1. Introduction

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

Team ID : LTVIP2025TMID36685

Team Size : 4

Team Leader : Katta Navya Satya - debugger, tester.

Team member : Kavala Shara Chandini - architecture designer

Team member : Kavuri Divya Sumanvitha - model implementor

Team member : Keerthi Priya Medapati - application developer

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Purpose:

This project aims to assist poultry farmers and veterinarians by automatically detecting common poultry diseases from chicken images using deep learning. It uses Transfer Learning and provides a Flask-based web interface.

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Features:

- Image upload functionality
- Instant disease prediction
- Support for 4 categories: Salmonella, Newcastle Disease, Coccidiosis, and Healthy
- HTML-based UI
- Flask-powered backend
- TensorFlow model integration

1. Architecture

System Architecture Overview

Model Architecture

Web Application Architecture

Folder Structure & Component Interaction

User Interaction Flow

1. Setup Instructions

Prerequisites:

- Python 3.x
- Anaconda Navigator
- Required packages: numpy, pandas, tensorflow, flask, etc.

Installation:

- Clone/download the project
- Open Anaconda Prompt and navigate to the folder
- Install packages using pip
- Run `python app.py` to launch the Flask app

1. Folder Structure

Project Directory:

```
poultry-project/
├── app.py
├── healthy_vs_rotten.h5
├── static/uploads/
└── templates/
    ├── index.html
    └── result.html
```

1. Running the Application

Step 1: Open terminal and navigate to poultry-project directory

Step 2: Run `python app.py`

Step 3: Open browser and go to http://127.0.0.1:5000

Step 4: Upload a chicken image and view prediction

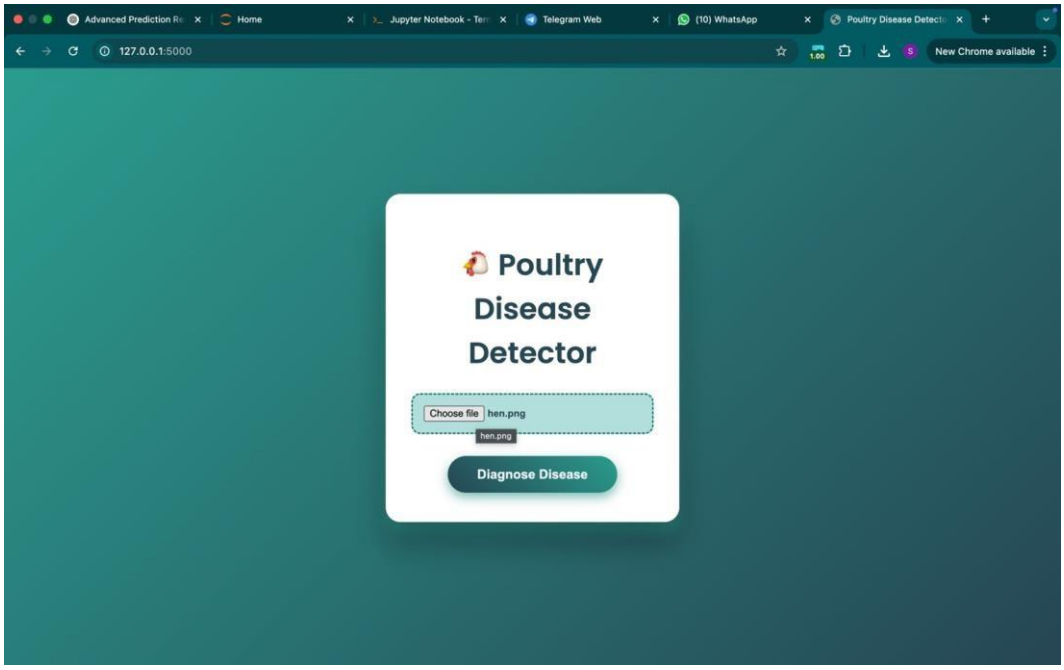
1. API Documentation

POST `/predict` – Handles image file upload and returns predicted label

GET `/` – Loads upload form (index.html)

