

ABSTRACT

In agriculture, the quality of fruit can be done by examining the shape of fruit, fruit size or color of the fruit skin. Determination of quality bananas usually can be done manually by farmers with visual observation and calculation of the weight of a banana. By using manual systems, the classification of bananas will have difference results according to farmers opinion in classifying of banana. To get results accurately in the selection of bananas, the process will be created in a computer system by using image processing from bananas to be selected

In this final project, the software have been made to determine the type and ripeness of banana fruit by using a simple digital image processing methods. The process of digital image processing is performed to determine the type of banana which use a genetic algorithm method. Meanwhile, to determine ripeness can be done by determining the total of color pixels to determine the threshold ripe and unripe.

From 127 test images obtained the type of accuracy has reached 91.29% and error 8.71%, while the accuracy for the ripeness has reached 80.97% and error 19.03%. The software can work properly as planning. Therefore, implementation from this final project can help farmers to determine the type and ripeness of banana fruit properly.

Keywords: genetic algorithm, type, ripeness, bananas, digital image processing