ABSTRACT

Tomatoes, as part of the plant can be classified into vegetable tomato (round) and fruit tomato (oval). The numbers of savors owned by tomatoes are still rarely known by people today. So that the quality and quantity of production and cultivation techniques used are still not good. Similarly, in classifying good tomatoes by farmers. One factor is caused by eyestrain and differing perceptions of each tomato farmers. Therefore, in this research was created software that can automatically classify a tomato based on shape, size and ripeness of the rind.

The software system uses two webcams to capture the tomatoes in two different ways. Webcam-1 and webcam-2 have the same distance with the object (tomato), that is 20 cm. Webcam-1 and webcam-2 are separated by a 90° angle with tomatoes as its axis. System is tested by capturing the tomatoes using lighting and sunlight. The resulting image is processed using digital image processing, which calculates the diameter of tomato to classify image shapes by finding left, right, top and bottom pixels boundary of tomato on the image. For the size classification is determined by calculating the pixels area each side. While ripeness can be classified by calculating the ripe color pixels area, then compared with the overall object of the tomato.

Testing system used result of MOS (Mean Opinion Score) or the subjective assessment of the tomatoes. From testing result, is obtained highest level of accuracy for the classification system of the shape is 86,17 % using first threshold value of 0,55, size classification accuracy is 84,04% using first threshold of 0,5, the classification accuracy is 80,85% using second threshold of 0,7 and for the overall classification accuracy is 54,26% with 0.75 as second threshold.

Keywords: classification, tomato fruit, tomato vegetable, size, color, two webcams, digital image processing