

# Plant Disease Detection Device through Machine Vision

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**Abstract.** Floriculture has become one of Sri Lanka's leading foreign exchange business in recent years. Among many other floriculture ventures, Orchid cultivation is more pleasurable and profitable. Orchids are a more economically important flowering plant in the world. Failure to cultivate properly orchids can have a variety of diseases. Beginners who like to grow orchids but do not have a good knowledge of orchid cultivation cannot easily identify orchid diseases. Therefore, it needs automatic monitoring of diseases of plants instead of manual. This paper presents an orchid leaf disease detection system at the early stage by using image processing techniques and machine learning. This system has been developed to determine whether the plant is infected or not. It attempts to develop an automated system that detects the presence of disease in the plants. The only input to this system is an image of an orchid leaf that is captured by using a raspberry pi camera and the system will provide the Perimeter of the leaf, total area, infected area, and the percentage of infection region of the leaf as the output. Use Raspberry Pi and Raspberry pi camera module to capturing the image of leaves to identify the disease through the implementation in Raspberry pi and it is used to interface the camera & the data is streamed lively. This allows the grower to decide as to whether to remove the virus-infected plant from cultivation or to cut only the infected part. This system will be a great help for beginners who love to grow orchids but don't have knowledge about the orchid diseases of their plants. The accuracy was calculated through the evaluation results. The experimental result shows that the system can identify the total area, Infected area of the leaf, and percentage of infection region of the leaf with more than 90% accuracy.

**Keywords:** *Image Processing, Machine Learning, Raspberry pi, Camera*