

ABSTRAK

ALDI ALFA JEREMY NAINGGOLAN PARHUSIP. Klasifikasi Kesegaran Daging Ayam dengan Ekstraksi LBP dan GLCM Menggunakan Algoritma Naïve Bayes. Dibimbing oleh NURUL HAYATY, S.T., M.CS dan MARISHA PERTIWI S.TR.KOM., M.KOM.

Daging ayam cukup populer untuk dikonsumsi oleh masyarakat Indonesia, namun masyarakat masih kesulitan untuk mengetahui tingkat kesegaran daging ayam karena masih dilakukan secara manual. Oleh karena itu dibutuhkan suatu sistem yang mampu mengidentifikasi tingkat kesegaran daging ayam secara otomatis berdasarkan karakteristik teksturnya. Penelitian ini bertujuan untuk membandingkan performa antara metode Local Binnary Pattern (LBP) dan Gray Level Co-occurrence Matrix (GLCM) dalam mengklasifikasi tingkat kesegaran daging ayam menggunakan algoritma Naïve Bayes. Dataset terdiri dari 288 citra daging ayam broiler bagian dada yang terbagi dalam tiga kelas, yaitu daging ayam segar, daging ayam kurang segar, dan daging ayam busuk. Dataset dibagi menjadi 228 citra latih dan 60 citra uji. Tahapan penelitian meliputi akuisisi citra, praproses citra, augmentasi citra, ekstraksi fitur menggunakan LBP dan GLCM, kemudian proses klasifikasi menggunakan algoritma Naïve Bayes. Performa sistem dievaluasi menggunakan *Confusion Matrix* menggunakan metrik accuracy, precision, recall, dan f1-score. Hasil penelitian menunjukkan bahwa metode GLCM mampu menghasilkan performa klasifikasi yang lebih tinggi dibandingkan metode LBP. Dimana metode GLCM memperoleh nilai accuracy sebesar 63,33% sedangkan metode LBP hanya memperoleh nilai accuracy sebesar 30%. Untuk nilai rata-rata precision, rata-rata recall, dan rata-rata f1-score yang dihasilkan metode GLCM juga lebih baik dibandingkan metode LBP.

Kata kunci: pengolahan citra, klasifikasi, Local Binnary Pattern, Gray Level Co-occurrence Matrix, Naïve Bayes

ABSTRACT

ALDI ALFA JEREMY NAINGGOLAN PARHUSIP. Classification of Chicken Meat Freshness Using LBP and GLCM Extraction with the Naïve Bayes Algorithm. Supervised by NURUL HAYATY, S.T., M.CS, and MARISHA PERTIWI, S.TR.KOM., M.KOM.

Chicken meat is quite popular among Indonesians, but the public still faces difficulties in determining its freshness level because the process is still done manually. Therefore, a system is needed that can automatically identify the freshness level of chicken meat based on its textural characteristics. This study aims to compare the performance of the Local Binary Pattern (LBP) and Gray Level Co-occurrence Matrix (GLCM) methods in classifying the freshness level of chicken meat using the Naïve Bayes algorithm. The dataset consists of 288 images of broiler chicken breast meat divided into three classes: fresh chicken meat, less-than-fresh chicken meat, and spoiled chicken meat. The dataset was divided into 228 training images and 60 test images. The research stages included image acquisition, image preprocessing, image augmentation, feature extraction using LBP and GLCM, and classification using the *Naïve Bayes* algorithm. System performance was evaluated using a *Confusion Matrix* with the metrics accuracy, precision, recall, and F1-score. The results show that the GLCM method achieves higher classification performance than the LBP method. The GLCM method achieved an accuracy of 63.33%, while the LBP method achieved only 30%. The average precision, average recall, and average F1-score achieved by the GLCM method were also better than those of the LBP method.

Keywords: classification; chicken meat; Local Binary Pattern; Gray Level Co-occurrence Matrix; Naïve Bayes.