IJBPAS, March, 2020, 9(3): 453-457

ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

IDENTIFY THE DISEASES INFECTED LEAF THROUGH DIFFERENT TRANSFORMS

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Received 9th Oct. 2019; Revised 7th Nov. 2019; Accepted 8th Dec. 2019; Available online 1st March 2020

https://doi.org/10.31032/IJBPAS/2020/9.3.4987

ABSTRACT

Green environment is necessary in the present modern world and everyone interested in the same to customize the green environment as well to strengthen the agriculture process the system which deals with the leaf sample from that diagnose the disease affected leaf in earlier stage and save the agriculture as well as the green environment which act as an aid for the farmers and garden interested persons. To support for the above process identification of disease affected leaf in the earlier stage through analyze of different transforms for that best transform identify and applied for the system to give better result.

Keywords: Leaf, wavelet Transform, Discrete Fourier Transform, Fourier Transform, Haar Transform

INTRODUCTION

The leaf sample will be analyze through different transforms from that process identification disease affected leaf to save the leaf as well as agriculture process will be easy and this particular system deals with 4 different types of transforms namely wavelet Transform, Discrete Fourier Transform, Fourier Transform, Haar Transform. The major transforms will be analyzed with result which give better result will be taken into the account. To analyze the result totally three parameter will be taken

into the account namely time, FAR & FRR for this system **[1-2]**.

MATERIALS AND METHODS

The system initially has and leaf sample as input and feature has been extracted from the leaf image and features like color, shape and edge taken into the account for the process of the system. Then, apply the 4 major transforms with 3 major parameters like time, FAR & FRR from that justify the better transform is shown in **Figure 1[4]**.

From the **Figure 2** and **Figure 3** Shows the normal as well as disease affected leaf structure and feature will be extracted from the leaf of both normal as well as disease affected leaf for the better identification in earlier stage **[6-7]**.

