Real-Time Leaf Disease Detection Using CNN on Raspberry Pi for Precision Agriculture

[1]Shruti Desai, [2]Sakshi Ghewade, [3]Dhananjay Girge, [4]Milind Gajare

[1,2,3]Students, Electronics and Telecommunication

[4]Assistant Professor, Electronics and Telecommunication

AISSMS Institute of Information Technology, Pune, India

Abstract: *The early discovery of splint conditions is essential for icing high agrarian productivity and food security. This paper proposes a deep literacy- grounded approach for classifying splint conditions using convolutional neural networks (CNN), stationed on a jeer Pi 4B for real- time operation. A dataset containing images of diseased and healthy leaves ispre-processed through addition and normalization ways before training the model. also, a graphical stoner interface (GUI) is developed using Anaconda Navigator, enabling druggies to upload or prisoner splint images and admit real- time prognostications. The proposed system is optimized for effective calculation on Raspberry Pi while maintaining high bracket delicacy. Experimental results show that the model achieves an delicacy of over 95, demonstrating its effectiveness in perfection husbandry. This work provides a cost- effective, accessible, and automated result for growers and agrarian experts, reducing reliance on homemade complaint identification. unborn exploration will explore advancements in dataset diversity and edge optimization ways.*

Keywords: Leaf Disease Detection, Deep Learning, Convolutional Neural Networks, Precision Agriculture