. Once the disease reaches the fruit the whole plant gets destroyed. The approach is to detect the disease on the leaf itself in order to save the fruit. In our proposed system we have used a Deep Learning model named Convolutional Neural Network. Feature extraction and model training of the leaf images is performed using pre-defined AlexNet architecture. The image Dataset is taken from “National Research Centre for Grapes” (ICAR). It consists of images of diseases named Powdery mildew, Downy mildew, Rust, Bacterial Spots and Anthracnose. Image of the leaf is captured using the built-in camera module of a mobile phone. The accuracy achieved is
Grapes Leaf Disease Detection using Convolutional Neural Network

98.23% for powdery mildew vs bacterial spots.

References

7. Emanuel Cortes, “Plant Disease Classification Using Convolutional Networks and Generative Adversial Networks”.

Index Terms

Computer Science

Artificial Intelligence

Keywords

Deep Learning, Artificial Intelligence, Convolutional Neural Network, Alex-Net, Grapes leaf Disease