

**TOMATO PLANT DISEASE DETECTION SYSTEM  
USING IMAGE PROCESSING AND DEEP LEARNING**

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## **Abstract**

Emerging of deep learning algorithms has brought forward revolutionary opportunities for the developers. Many different areas in software development have started to see revolutionary growth in domains such as Image classification and object detection. Implementation of image classification and object detection based on deep learning could be seen implemented in variety of domains from military affairs, healthcare to automation of daily activities. But, application of deep learning and other technologies in the agriculture sector could be seen as rather slow given the significance of agriculture to the human. Plant diseases have become prevalent in many countries. Plant diseases epidemics could cause the loss of crops which leads to economic losses and famines, which could be deadly given the circumstances. As a result of lacking in human resources compared to the scale of the field of the agriculture to diagnose plant diseases, farmers have been resorted use of chemical pesticides excessively. Use of pesticides frequently cause the pathogens which cause plant diseases to get used to them and it led to farmers using more toxic pesticides which get accumulated in food products. The use and implementation of revolutionized tools using image classification and object detection could see as an effective way to diagnose the plant diseases accurately. Detection of plant diseases early on gives the farmers opportunity to avoid mass losses of crops and avoid financial losses caused by use of excessive chemicals. The author intends to use this technology for the better of the tomato plantation, which is an extremely volatile and hard to maintain crop.