ABSTRACT

Songbird is kind of bird that has the characteristics of a melodious voice and often able to imitate the sound of the surrounding environment. For the purposes of preserved, public usually will choose a songbird with a good voice and also captivating body shape and feathers color. But with so many types of songbird spread in Indonesia would make difficulties in terms of recognizing and distinguishing bird species from each other, especially for the beginner bird lovers community.

To further facilitate the bird lovers community who want to preserve songbird and also to obtain a good quality bird, a system is needed to identify and distinguish the types of songbird automatically. In this final project, the writter will build design implementation identification system of songbird automatically based on color pattern and body shape with digital image processing. This system using first and second order statistical feature extraction method, shapes extraction based on distance of centroid, and for the classification method using k-Nearest Neighbor (k-NN). This system was built in Matlab R2011b software.

Based on the whole test result, it can be concluded that the system can identify the type of songbird based on color pattern and body shape. The highest accuracy is 90,67%, was obtained by combining statistical parameters include first order mean, second-order correlation, second order entrophy that applied to layer red, green, blue and grayscale and combined with shapes extraction based on distance of centroid at intervals angle 20 degrees. The accuracy results was obtained by euclidean distance method at k = 1 with average computation time 5.1887 seconds.

Keywords: *Songbird, Color pattern, Body shape, Statistical feature, Shape feature, k-NN*