

Project Documentation:

Transfer Learning-Based Classification of Poultry Diseases For Enhanced Health Management

1. Introduction

- **Project Title:**

Transfer Learning-Based Classification of Poultry Diseases for Enhanced Health Management

- **Team Members:**

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- N Swathi

2. Project Overview

- **Purpose:**

This project aims to assist poultry farmers by providing an AI-powered mobile/web application capable of identifying poultry diseases from images using deep learning models.

- **Features:**

- Image-based disease prediction
- Webcam and file upload support
- Offline usage after deployment
- Immediate treatment suggestions - User-friendly UI

3. Architecture

- **Frontend:**

The frontend is built using HTML5, CSS3, and Javascript for responsiveness. JavaScript handles webcam functionality.

- **Backend:**

Implemented using Flask, a lightweight Python framework. It loads the model, handles prediction logic, and serves HTML templates.

- **Database:**

Currently, no database is used. The system is designed for direct input and prediction. Future enhancement could include MongoDB to store prediction logs and user history.

4. Setup Instructions

- **Prerequisites:**

- Python 3.x
- Flask
- TensorFlow / Keras
- PIL, NumPy, OpenCV - Virtual environment (optional)

- **Installation:**

1. Clone the repository
2. Set up a virtual environment (optional)
3. Install required packages using ``pip install -r requirements.txt``
4. Place the trained model as ``model.h5`` in the root directory
5. Run the app using ``python app.py``

5. Folder Structure

- **Client:**

- /templates: HTML templates
- /static/uploads: Stores uploaded images
- /static/css: Custom styles

- **Server:**

- app.py: Flask backend logic
- model.h5: Trained Keras model

6. Running the Application

- **Frontend:**

- Handled by Flask with HTML templates.

- **Backend:**

- Run ``python app.py`` to start the server.
- Access via `http://127.0.0.1:5000`

7. API Documentation

- **POST /predict:**

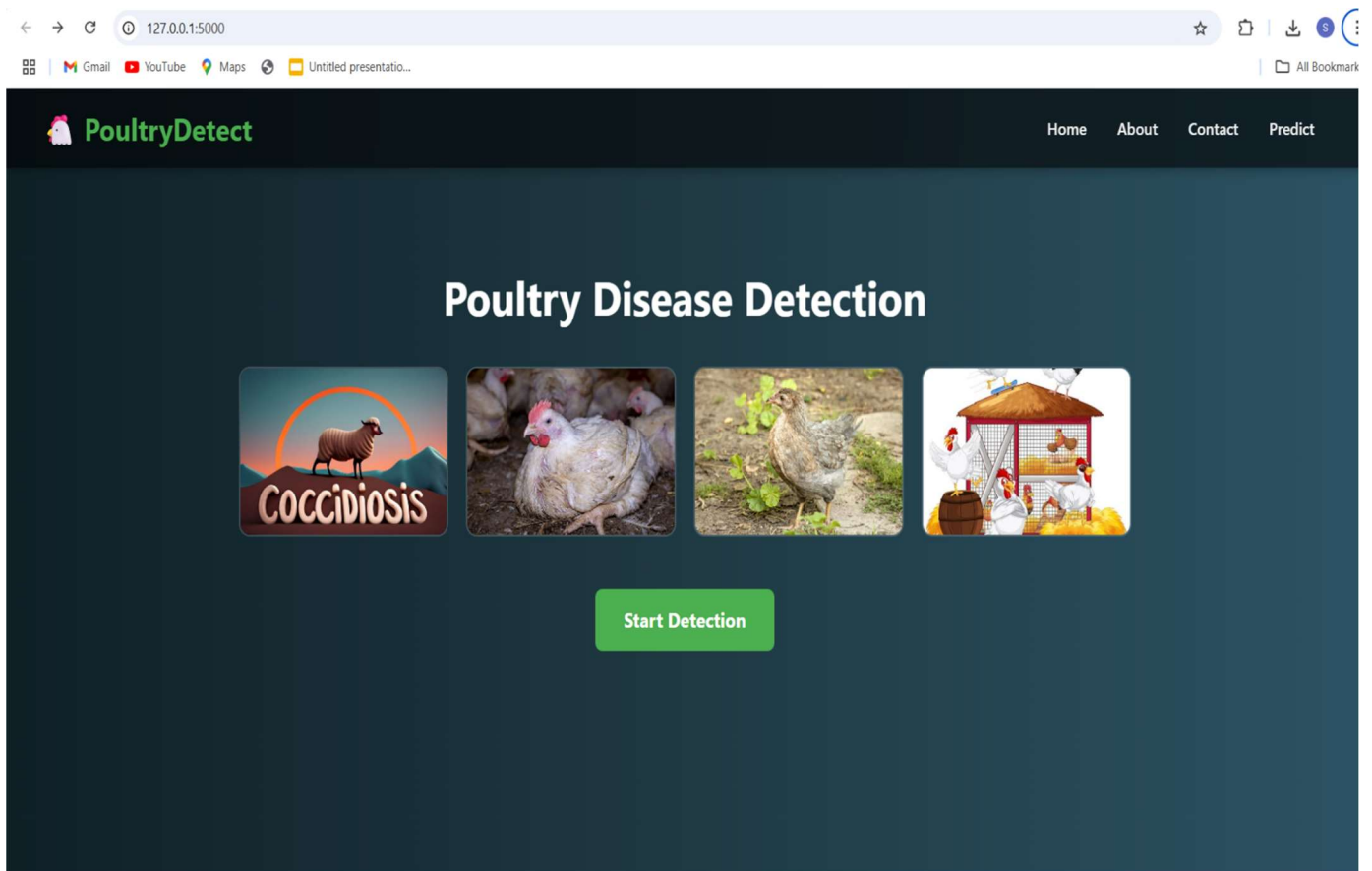
- Parameters: image (via upload or webcam)
- Returns: predicted disease label and suggested treatment.

