Statistical Growth Prediction Analysis of Rice Crop with Pixel-Based Mapping Technique

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Abstract

Agriculture has attracted eminent researchers during the past few decades owing to revolutionary advancements in the field of data analysis using machine learning and computer vision techniques. The continuous monitoring of plant growth is an important aspect in the field of agriculture and has associated challenges also. The current work aims to define the significance of the pixel-based clustering techniques for analyzing plant growth in terms of height calculation. In the proposed work, pixel-based mapping has implemented its two applications viz. vertical and horizontal scaling for height calculation. Here, vertical mapping implements an image processing technique to monitor the height of a single plant whereas the horizontal mapping technique determines the average volume of the whole field using k-means. During the result analysis, it is observed that the proposed model provides an accuracy of 97.58% outperforming the state-of-the-art models. Another exciting characteristic of the proposed model is that it is hardware-free which further escalates the scope of its implementation in a real-life scenario.

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