

ABSTRAK

Vandan Priya Aura, 2026. Sistem Deteksi Tingkat Kesegaran Daging Ayam Menggunakan *You Only Look Once (YOLO)* Berbasis *Android*. Skripsi. Program Studi Teknik Informatika, Fakultas Teknik, Universitas PGRI Madiun. Pembimbing (I) Moch Yusuf Asyhari, S.Tr.Kom., M.Kom. (II) Puguh Jayadi, S.Kom., M.Kom.

Penentuan tingkat kesegaran daging ayam umumnya masih dilakukan secara manual berdasarkan pengamatan visual terhadap warna, tekstur, dan aroma daging. Metode tersebut bergantung pada pengalaman seseorang sehingga berpotensi menghasilkan penilaian yang subjektif dan kurang konsisten. Penelitian ini bertujuan untuk mengembangkan sistem deteksi tingkat kesegaran daging ayam menggunakan metode *You Only Look Once (YOLO)* berbasis *Android*. Pengembangan sistem menggunakan metode *V-Model* yang meliputi analisis kebutuhan, perancangan, implementasi, dan pengujian sistem. Model dilatih menggunakan 615 citra yang diperoleh dari kombinasi *dataset Roboflow* dan hasil pengambilan gambar oleh peneliti melalui *Google Colaboratory*. Selanjutnya, model dikonversi ke format *TensorFlow Lite* agar dapat diimplementasikan pada aplikasi *Android* untuk melakukan deteksi secara *real-time*. Evaluasi model dilakukan menggunakan metrik *Precision*, *Recall*, *F1-Score*, *mean Average Precision (mAP50)*, dan *mAP50-95*. Hasil penelitian menunjukkan bahwa model memperoleh nilai *Precision* sebesar 97,62%, *Recall* sebesar 97,62%, *F1-Score* sebesar 97,62%, *mAP50* sebesar 97,50%, dan *mAP50-95* sebesar 95,15%. Aplikasi yang dikembangkan mampu mendeteksi tingkat kesegaran daging ayam secara cepat dan akurat, menampilkan hasil deteksi beserta tingkat keyakinan model, serta menyimpan riwayat hasil deteksi. Berdasarkan hasil pengujian, sistem yang dibangun dapat membantu masyarakat dalam mengidentifikasi tingkat kesegaran daging ayam secara praktis melalui perangkat *Android*.

Kata Kunci: Deteksi Kesegaran Daging Ayam, *YOLO*, *Android*, Pengolahan Citra Digital.

ABSTRACT

Vandan Priya Aura, 2026. *Chicken Meat Freshness Detection System Using You Only Look Once (YOLO) Based on Android. Undergraduate Thesis. Informatics Engineering Study Program, Faculty of Engineering, Universitas PGRI Madiun. Supervisor (I) Moch Yusuf Asyhari, S.Tr.Kom., M.Kom. Supervisor (II) Puguh Jayadi, S.Kom., M.Kom.*

The determination of chicken meat freshness is generally performed manually through visual observation of its color, texture, and odor. This conventional method relies heavily on individual experience, resulting in subjective and inconsistent assessments. Therefore, this study aims to develop an Android-based chicken meat freshness detection system using the You Only Look Once (YOLOv8n) object detection method. The system was developed using the V-Model software development methodology, which consists of requirement analysis, system design, implementation, and testing. The detection model was trained using 615 images collected from a combination of the Roboflow dataset and images captured by the researcher through Google Colaboratory. The trained model was subsequently converted into the TensorFlow Lite format for implementation in an Android application capable of performing real-time detection. The model performance was evaluated using Precision, Recall, F1-Score, mean Average Precision (mAP50), and mAP50-95 metrics. The experimental results demonstrated that the model achieved a Precision of 97,62%, Recall of 97,62%, F1-Score of 97,62%, mAP50 of 97.50%, and mAP50-95 of 95.15%. The developed application is capable of detecting chicken meat freshness quickly and accurately, displaying the detection results along with the model confidence score, and storing detection history. Based on the testing results, the proposed system can assist users in identifying the freshness level of chicken meat in a practical and efficient manner using Android devices.

Keywords: *Chicken Meat Freshness Detection, YOLO, Android, Digital Image Processing.*