ABSTRACT

The shelf life of papaya is relatively low and it is easy to lose its freshness because it has soft texture of the fruit that requires the papaya harvesting process when the papaya is in raw condition. In order to get the fresh papaya with quality that is suitable for consumption, it is certainly the problem of consumers to sort out the proper fruit in ripe condition. In order to define the ripeness of papaya, it is difficult to distinguish between raw, half-ripe, and ripe papaya just by looking at the texture and color of the skin, so consumers still have difficulty to know the level of ripeness of the papaya.

This final project discussed the classification ripeness and weight prediction of papaya based on texture and weights. Papaya's classification and weight prediction was shown using papaya images that were taken from fruit's merchants with total amount of 85 samples.

The benefit of classification and prediction of papaya are to reduce consumers difficulty in sorting papaya by using the Fuzzy Inference System (FIS) method. FIS method is expected to be able to classify and predict papaya according to the level of ripeness with persistent accuracy.

The results from this final project that can be conducted are the system can generate 2 outputs of ripeness classification and weight prediction. Ripeness classification is expected able detect 3 levels of ripeness: raw, half-ripe, and ripe by using 90 images of papaya with 75 training data and 15 testing data papaya with FIS method that could reach the accuracy of 93% and predict the weight papaya by using 83 images of papaya with 73 training data and 10 testing data papaya with FIS method that could reach accuracy of 90%.

Keywords: *Fuzzy Inference System (FIS), Papaya, Ripeness, Weight.*