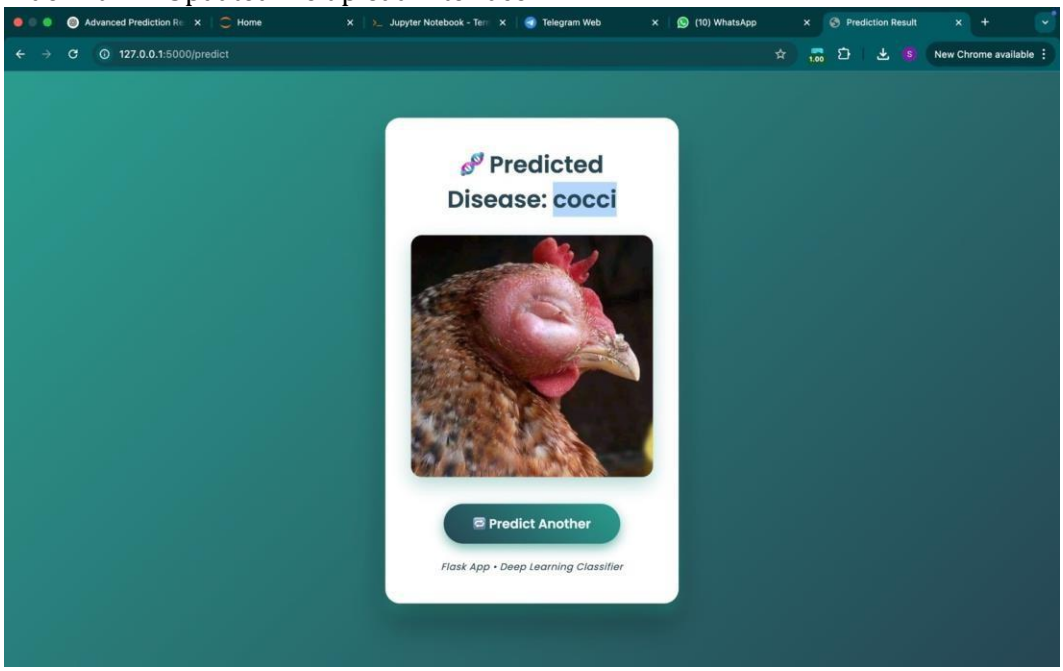
1. Authentication

Not required. All users can access the prediction page without login.

1. 

