

ChatGPT Employees

ChickAge

Chicken Age Estimation Using Image Processing

Problem Description



In the poultry industry, determining the accurate age of chickens is essential for managing feeding schedules, monitoring growth, and maintaining overall flock health. However, current methods often rely on manual observation, which is time-consuming, inconsistent, and dependent on human expertise. This lack of precision can lead to inefficiencies in farm management and affect production quality.

Proposed Solutions

To address this issue, we propose an intelligent application that estimates the age of chickens through image analysis. The system will utilize a Convolutional Neural Network (CNN) to automatically extract and analyze visual features such as feather patterns, body size, and color changes from chicken images. By applying deep learning techniques, the application aims to deliver accurate, fast, and consistent age estimations, reducing human error and enhancing productivity in poultry operations.



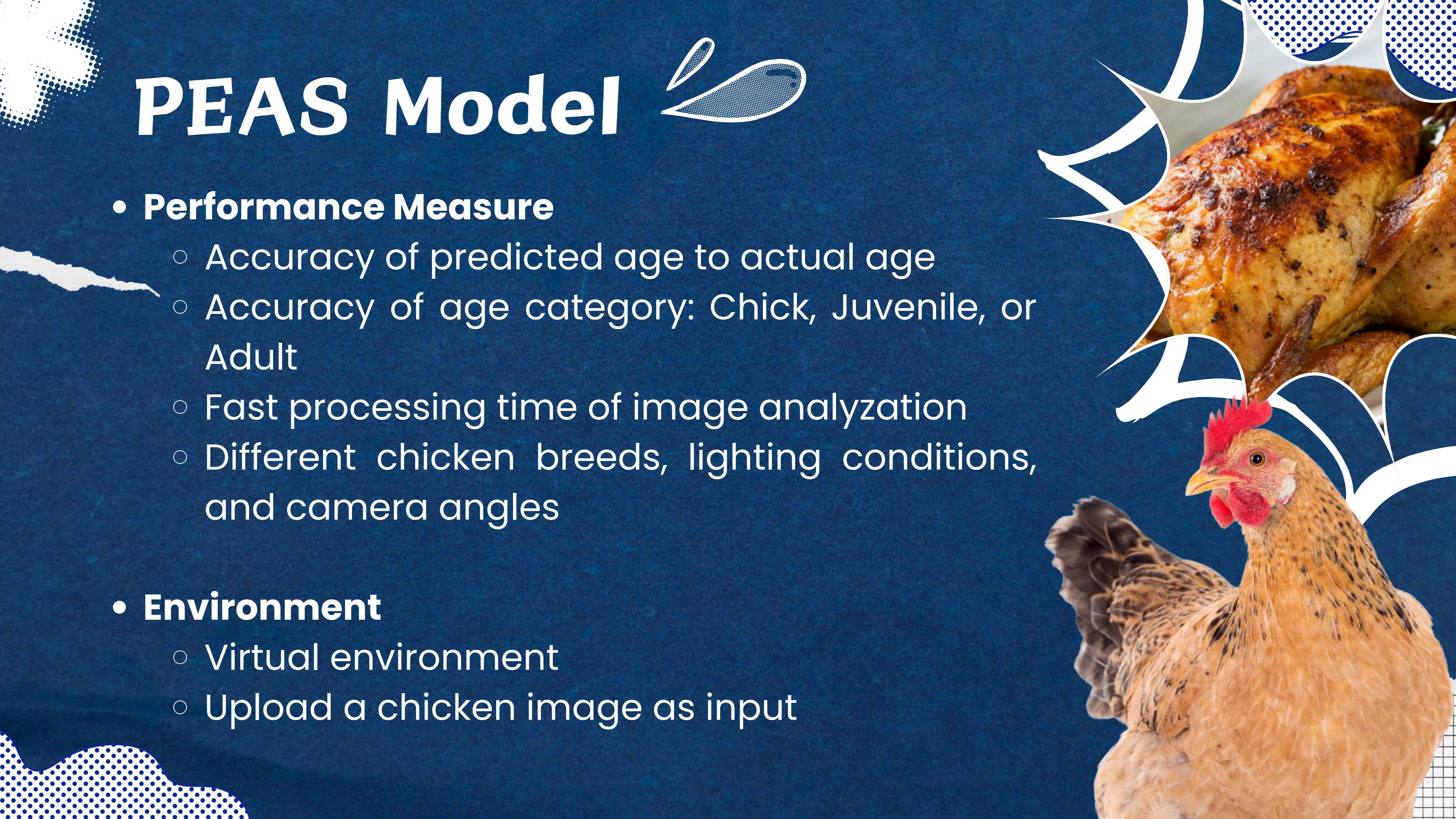
PEAS Model

- **Performance Measure**

- Accuracy of predicted age to actual age
- Accuracy of age category: Chick, Juvenile, or Adult
- Fast processing time of image analyzation
- Different chicken breeds, lighting conditions, and camera angles

- **Environment**

- Virtual environment
- Upload a chicken image as input



PEAS Model

- **Actuators**

- Displays estimated age and age category of the chicken
- Shows confidence level of the prediction
- Provides feeding or care instructions based on age
- Saves the results to a file

- **Sensors**

- Image attached by the user
- Extracts visual features such as feathers, body size, comb growth, etc.

