DESIGN OF AN IMAGE PROCESSING SYSTEM TO DETECT THE LEVEL OF FRUIT RIPENESS ON A ORANGE FRUIT SORTER CONVEYOR BELT

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ABSTRACT

In today's era technology is developing more rapidly and sophisticated. Human needs are increasingly dependent on technology. Not only technology in education but there is also technology in the plantation sector. In plantation technology, to improve the efficiency of sorting, a system is needed for sorting citrus fruits using a conveyor with a camera to detect the ripeness of citrus fruits. The results of this study are designing citrus fruit sorting on a conveyor system with a webcam camera using the morphological method as a complement to the results and the KNN (K-Nearest Neighbor) method to classify a data taken from the k closest neighbors (nearest neighbors). The training data used 30 oranges and 16 oranges as test data. The components used in this system are Raspberry Pi, SG90 Servo Motor, C270 Webcam Camera, 12 Volt Adapter. in the process of sorting fruit using a Raspberry Pi, the results of the RGB values in MATLAB use the double data type and then convert using an application on the website to get an integer value. This integer value can later be entered into the program display on the Raspberry Pi. Based on the testing of the RGB values of citrus fruits that have been carried out 5 times using 30 oranges as training data and 16 oranges as test data. The accuracy rate of the calculation of RGB values in MATLAB is 87.5%, while for testing the success of the sorting system, the success rate is 87.5% from 16 experiments.

Keywords : *PCD, Morphology, KNN, Raspberry Pi, camera*