

Title Application of NIR-Color CCD Camera to Eggplant Grading Machine
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 reflectance

Abstract

An on-line eggplant grading machine was developed to inspect and grade fresh market eggplant in an agriculture cooperative located at Okayama, Japan. Two machine vision systems, which made up from 6 color CCD cameras and 4 monochrome CCD cameras were used for acquiring digital image of the eggplant. Eggplant fruits are graded when the fruits were conveyed through these cameras on a special designed rotary tray. 180 ° vertical turn of the rotary tray in between these camera boxes enable the inspection of the eggplant's entire surface. It was found that disorientated and disposition fruit on the rotary tray affect the grading process. Eggplant fruit is dark purple in color with extremely low spectral reflectance in the visible spectrum. Consequently, defect detection on the eggplant fruits and extraction of fruits feature from the low color contrast background are difficult. A new NIR-enhanced-color CCD camera (380nm-1400nm) was studied in overcome the problems mentioned above. Experimental result showed that this new camera was able to extract the fruit's feature from dark background and detection of low-contrast-defects was found possible too.