AI Concepts Used

- **Learning Agent** - The system learns from chicken images to estimate age accurately.
- **Supervised Learning (Deep Learning)** - Uses a Convolutional Neural Network to recognize visual patterns like feathers, size, and color.
- **Optimization Strategy** - Minimizes prediction errors during training to improve accuracy.
- **Decision Component** - Classifies chickens into age categories and provides care recommendations.



System Architecture Flowchart

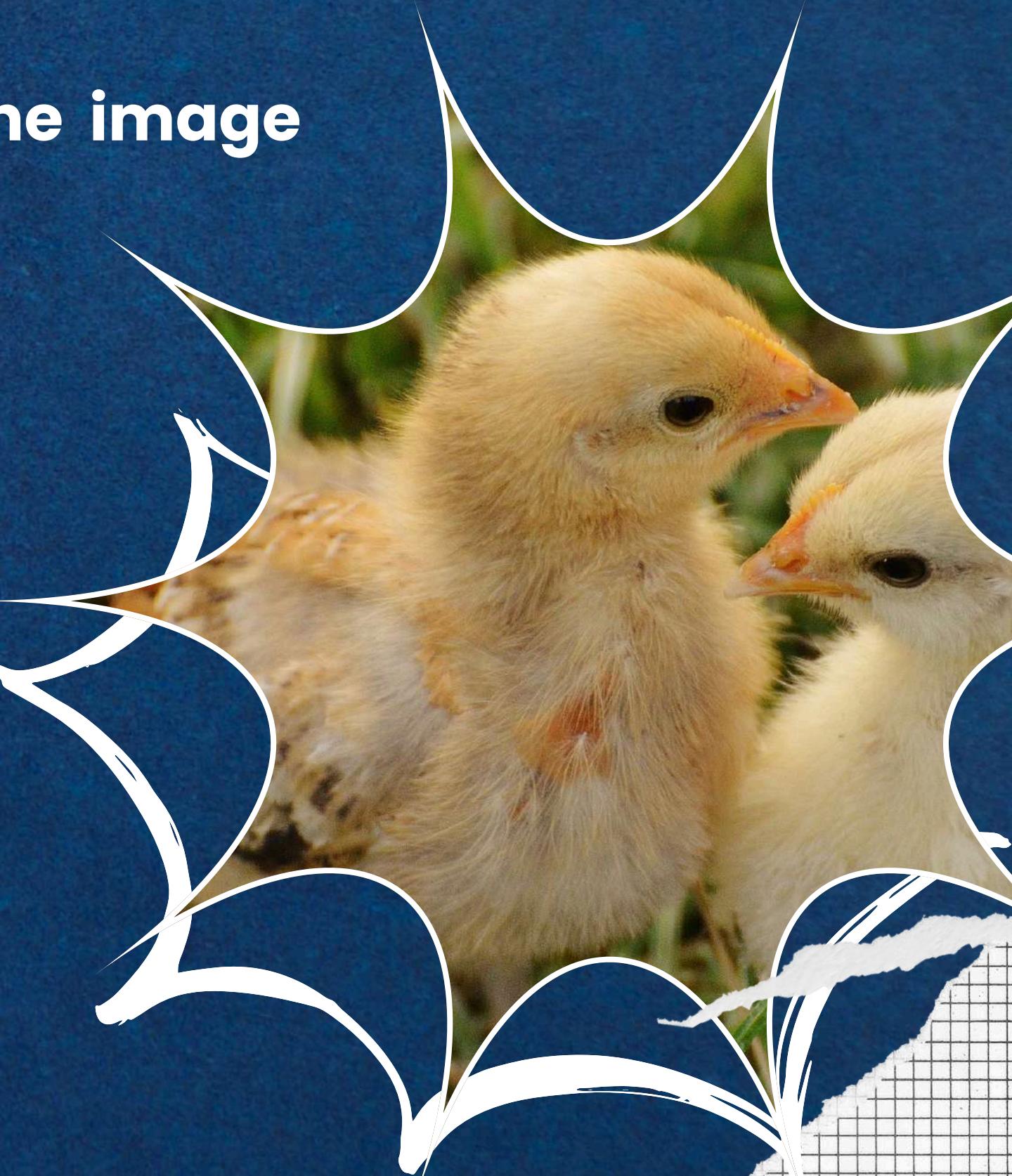
- ChickAge AI Process

- User uploads a chicken image through the application interface.
- The system prepares the image for analysis by:
 - Resizing and normalizing
 - Removing noise
 - Enhancing color and clarity



