Project Report: Real-Time Face Detection and Image Capture using OpenCV

Project Title:

Real-Time Face Detection and Image Capture using OpenCV

Description:

This project implements a real-time face detection system using Python and OpenCV. The system utilizes a webcam to continuously detect faces using Haar Cascade classifiers. It allows the user to manually capture and save face images by pressing a specific key ('y'), making the data collection process completely user-controlled.

Key functionalities include:

- Live webcam-based face detection
- Manual image capture upon user confirmation
- Image cropping and resizing before saving
- Organized dataset storage for later use in machine learning or computer vision tasks

The goal of the project is to provide a simple, intuitive, and effective tool for beginners to learn face detection and understand the fundamentals of dataset creation in computer vision.

Technologies Used:

- Python: Programming Language
- OpenCV: Image processing and face detection
- Haar Cascade: Face detection algorithm
- OS Module: Folder and file management

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Project Highlights:

- Real-time detection using cv2.VideoCapture()
- Haar Cascade classifier: haarcascade_frontalface_alt.xml
- Press 'y' to save an image, 'q' to quit
- Cropped face images are resized to 200x200 and stored
- Output directory: data_faces/

Sample Output:

- data_faces/YourName_1.jpg
- data_faces/YourName_2.jpg

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GitHub: https://github.com/Urvashishasne/-Real-Time-Face-Detection-and-Image-Capture-using-OpenCV

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