Emotion Based Music Player

AI-powered Emotion Recognition using DeepFace & OpenCV

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Emotion Music

Introduction

This project detects the user's emotion using facial expressions and recommends music accordingly.

Uses AI-based DeepFace model for emotion classification.

Automatically plays music matching the detected mood.

Problem Statement

Music preference often depends on the emotional state of the listener.

Traditional music players do not adapt to user emotions.

The goal is to build an intelligent system that detects emotions and plays suitable songs.

Technologies Used

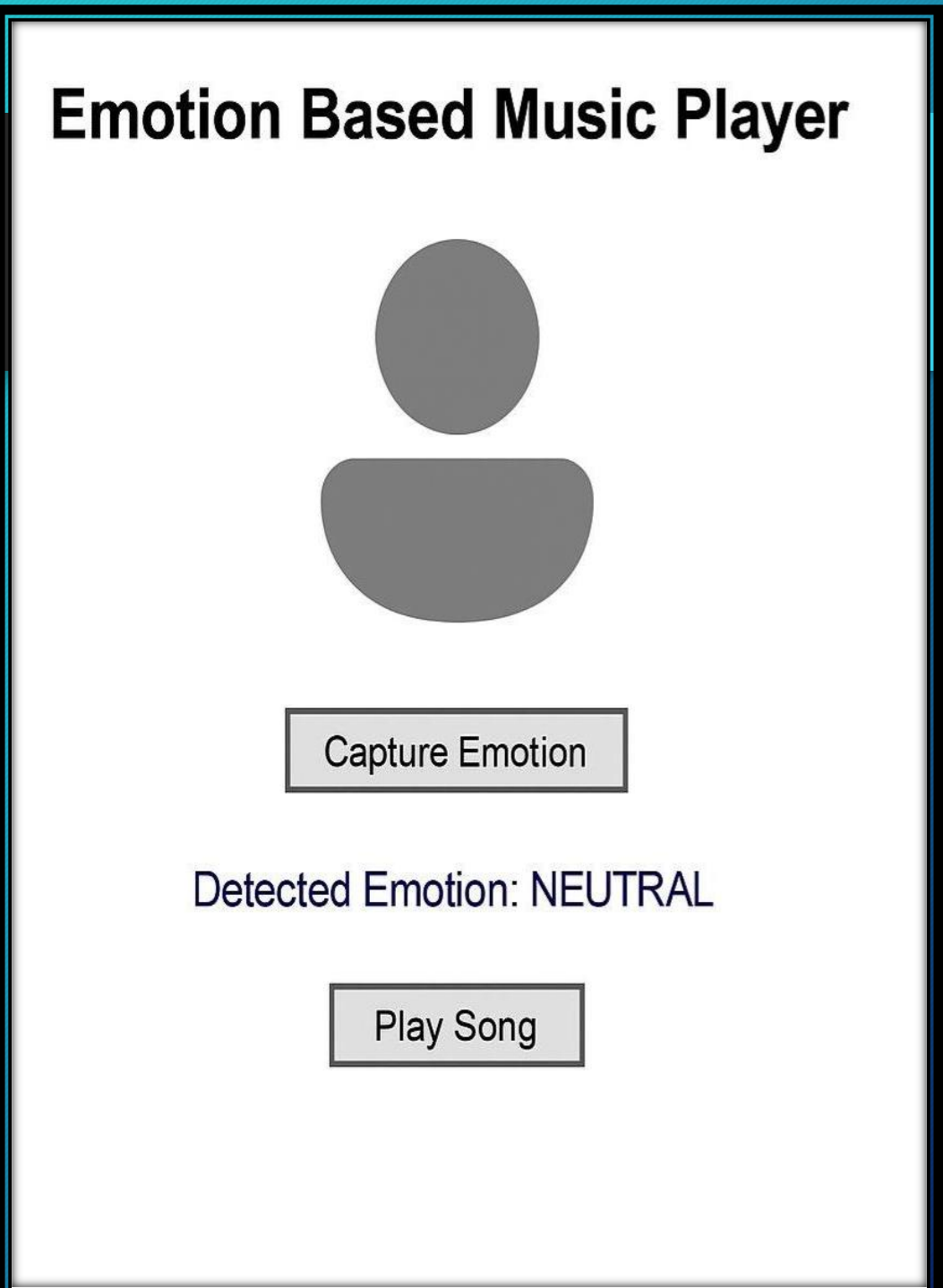
- Python
- OpenCV (for camera and image processing)
- DeepFace (for emotion detection)
- Tkinter GUI
- PIL / ImageTk
- YouTube Web Browser API

System Architecture

1. Webcam captures live user image
2. OpenCV processes image
3. Deep Face analyzes facial emotion
4. Emotion label extracted (happy, sad, angry, etc.)
5. Corresponding YouTube song is played

Working of the System

- User opens the application
- Camera starts automatically
- User clicks on 'Capture Emotion'
- DeepFace identifies emotion
- User clicks on 'Play Song'
- Music matching the emotion plays



Emotions Detected

- Happy

- Sad

- Angry

- Fear

- Surprise

- Neutral

Graphical User Interface (GUI)

Tkinter-based user interface with:

- Live camera feed

- Capture Emotion button

- Play Song button

- Detected Emotion label

Advantages

- Enhances user experience

- Emotion-aware music selection

- Fully automated process

- Real-time detection

Issues Faced:

- OpenCV installation failures on macOS because of Unavailability of wheels for certain Python version.

Solution: Installed `opencv-python-headless` instead of the full package and used a compatible version

- DeepFace backend errors & dependency mismatches as it required specific versions of TensorFlow, Keras , RetinaFace.

Solution : Installed TensorFlow 2.x compatible with DeepFace. and installed RetinaFace separately using stable versions.

- Extremely long installation time for RetinaFace

Solution : Installed dependencies one by one and used cached/correct versions

- Permission and access issues while running webcam

Solution :Granted Python camera access through macOS settings.

Future Enhancements

- Live continuous emotion detection
- Spotify or Apple Music integration
- Advanced emotion models
- Better UI/UX designs
- Multi-user support

Contribution In Team

Nikhil Aghi- Did all research and development work in the team.
Aashi Sharma- Did all the editing and creating work in ppt and making task report.

Conclusion

- An AI-powered system that detects user emotions and plays appropriate music, enhancing personalization.

Linked In Links:

- https://www.linkedin.com/posts/nikhil-aghi-a84b7937b_python-ai-machinelearning-activity-7400876345905324032-s3l7?utm_source=share&utm_medium=member_desktop&rcm=ACoAAF33rcQBaMd6Cq685BnyeO5PjTp1nDjVBCM