

# Plant Leaf Disease Detection and Fertilizer Suggestion using CNN

Mohit Lanjewar<sup>1</sup>, Anand Joshi<sup>2</sup>, Harsh Parekh<sup>3</sup>, Vaibhav Bhople<sup>4</sup>

Students, Department of Information Technology<sup>1,2,3,4</sup>

Sinhgad Institute of Technology, Lonavala, Maharashtra, India

mohitg1100@gmail.com<sup>1</sup>, anandjoshi912002@gmail.com<sup>2</sup>,

harshsparekh3@gmail.com<sup>3</sup>, vaibhavbhople129@gmail.com<sup>4</sup>

**Abstract:** *In India, agriculture contributes 17% of the GDP. Plants can develop a variety of illnesses, including rot, bacterial wilt, blight, and more. Some of these illnesses are invisible to the naked eye. Serious economic repercussions from the vast range of diseases include production losses and market decreases. Implementing machine learning techniques, convolutional neural networks, image processing, and deep learning models for plant disease detection can be highly advantageous as it lowers a significant amount of monitoring work in large crop farms and can identify disease symptoms at an early stage. Studies based on several methods of plant disease detection are covered in this suggested system.*

**Keywords:** Image Processing, Disease, Convolutional Neural Network, Fertilizer Suggestion

## REFERENCES

- [1]. Gaurav Langar, Purvi Jain And Nikhil, "Tomato Leaf Disease Detection Using Artificial Intelligence And Machine Learning", International Journal Of Advance Scientific Research And Engineering Trends, 2020.
- [2]. Halil Durmus and Murvet Kirci, "Disease Detection on the Leaves of the Tomato Plants by Using Deep Learning", International Conference on Agro-Geo informatics, 2018
- [3]. Minghe Sun and Jie xue, "Identification of Tomato Disease Types and Detection of Infected Areas Based on Deep Convolutional Neural Networks and Object Detection Techniques", Research Article, 2019
- [4]. Saiqa Khan and Meera Narvekar, "Disorder detection of tomato plant(solanum lycopersicum) using IoT and machine learning", Journal of Physics: Conference Series, 2019
- [5]. Marwan Adnan Jasim and Jamal Mustafa AL-Tuwaijari, "Plant Leaf Diseases Detection and Classification Using Image Processing and Deep Learning Techniques", 2020 International Conference on Computer Science and Software Engineering, IEEE 2020.
- [6]. Poojan Panchal, Vignesh Charan Raman and Shamla Mantri, "Plant Diseases Detection and Classification using Machine Learning Models", IEEE 2019
- [7]. Jiten Khurana and Anurag Sharma, "An Integrated Deep Learning Framework of Tomato Leaf Disease Detection", International Journal of Innovative Technology and Exploring Engineering (IJITEE), 2019
- [8]. Melike Sardogan, Adem Tuncer and Yunus Ozen, "Plant Leaf Disease Detection and Classification Based on CNN with LV Algorithm", IEEE 2018.
- [9]. Li Zhang and Guan Gui, "Deep Learning Based Improved Classification System for Designing Tomato Harvesting Robot", Special Section on AI-Driven Big Data Processing: Methodology, and Applications, 2018
- [10]. P. Narvekar, and S. N. Patil, "Novel algorithm for grape leaf diseases detection" International Journal of Engineering Research and General Science Volume 3, Issue 1, pp.no 1240-1244, 2015.
- [11]. R. Kaur and M. Kaur, "An Adaptive Model to Classify Plant Diseases Detection using KNN" International Journal of Trend in Scientific Research and Development (IJTSRD) ISSN: 2456-6470.
- [12]. P. V, Rahul Das, and V. Kanchana, "Identification of Plant Leaf Diseases Using Image Processing Techniques" 978-1-5090-4437- 5/17/\$31.00 ©2017 IEEE International Conference on Technological Innovations in ICT For Agriculture and Rural Development.