

ABSTRACT

The increasing demand for beef in Indonesia is currently being used by unscrupulous traders to make a lot of profit. The sale of poor-quality beef raises public concern because of its very dangerous content. Good beef quality can be determined in terms of color, smell and texture. People generally use sight to determine the quality of beef. However, this method is still less effective because the eye has a weakness to see an object in detail. This study aims to design and create beef quality detection applications using digital image processing.

Prototype Applications are made using the Android operating system using the GLCM Feature Extraction method (Gray-Level Co-Occurrence Matrix) and the K-NN classification method (K-Nearest Neighbors). The detection process is carried out by taking pictures of beef and processing it with several stages of digital image processing. The processing stage consists of Gray Level image pre-processing, RoI segmentation (Region of Interest), histogram equalization and statistical value analysis of feature extraction. Then at the classification stage using the K-NN method (K-Nearest Neighbors) consist of determination the nearest neighbors of the image being tested, determine the class of each nearest neighbor of the image being tested, and determine the class of the test image based on the majority of the neighboring test image classes.

The results obtained from the series of processes above are an Prototype Android-based application that can be used for the detection and classification of beef quality Fresh or Not Fresh. This was obtained from the GLCM classification process using several statistical features such as (Contrast, Energy, Dissimilarity, Homogeneity, Correlation) And As well as in the classification process with the KNN method, the best distance calculation is obtained is Distance Euclidean at $K = 1$, with an accuracy of 96%.

Keywords : *Beef, Image Processing, GLCM, KNN*