Abstract

Tomato is a fruit that is consumed every day by the Indonesian population Identification of maturity of tomatoes in general is still mostly done manually by farmers. Manual way is done based on visual observation directly on the fruit to be classified.

The development of information technology enables the identification of fruit maturity level based on ciitra with the help of computer. This computational way is done by using the camera as an image processor of the recorded image (image processing). The tomato fruit is identified based on the image HSV input obtained from the capture result, after getting the HSV image converted to the HSV image for its quality detection. From several samples of HSV data pattern of tomato fruit with different quality levels obtained by several groups of maturity level, some of the maturity level level will be clarified with Learning Vector Quantization algorithm that HSV data is processed into HSV data and classified by this algorithm to get the level of maturity and quality Accurate.

In this Final Project, a simulation will be designed to detect the maturity of the simulation fruits connected to the camera and integrated by arduino UNO. The course of this program by entering some samples of tomatoes where the program will give the results of image recognition image of tomato maturity taken from the integrated camera where the process of maturity detection is using learning vector quantity neural network algorithm. The objective of this program is to sort tomatoes based on their quality and gradation levels using the learning vector quantization algorithm method.

From the results of the test and sistem analysis of 30 tomatoes tested, the average accuracy of the sistem detects the *grade* of tomatoes based on the weight and the exact quality is 76.67% while for error rate the sistem detects tomato *grade* and tomato quality 23.3%. So from total testing the sistem detects tomato *grade* and its quality from 30 samples reads 23 which is readable *grade* and its quality is suitable then 7 reads do not match the *grade* and its quality

Keyword :image processing, HSV, Learning Vector Quantization,tomatoes