8. Authentication

- Not implemented in the current version. Future versions may include user login, prediction history, and access control.

9. User Interface

- The UI includes a dark-themed prediction page with upload and camera capture support. Navbar links to Home, About, Contact, and Predict.



10. Testing

- **Functional Testing:**

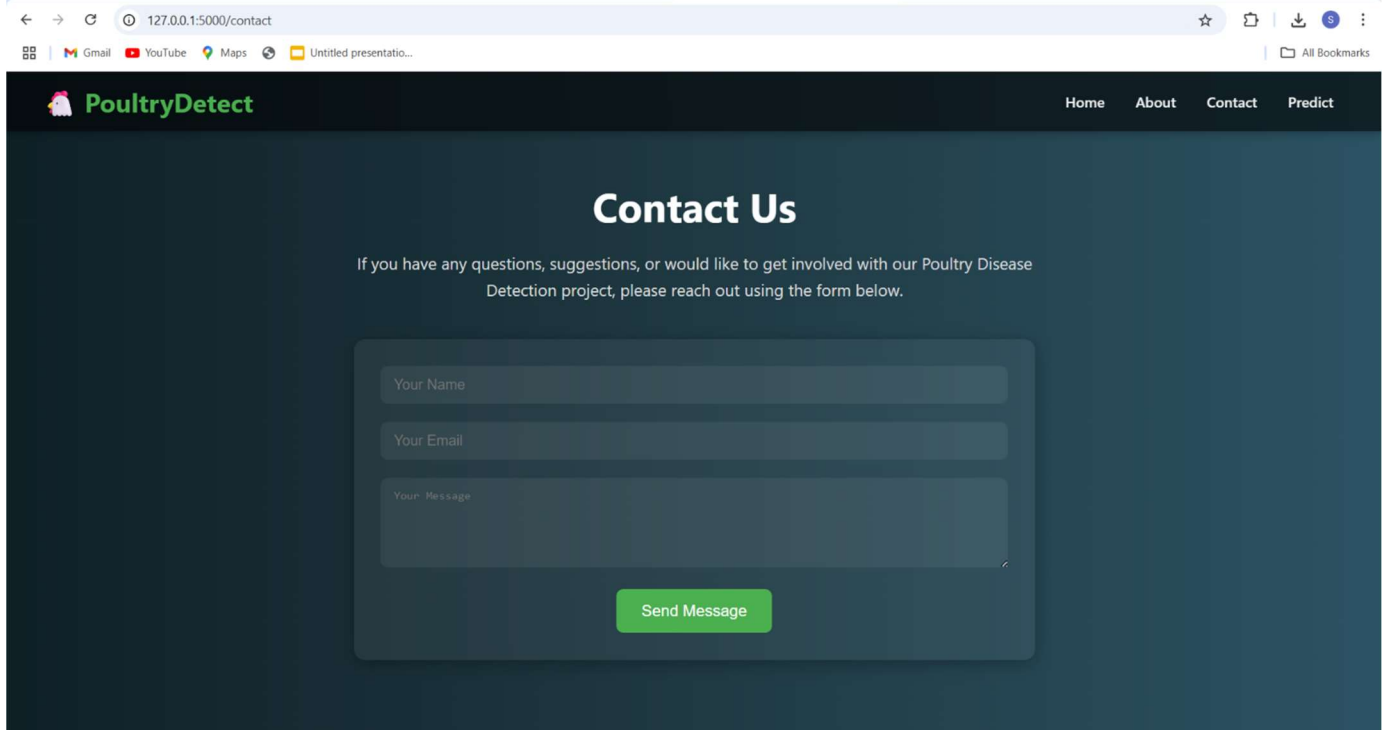
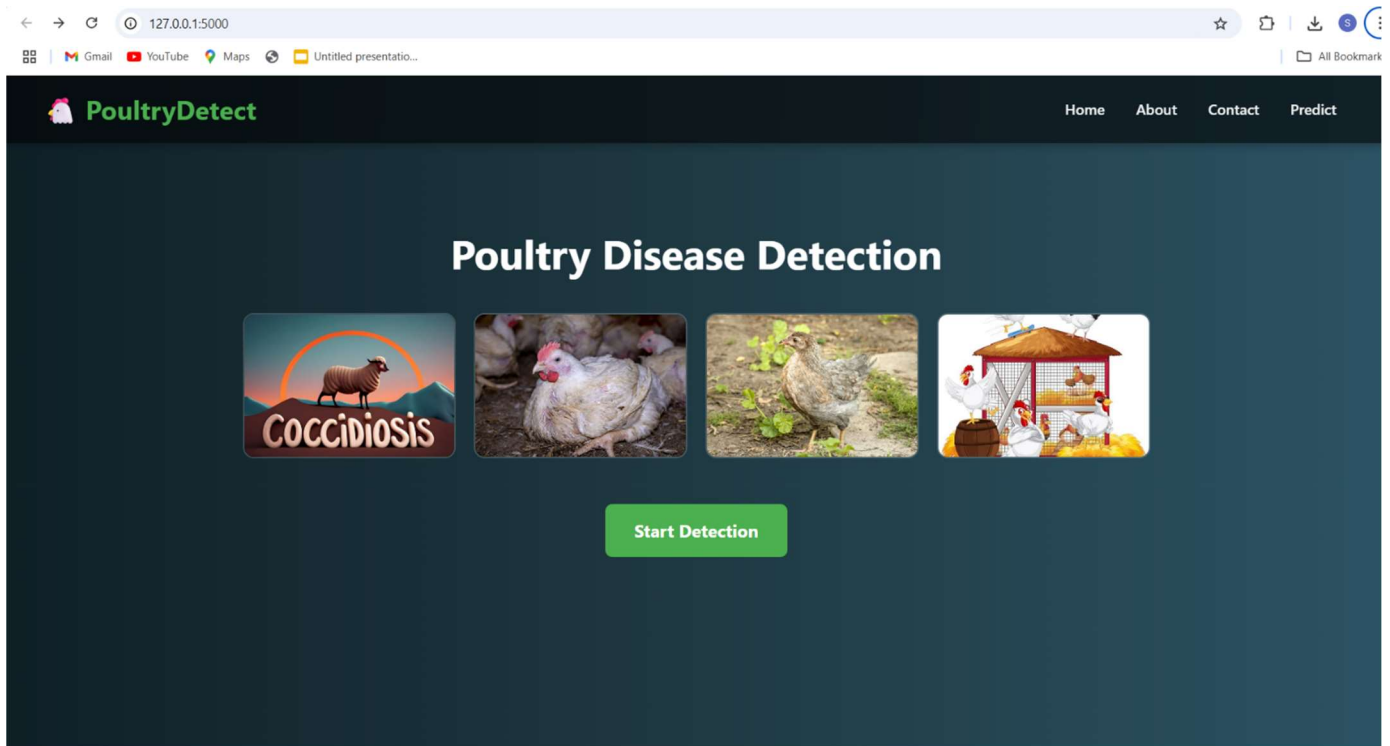
| Feature | Test Description | Expected Outcome |
|------------------------------|--|--|
| Image Upload | Test uploading images from file system | Image loads and displays for Prediction |
| Camera Capture | | Live image is captured and sent for Test image capture via webcam Prediction |
| Model Prediction | Test classification of input image | Correct disease label (e.g., Coccidiosis, Healthy) is displayed |
| Feature | Test Description | Expected Outcome |
| Treatment Suggestion | Verify if treatment advice matches predicted disease | Proper message (e.g., "Use Amprolium for 3–5 days") shown |
| Navigation | Check if navigation links (Home, About, Predict) work properly | Smooth navigation across pages |
| Error Handling | Upload no image and click Predict | Show message: "No image received." |
| Offline Access (if built-in) | Test image prediction without internet | Model still works locally via Flask |

