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Detection of Sweetness Level for Fruits (Watermelon) with Machine Learning (Conference Paper)

Nazulan, W.N.S.W., Asnawi, A.L. ✉, Ramli, H.A.M., Jusoh, A.Z., Ibrahim, S.N., Azmin, N.F.M.

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Abstract

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The inspection and grading of the watermelon are done manually but it is a tedious job and it is difficult for the graders to maintain constant vigilance. Thus, the image processing has widely been used for identification, detection, grading and quality evaluation in the agricultural field. The objective of this work is to investigate the sweetness parameter for the fruit's detection and classification algorithm in machine learnings. This study applies image processing techniques to detect the color and shape of watermelon's skin for grading based on the sweetness level using K-means clustering method via the Python platform. 13 samples of watermelon images are used to test the functionality of the proposed detection system in this study. Then, each watermelon is grouped into Grade A (high level of sweetness), Grade B (medium level of sweetness), and Grade C (low level of sweetness) based on its color and shape detection results. At the end of this research, the proposed technique resulted in an inaccurate prediction for 2 watermelon samples out of 13 samples which indicates the system has an 84.62% accuracy in detecting the watermelon sweetness level. © 2020 IEEE.

SciVal Topic Prominence ⓘ

Topic: Hyperspectral Imaging | Total Volatile Basic Nitrogen | Freshness

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Author keywords

fruits detection k-mean clustering machine learning sweetness level watermelon

Indexed keywords

Engineering controlled terms: Advanced Analytics Agricultural robots Big data Cluster analysis Fruits Grading K-means clustering Machine learning

Engineering uncontrolled terms: Agricultural fields Classification algorithm Detection system Grade B Image processing technique K-means clustering method Quality evaluation Shape detection

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