User Interface

index.html – Updated file upload interface

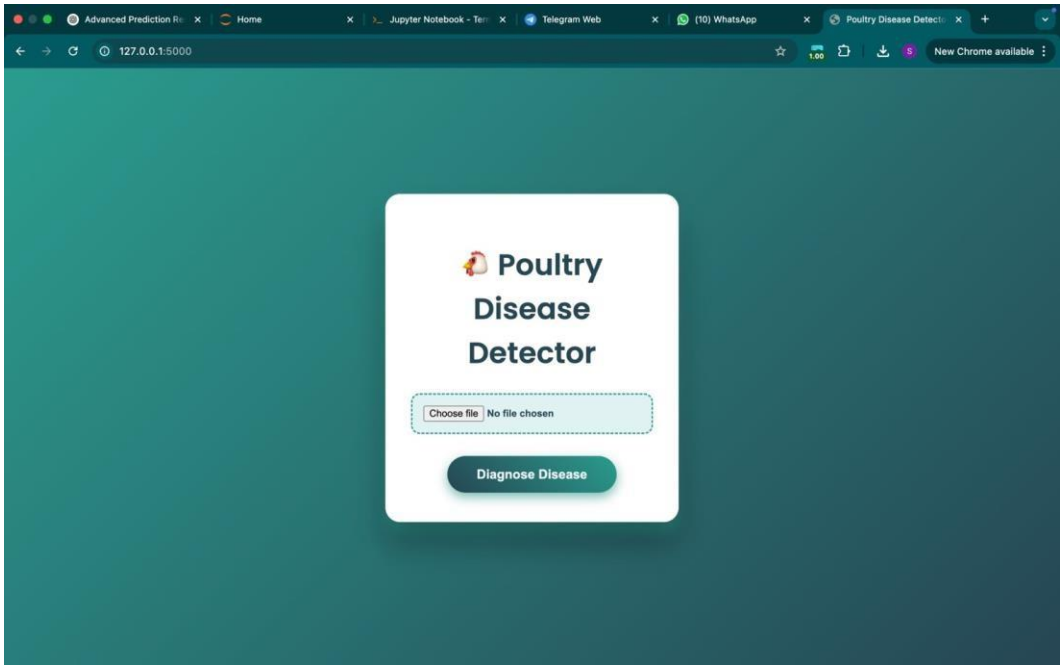


result.html – Updated prediction result display

1. Testing

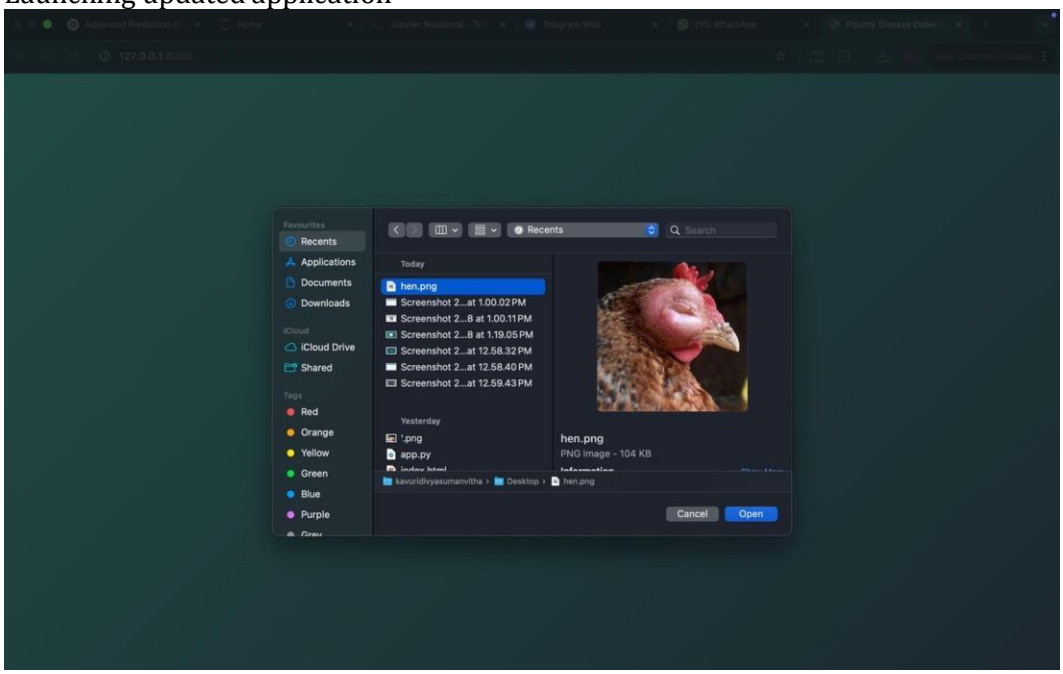
Manual testing using poultry images from dataset

1. Accuracy and confusion matrix evaluated using test data

1. 