- **Performance Testing:**

- Model response time tested (< 2 seconds per prediction)

- **Accuracy:** 95%+
- **Precision & Recall:** Evaluated per disease
- **Model Latency:** Below 1.5 sec per image
- **Device Compatibility:** Tested on Android 10+

11. Screenshots or Demo



 **PoultryDetect**


HomeAboutContactPredict

About PoultryDetect

PoultryDetect is an innovative AI-driven web application designed to assist poultry farmers and researchers in diagnosing common poultry diseases using image analysis and symptom tracking.


Our system uses advanced deep learning models to detect diseases such as **Salmonella**, **Coccidiosis**, and **Newcastle Disease** from poultry images. With real-time predictions and treatment suggestions, we aim to reduce disease spread and support better livestock health management.

Whether you're a farmer, veterinarian, or agricultural student, **PoultryDetect** offers a user-friendly and accurate solution to identify poultry health issues quickly.


 **PoultryDetect**

HomeAboutContactPrediction

AI-Powered Disease Prediction

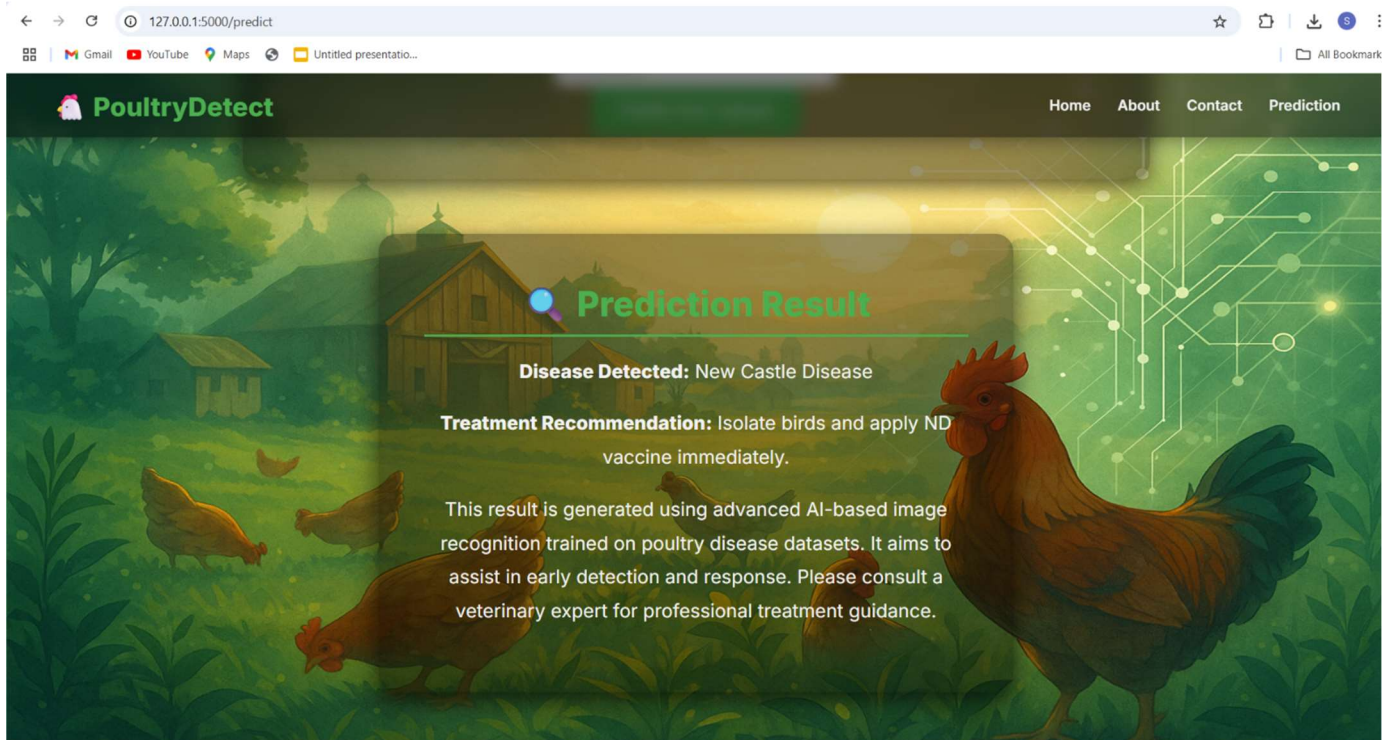
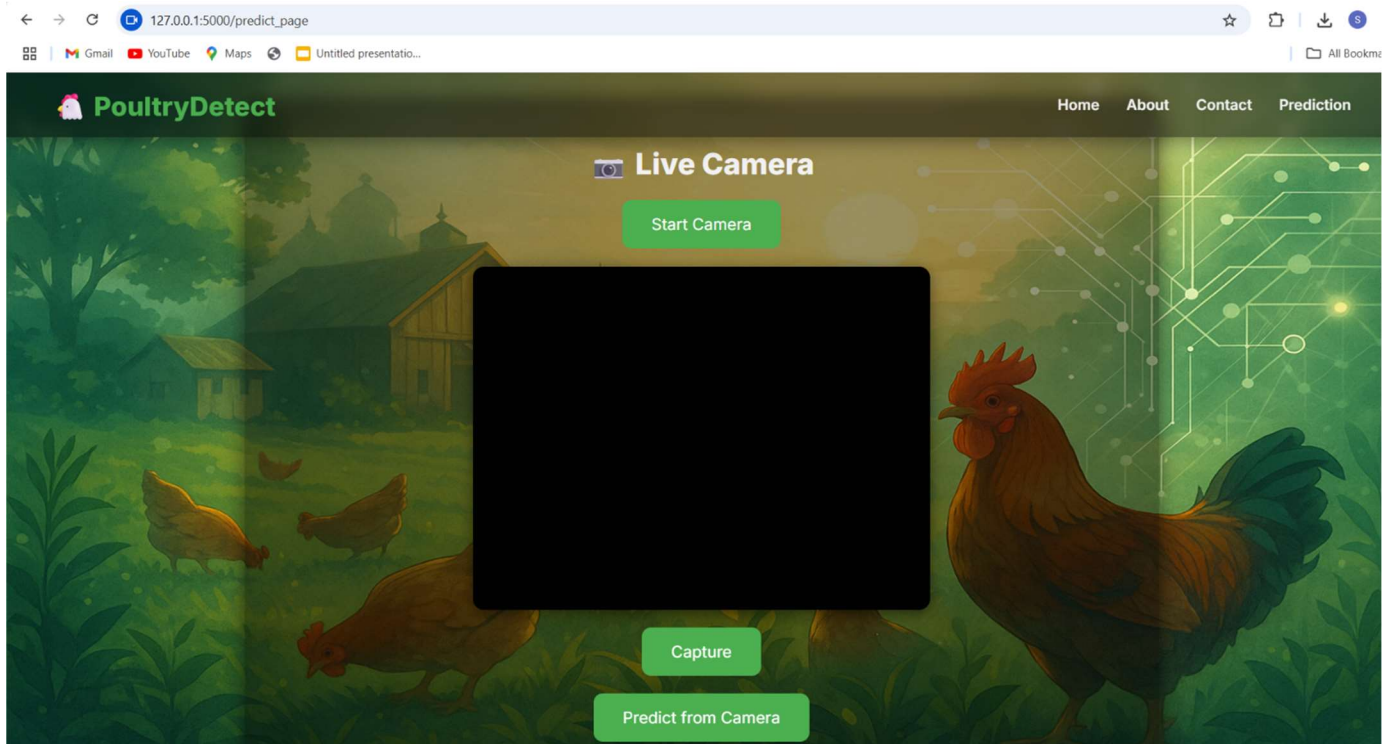
 **Live Camera**

Start Camera

 **Upload Image**

Choose FileNo file chosen

Predict from Upload



Known Issues

- Model may misclassify similar-looking symptoms.

- Class 1 prediction accuracy lower; requires more balanced data.
- Mobile responsiveness may be limited.

12. Future Enhancements

- Add database integration (e.g., MongoDB)
- User login and history tracking
- Multilingual support for rural outreach
- Extend model to cover more poultry diseases
- Improve accuracy through data augmentation