

ABSTRACT

Indonesia is one of the largest tea producers in the world. The quality produced is very much considered, both from planting, harvesting, to post-harvest. This is done to get good quality tea. Besides that, in the harvesting process carried out by picking tea leaves, the farmers do so far, only based on pickings from the tea planting block. If the age of the block has arrived, the harvest time will be harvested. Determinants of other teas are season. During the rainy season, tea growth will be faster and during the dry season tea growth will be slower. This makes the spinning system sometimes inappropriate.

In this research the image of peko shoot tea leaves ($P + 2$) was taken at Lux lighting from 11,000 - 100,000 from each block where the block has a different picking age, ie blocks being harvested (ripe), blocks that will be harvested in the near future (half mature)), and blocks that have not yet been harvested (immature). The stages in this research are image acquisition, resize and segmentation, and transformation of images to HSI (Hue Saturation Intensity) and HSV (Hue Saturation Value) color features. Feature extraction by quantifying HSI and HSV colors. After obtaining HSI and HSV feature values, training image classification is performed using the K-NN (K-Nearest Neighbor) method.

The design of the system to identify the maturity of tea leaves has two stages, namely the training process and the test process. In the total training process the data used were 90 images and 60 images of Peko shoot tea leaves ($P + 2$). In this study the output was produced to identify the maturity of tea leaves from each mature, half-cooked, and immature category with the accuracy of HIS (Hue Saturation Intensity) and HSV (Hue Saturation Value) color features of 100% and 83.33% with computation time 28.4 mili second dan 27.3 mili second.

Keyword: *tea leaves, Hue Saturation Intensity, Hue Satration Value, K-Nearest Neighbor*