Screenshots or Demo

Launching updated application



Selecting updated hen image

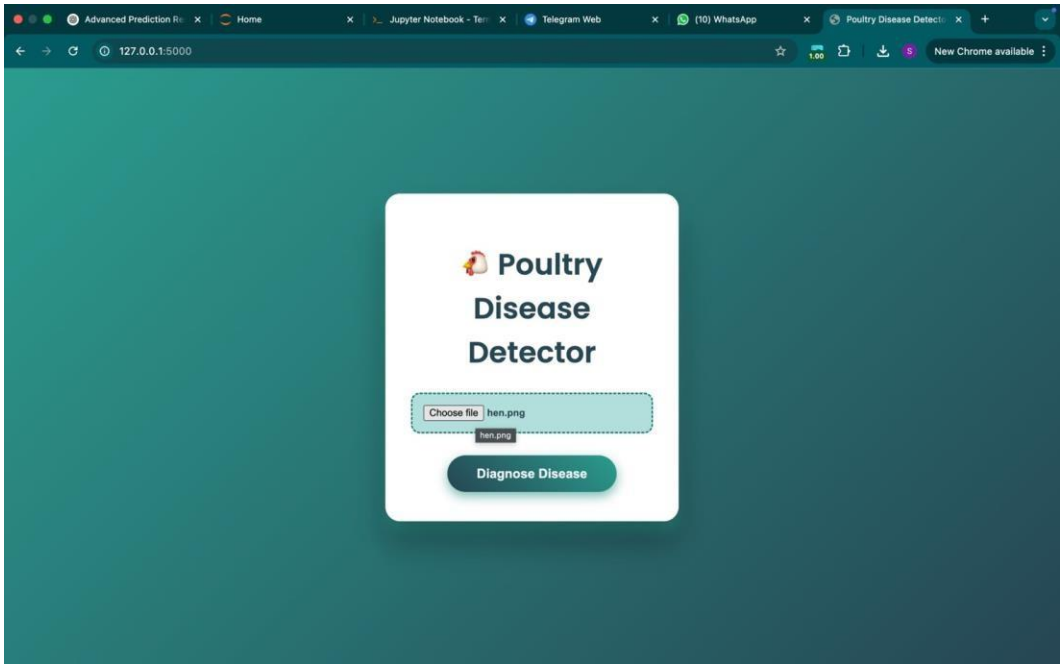
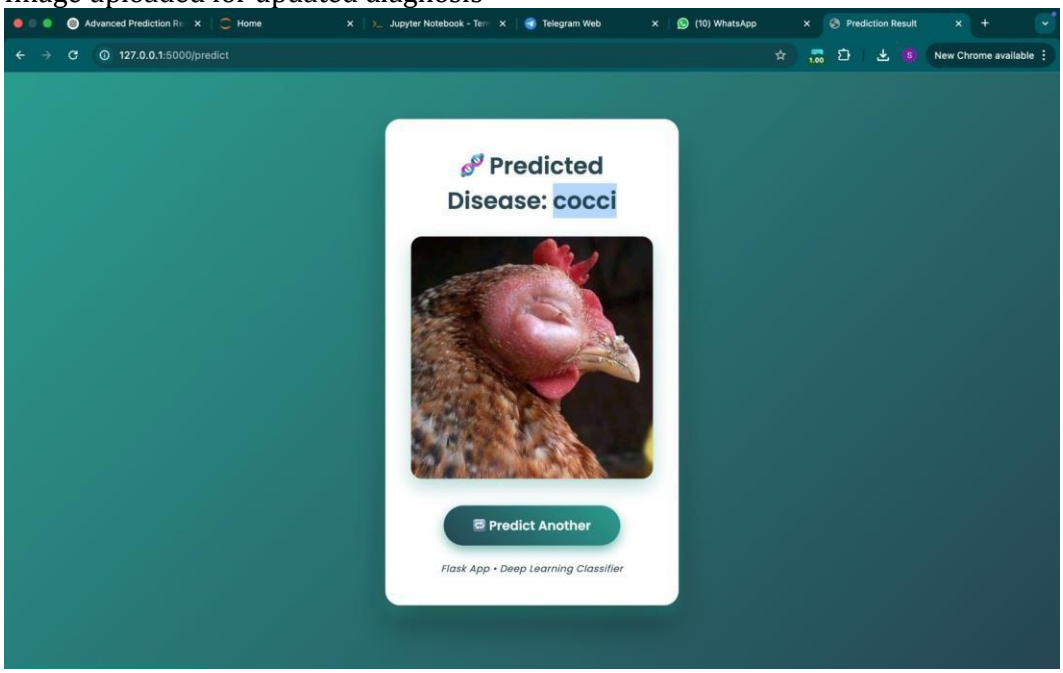


Image uploaded for updated diagnosis



New prediction result: Hen diagnosed with Coccidiosis

1. Known Issues

No camera integration
Dataset limited to 4 categories
Predictions are dependent on image quality

1. ## Future Enhancements

Add camera capture
Expand dataset for more diseases
Add confidence score
Deploy to cloud
Add multilingual/voice feedback