**Internet of Things (IoT) and Machine Learning Model of Plant Disease Prediction—Blister Blight for Tea Plant**

**ABSTRACT**

ABSTRACT Crop plant diseases are a significant threat to productivity and sustainable development in agriculture. Early prediction of disease attacks is useful for the effective control of the disease by taking proactive actions against their attacks. Modern Information and Communication Technologies (ICTs) have a predominant role in Precision Agriculture (PA) applications to support sustainable developments. There is an immense need for solutions for the early prediction of the disease attack for proactive control against the plant disease attack. The present solution of disease detection using the computer vision approach can only detect the existence of the disease once the disease has already appeared. This study aims to propose a Machine Learning (ML) approach for the early prediction of the probability of disease attack based on Internet of Things (IoT) directly sensed crop field environmental conditions. Plant disease life cycles are strongly correlated with environmental conditions. The crop field environmental conditions are used to predict the occurrence of plant diseases. The Multiple Linear Regression (MLR) is applied as the ML model due to the existence of a linear relationship between disease attack and environmental conditions. Internet of Things (IoT) based crop field environmental conditions help to accurately predict the occurrence of plant diseases using the ML approach. The proposed model is implemented for the prediction of blister blight (Exobasidium vexans) for tea (Camellia sinensis) plant to check the effectiveness of the proposed solution. The implementation of the proposed model from 2015 to 2019 reveals that the accuracy of prediction of occurrence of the disease reached up to 91% in 2019.

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