

Automated tomato grading system using Computer Vision (CV) and Deep Neural Network (DNN) algorithm

Abstract

The tomato grading is based on the skin colour at the grading stage. The evaluation of the colour used to classify tomatoes is very important, and the current methods of identifying and determining tomato varieties are still manual and prone to human error. The ability to automate tomato grading helps the food industry determine colour grades during the evaluation phase. Therefore, Computer Vision (CV) and Deep Neural Network (DNN) are utilised to grade tomatoes by determining their maturity colour. Three hundred tomatoes were selected and its maturity level are assigned by expertise. The tomato images are captured, processed and passed to the DNN classifier to determine the tomato grade. The proposed DNN classifier achieved the mAP percentage of 95.52%. This shows that the computer vision built into the DNN algorithm can provide an efficient implementation for predicting tomato grade.

Keywords

Computer vision; Deep neural network; Tomato grading