Face Mask Detection with Live Alert System

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Introduction

This project aims to detect whether individuals are wearing face masks in real-time using a webcam, combining computer vision and de

Abstract

We used a Kaggle face mask dataset containing annotated images and XML files.
After preprocessing and cropping faces, we built a classification system based on CNN architecture..

Tools Used

Python, OpenCV, TensorFlow/Keras, Haar Cascade Classifiers, Flask.

Steps Involved

1. Parsed XML annotations and cropped faces
2. Organized dataset with mask/no_mask labels
3. Trained CNN model using Keras
4. Integrated OpenCV for live detection
5. Built Flask frontend for deployment

Conclusion

The trained CNN accurately classifies masked and unmasked faces in real-time, providing a reliable alert system for environments requ
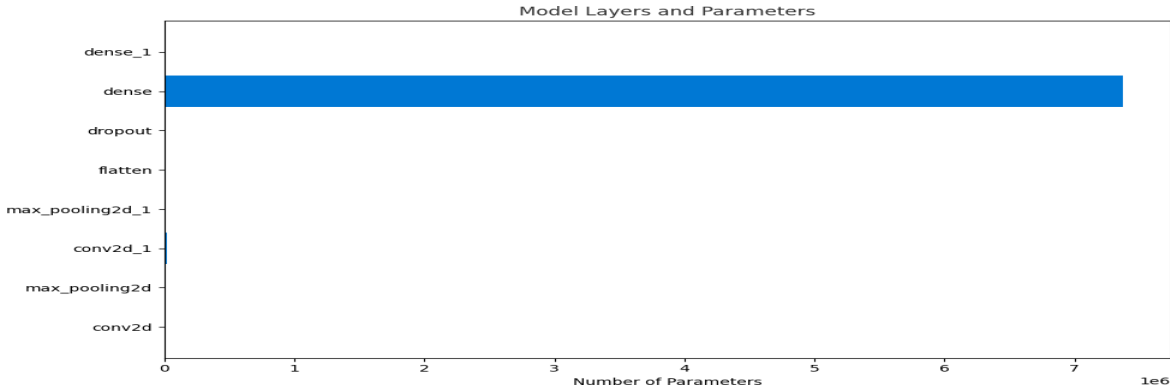
Project Flowchart:
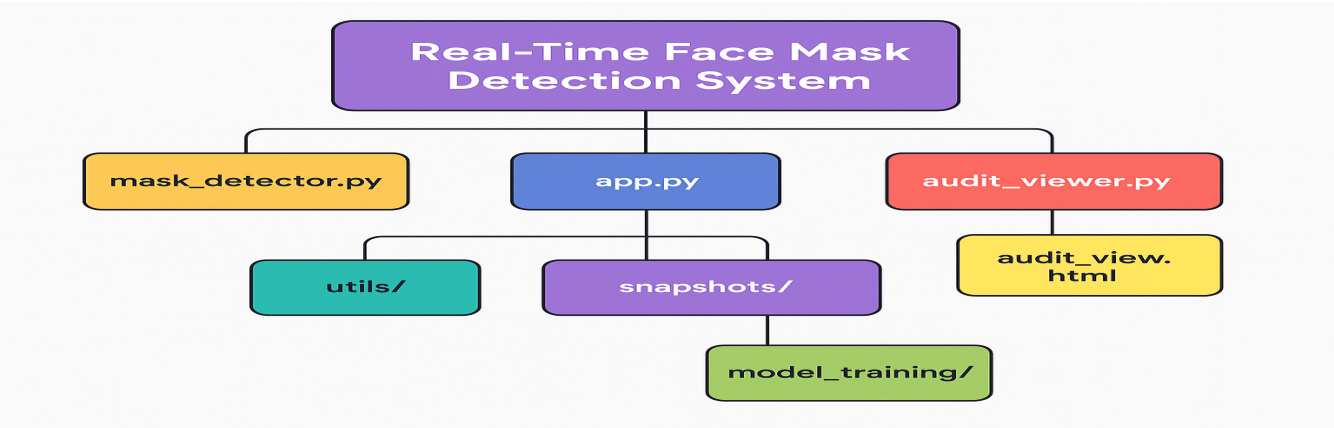
■ Model Evaluation & Metrics

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Model Summary:

Model: "sequential"■■■

Confusion Matrix:

    [528, 128]
    [157, 2]

Classification Report:

0   Prec: 0.77 Rec: 0.80 F1: 0.79
1   Prec: 0.02 Rec: 0.01 F1: 0.01
macro avg   Prec: 0.39 Rec: 0.41 F1: 0.40
weighted avg Prec: 0.62 Rec: 0.65 F1: 0.64