Feature Extraction (CNN)

- A Convolutional Neural Network analyzes the image to detect and extract key features such as:
 - Feather patterns
 - Comb size
 - Body proportions
 - Color variations



Model Prediction

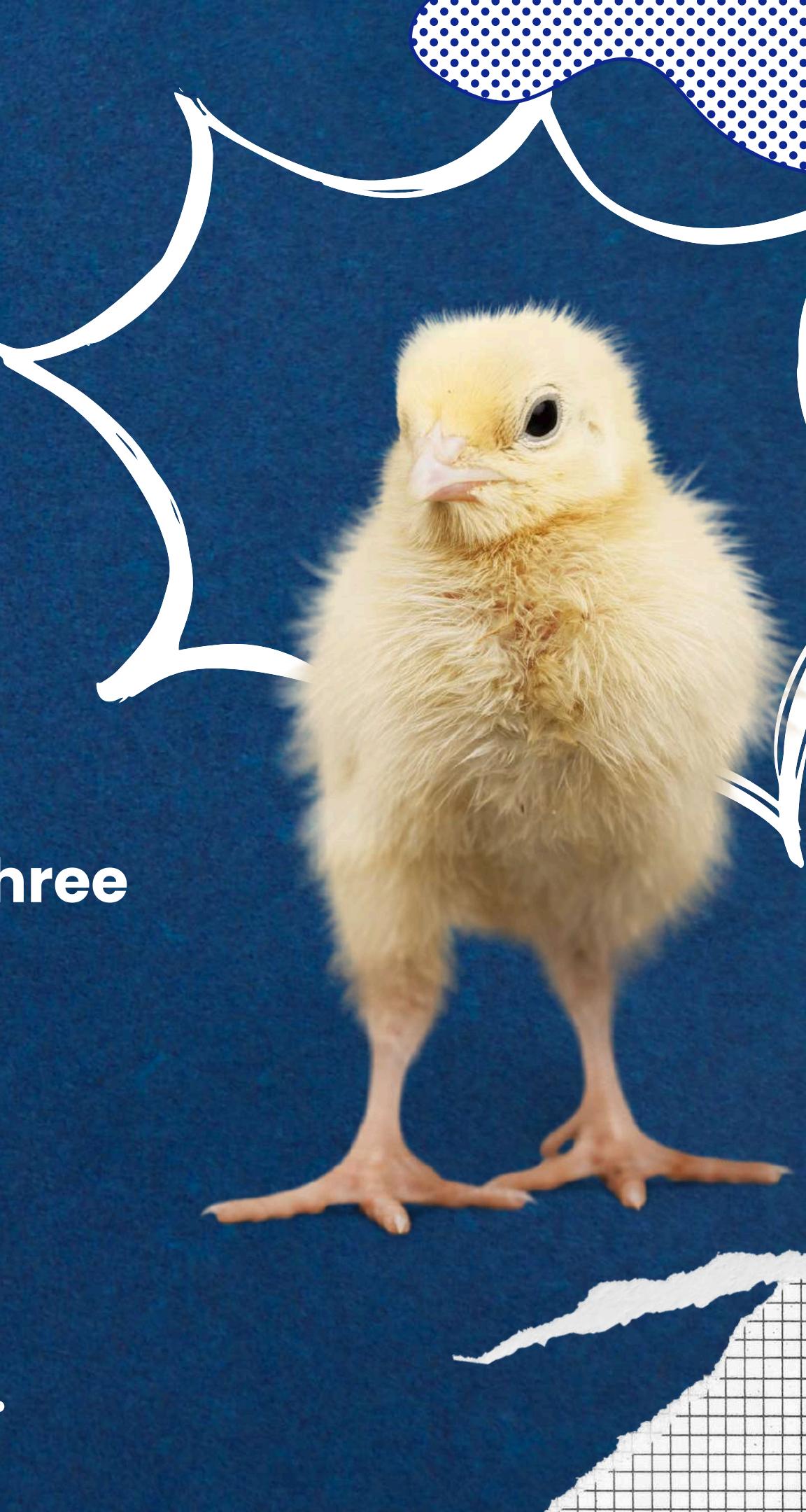
The CNN model uses supervised learning to estimate the chicken's age based on extracted features.