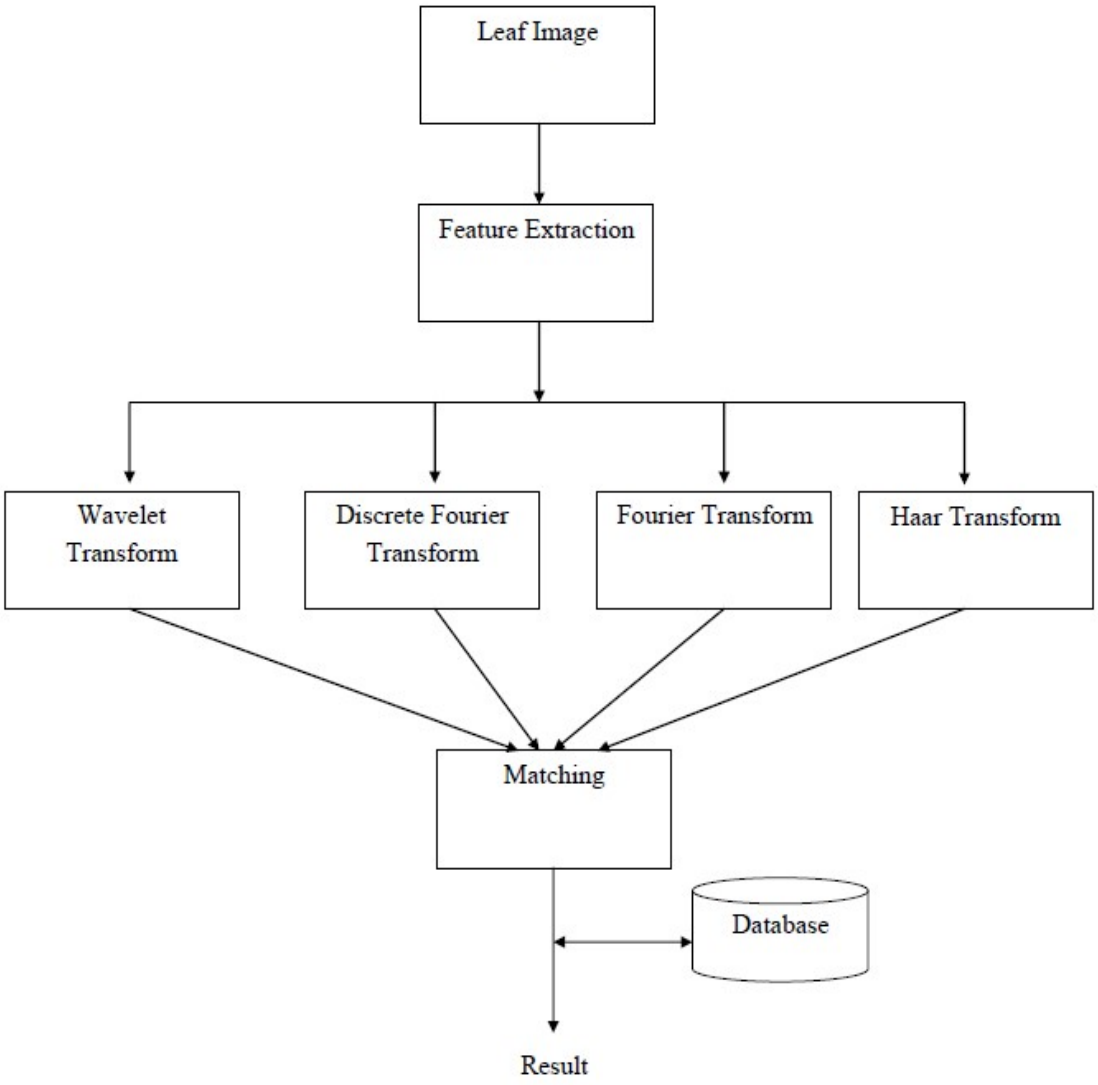

Figure 1: Basic Flow of the System

IMPLEMENTATION

The system has totally 109 images taken into the account 57 different types of normal leaf taken and 52 disease affected leaf taken into the system as input for the feature extraction process. The feature extraction from the normal and abnormal leaf has color, edge and shape taken into the account for the implementation process is shown in **Figure 4 & Figure 5 [3]**.

In **Figure 4 & Figure 5 s**ample processed image available and likewise remaining the entire leaf feature extracted and 4 major transforms were applied and the **Table 1 & Table 2** Shows the result performance of the system with effective result **[5]**.

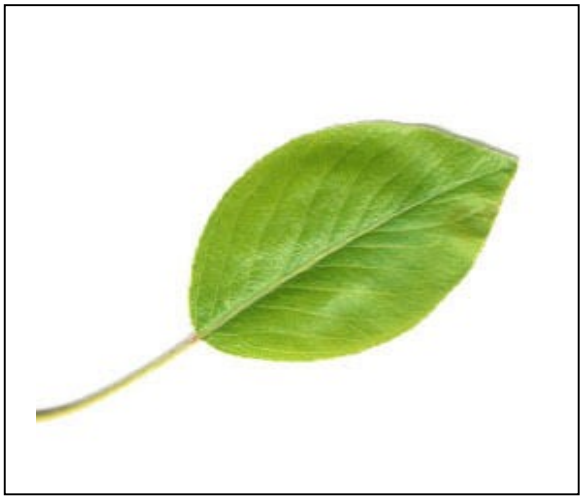

Figure 2: Normal Leaf

Figure 3: Disease Affected Leaf

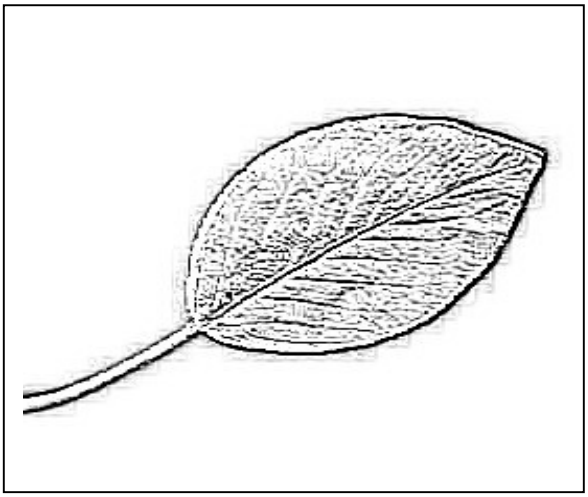

Figure 4: Processed Normal Leaf

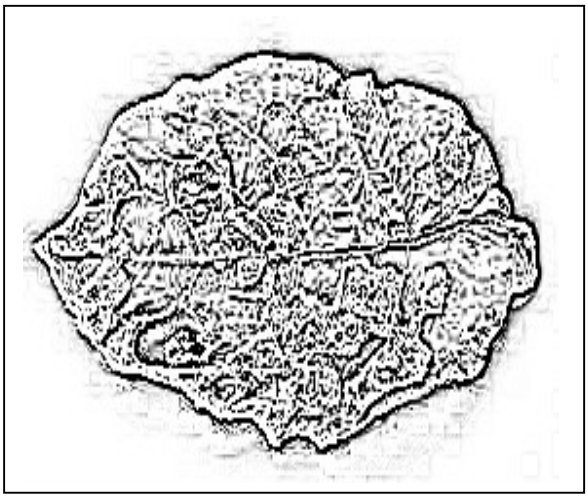

Figure 5: Processed Affected Leaf

Table 1: Result Analyze of Normal Leaf

S. No	Transforms	Time (s)	FAR (%)	FRR (%)
1.	Wavelet Transform	0.01	100	100
2.	Discrete Fourier Transform	0.01	98.25	98.25
3.	Fourier Transform	0.02	98.25	98.25
4.	Haar Transform	0.02	98.25	98.25

Table 2: Result Analyze of Affected Leaf

S. No	Transforms	Time (s)	FAR (%)	FRR (%)
1.	Wavelet Transform	0.01	98.25	100
2.	Discrete Fourier Transform	0.02	98.25	98.25
3.	Fourier Transform	0.02	98.25	98.25
4.	Haar Transform	0.01	98.25	98.25

CONCLUSION

The system cleared explained difference between the normal leaf and affected leaf after that feature extraction taken from the leaf like color, shape & edge those result will be processed by the 4 types of different transforms and implementation result strongly shown that wavelet transform is the best transform for the earlier identification of leaf for the system justify from the implementation.

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