

Poultry Disease Image Classification Web App

Overview

This project is a deep learning-based web application for classifying poultry diseases from images. It uses a MobileNetV2 model trained on poultry disease images and provides a user-friendly web interface for predictions.

Features

- Image classification for four poultry disease categories:
 - Coccidiosis
 - Healthy
 - New Castle Disease
 - Salmonella
- Flask web app for uploading images and viewing predictions
- REST API endpoint for programmatic predictions

Project Structure

```
Int_project/
├── Poultry Disease Classifier/
│   ├── train_image_model.py           # Model training script
│   ├── poultry_disease_image_model.h5 # Trained Keras model
│   └── app.py                         # Flask backend (alternative location)
│   ...
├── app.py                             # Flask web app (main)
├── templates/
│   └── index.html                     # HTML template for web interface
├── requirements.txt                   # Python dependencies
└── ...
```

How It Works

1. Model Training

- ☐ The script `Poultry Disease Classifier/train_image_model.py` trains a MobileNetV2 model on poultry disease images organized in subfolders by class.
- ☐ The trained model is saved as `poultry_disease_image_model.h5`.

2. Web Application

- ☐ The Flask app (`app.py`) loads the trained model and provides a web interface for image upload and prediction.
- ☐ Users can upload an image, and the app will display the predicted disease class.

3. API Endpoint

- ☐ The `/predict` endpoint accepts POST requests with an image file and returns the predicted class as JSON.

Usage

1. Install Requirements

```
pip install -r requirements.txt
```

2. Train the Model (if not already trained)

```
python Poultry Disease Classifier/train_image_model.py
```

3. Run the Web App

```
python app.py
```

- ☐ Open your browser and go to `http://127.0.0.1:5000/`
- ☐ Upload an image to get a prediction.

4. Use the API Endpoint

Send a POST request to `/predict` with an image file:

```
bash
```

```
curl -X POST -F "file=@path_to_image.jpg" http://127.0.0.1:5000/predict
```

Data Preparation

- ☐ Organize your dataset as follows:

```
Poultry Disease Classifier/data/data/
```

```
train/
```

```
    Coccidiosis/
```

```
    Healthy/
```

```
    New Castle Disease/
```

```
    Salmonella/
```

```
test/
```

```
    Coccidiosis/
```

```
    Healthy/
```

```
    New Castle Disease/
```

```
    Salmonella/
```

- ☐ Each subfolder should contain images for that class.

Requirements

- Python 3.8+
- TensorFlow
- Flask
- Pillow
- numpy

Notes

- The model expects images of size 224x224 pixels.
- The class order in `CATEGORIES` must match the order used during training.
- For production, use a production-ready WSGI server instead of Flask's built-in server.

Author

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