

ABSTRACT

Consumption Race Chicken Eggs (also known as “Telur Ayam Negri” in Indonesia) are animal protein that has high nutrition and lots of Indonesian people likes it. One grain egg has a chemical compositions that easily damaged. Egg quality can be known from several factors, such as Haugh Unit and yolk color. Yolk color value can be measured by Yolk Color Fan (has a grade value from 1 to 15). But these days, the yolk color can be modified. So, the main factor to classify that the eggs is good or not is the HU value and the yolk color is only for supporting factor. Micrometer HU has its limitations and accuracy is less good than the formula but HU formula takes an extra time. Classify yolk color by using yolk color fan is too subjective because it's only seen by human eyes. So, the digital image processing is used in order to find a more objective result in a short time.

In this final project, histogram of oriented gradient method and learning vector quantization classification are used to detect egg quality and yolk color. This program is desgined for android phone. There are two system in this program, first is to detect the quality from HU value, second is to detect yolk color. The output of the first system are “AA” if HU value more than 72, “A” if HU value between 60-71, “B” if HU value between 31-59 and “C” if HU value less than 30. The output of the second system are “Pucat” when yolk color value between 1 and 5, “Kuning” when yolk color value between 6 and 10 and “Sangat Kuning” when the yolk color value between 11 and 15.

After testing the system with 60 training data and 30 test data, the best recorded accuracy is 83.3333 % and the fastest computation is 4.4343 s. The optimum layer is RG and it used to testing the other parameters (cell size, block size, learning curve and epoch). It is expected to be detected without breaking the eggshell in next research project. I hope this final project can help egg supplier to detect the quality of the egg and the yolk color.

Keyword : Egg, Detection, Haugh Unit, HOG, LVQ, Android