Computer Vision-based Technology for Operational Excellence

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Problem Statement

A large poultry company striving for operational excellence seeks to optimize its processes by leveraging Computer Vision (CV) technology to automate and enhance efficiency and accuracy. Currently, quality checks are performed manually by operators and technicians who obtain product weight and count data. This manual process can be significantly improved by implementing a CVML (Computer Vision and Machine Learning) system to automate quality checks. The goal is to increase accuracy by augmenting the manual inspection process with advanced technology.

Project Objectives

The solution aims to automate the weight and count quality checks of products.

Key objectives include:

- Accurately counting and obtaining weight from product samples near real-time
- Ensuring quick and seamless object detection from the trained model
- Building an intuitive, user-friendly interface
- Rigorously testing system performance and integration

Design Approach

The prototype will gather inputs from product samples to display and catalog the count and individual average weight when an inspector places the product in a controlled camera/scale environment. This data will then be sent to the system, which communicates with the CV model for object detection and performs calculations.

The new sample data will then be transmitted to both the dashboard and the database. On the dashboard, this data is presented in a clear format, enabling the operator to easily identify any errors or miscalculations.

Tools Used

Backend	Python	Flask	MariaDB
Frontend	Ignition by inductive automation		
CV/ML	OpenCV	ultralytics YOLO	

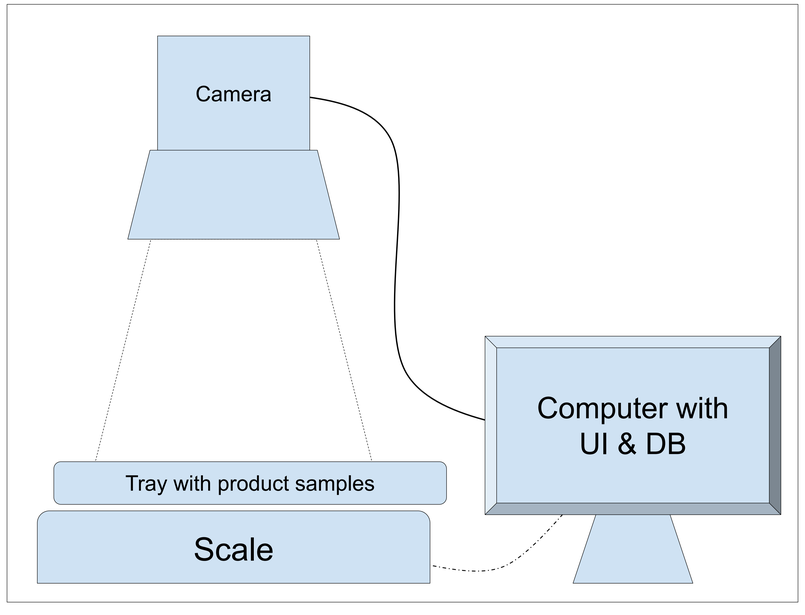

Fig. 1: Overall System Design

Sample Output