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Image Correction for Quantitatively Determining Harvest Time of Apple Outdoors

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The proper time to harvest high-quality fruits is determined by comparing fruits from different trees with reference to a color chart for each variety. This standard of assessment is not unified because it is based on appearances. Machines that have been developed to determine the proper time to harvest fruits are ineffective as they tend to misclassify unripe fruits as ripe. Thus, in this paper, we aim to develop a system that can accurately determine the proper time to harvest apples from a given tree. In previous studies, we had conducted an indoor experiment to determine the proper time to harvest apples. This had revealed that the H in the HSV color space and the a* in the L*a*b* color space are useful in determining the appropriate time. However, outdoor lighting conditions change according to time and weather; therefore, we introduce an image correction method to reduce the influence of lighting conditions.

Keywords : Image processing, Determination of appropriate harvest time, Sensory inspection