ABSTRAK

Penetasan telur bebek memerlukan pemilihan telur yang subur (fertil) agar proses berjalan efisien. Namun, metode yang masih digunakan umumnya adalah candling manual, yaitu meneropong telur dengan senter di ruangan gelap, yang kurang efisien, memakan waktu, serta berpotensi meningkatkan biaya. Oleh karena itu, penelitian ini bertujuan untuk mengembangkan sistem deteksi telur bebek fertil dan infertil secara otomatis. Metode yang digunakan adalah algoritma YOLOv8 berbasis *Convolutional Neural Network* (CNN). Data dikumpulkan menggunakan metode *candling* manual sebanyak 1.400 gambar, yang terdiri dari 700 telur fertil dan 700 telur infertil. Data kemudian diproses melalui tahap *preprocessing* berupa *resize* dan pelabelan, lalu dibagi menjadi data pelatihan (80%) dan validasi (20%). Model dilatih menggunakan *learning rate* 0,001, *batch size* 16, dan 100 *epoch*. Hasil pengujian sebanyak 30 kali menunjukkan bahwa sistem mampu mendeteksi telur fertil dan infertil dengan akurasi sebesar 93%.

Kata kunci: YOLOv8, deteksi objek, telur bebek, fertil, infertil.

UBP KARAWANG

ABSTRACT

The hatching process of duck eggs requires selecting fertile eggs to ensure efficiency. However, the commonly used method is manual candling, which involves inspecting eggs with a flashlight in a dark room. This method is less efficient, time-consuming, and can increase costs. Therefore, this study aims to develop an automatic system to detect fertilized and infertile duck eggs. The method used is the YOLOv8 algorithm, which is part of the Convolutional Neural Network (CNN). Data were collected using manual candling, resulting in 1,400 images consisting of 700 fertilized and 700 infertile duck eggs. The data were then preprocessed through resizing and labeling, and divided into training data (80%) and validation data (20%). The model was trained using a learning rate of 0.001, batch size of 16, and 100 epochs. The testing results, conducted 30 times, show that the system is able to detect fertilized and infertile eggs with an accuracy of 93%.

***Keywords** : YOLOv8, object detection, duck eggs, fertile, infertile.*