Project Design Phase
Solution Architecture

Date	30 June 2025
Team ID	LTVIP2025TMID37158
Project Name	Transfer Learning-Based Classification of Poultry Diseases for Enhanced Health Management
Maximum Marks	4 Marks

Solution Architecture:

This project leverages transfer learning models (VGG16, VGG19, ResNet50) to predict poultry diseases using image inputs from users via a web interface. The architecture is designed to enable fast, real-time disease diagnosis, even for users with minimal technical knowledge. The application is built with Python and Flask, trained on custom poultry datasets using Google Colab, and hosted as a simple-to-use web platform.

Key Components:

Frontend (User Interface)

HTML/CSS + Flask templates allowing users to upload poultry images easily

Backend (Model + Server)

Flask API receives uploaded image, processes it with Keras/TensorFlow, and returns prediction

Model

Pre-trained CNN models (VGG16/VGG19/ResNet50) fine-tuned on poultry disease dataset

Storage

Local storage or Google Drive for uploaded images and model weights

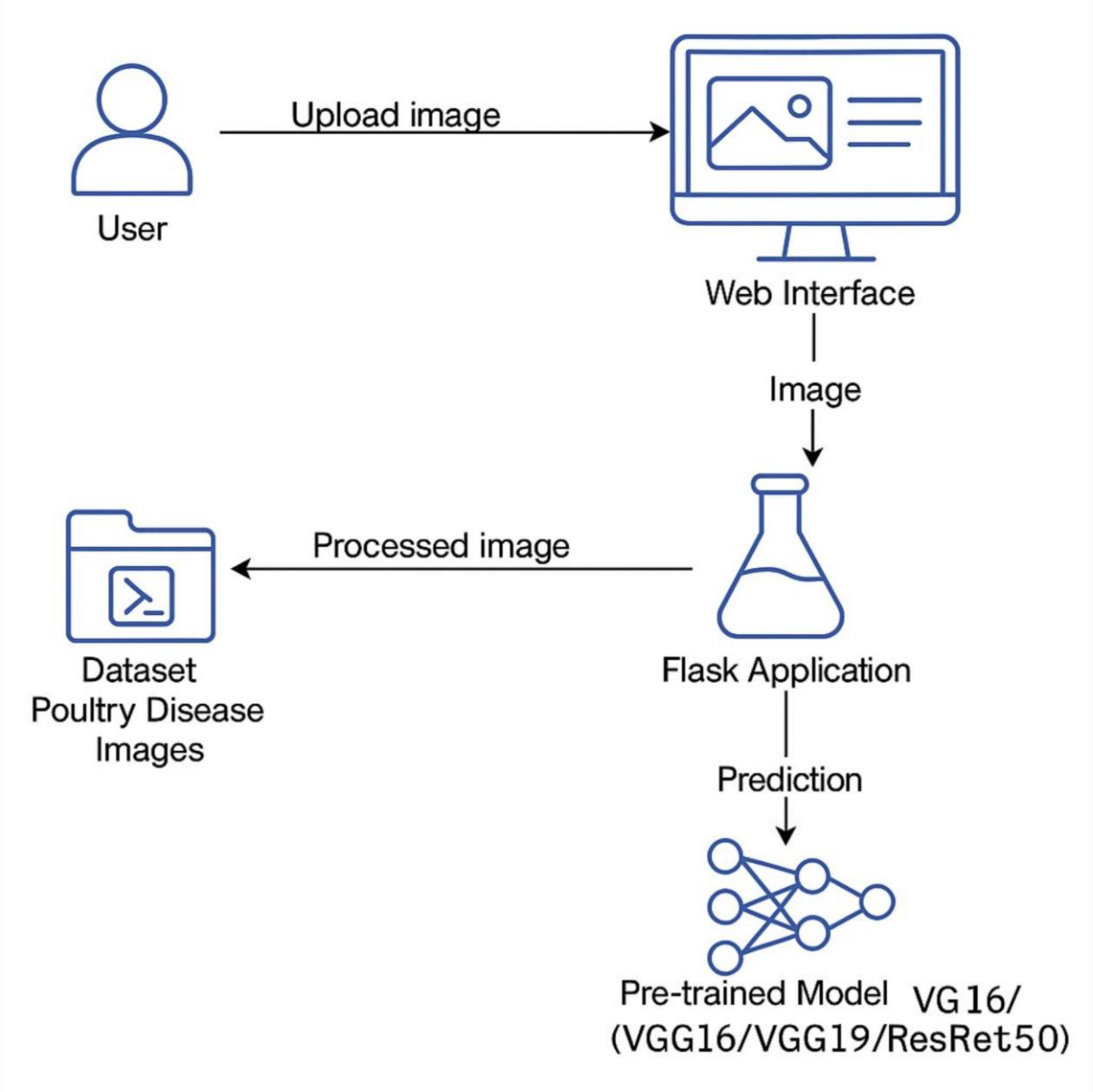
Deployment

Flask app deployable on local machine or cloud platforms like Heroku, AWS, or PythonAnywhere

Dataset Source

Image datasets of poultry diseases from Kaggle/Zenodo (e.g., Coccidiosis, Salmonella, Newcastle)

Solution Architecture Diagram:



Data Flow:

1. User uploads poultry image
2. Web Interface (HTML/Flask) sends image to backend
3. Flask Application preprocesses the image
4. Trained Model (VGG16/VGG19/ResNet50) predicts the disease
5. Prediction Result is sent back to the Web Interface
6. Dataset is used only during training phase, not in real-time flow