**PLANT DISEASE PREDICTION USING MACHINE LEARNING**

**Abstract**

In a developing country like India agriculture plays a noteworthy role. Agricultural intervention in the livelihood of rural India indulges by about 58%. Among the agricultural products, tomato is one of the most used crops. Thus, preventing significant loss in quantity and yield of tomato is majorly dependent on recognition and classification of diseases a tomato plant might possess. Latest and fostering technologies like Image processing is used to rectify such issues using different types of techniques and algorithms. Initially, the leaves of a tomato plant get affected, when plant develops a particular type of disease. In this project, four consecutive stages are used to discover the type of disease. The four stages include pre-processing, leaf segmentation, feature extraction and classification. To remove the noise we are doing the pre-processing and to part the affected or damages area of the leaf, image segmentation is used. The k-nearest neighbors (KNN) algorithm, which is a guided, supervised and advance machine learning algorithm, is implemented to find solutions for both the problems related to classification and regression. During the terminal stage, user is recommended with the treatment. Mostly live plants are adversely affected by the diseases. This paper imparts representation of leaf disease detection employing image processing that can identify drawbacks in tomato plant from images, based on color, bound and texture to give the brisk and reliable results to the farmer.

**Keywords:** Image processing, k-nearest neighbour, feature extraction.