Decision & Classification

The system classifies the chicken into one of three categories:

-  Chick
-  Juvenile
-  Adult

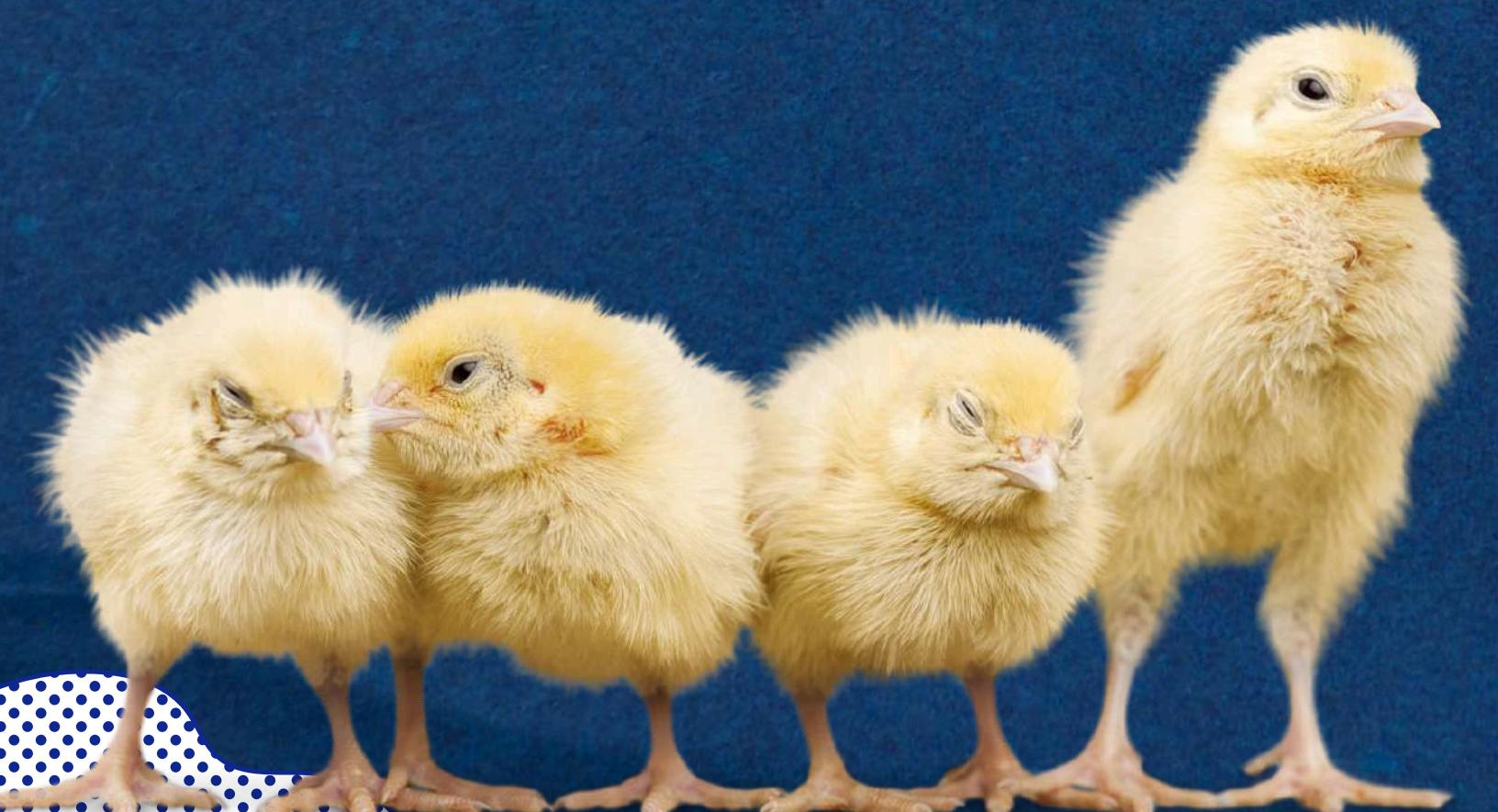
It also calculates the confidence level of the prediction.



Output Generation

Results are displayed to the user including:

- Estimated age and category
- Confidence level
- Feeding or care recommendations
- Option to save results to a file



User Input



Image Preprocessing



Feature Extraction



Model Prediction



Decision & Classification



Output Generation

Members:

- **Follante, Adrian Paolo S.**
- **Manalo, Ram Andrei M.**
- **Ramos, Renzo Emmanuel V.**
- **Unido, Jem Arden**

