Emotion Recognition using Computer Vision and Machine Learning

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What is Computer Vision?

- Computer Vision is a technology which enables the computer to see the environment just like humans and interpret the results out of it.
- In the simplest terms, computer vision is the discipline of "teaching machines how to see."

What is emotion recognition?

- Emotion recognition is a technique used in software that allows a program to "read" the emotions on a human face using advanced image processing.
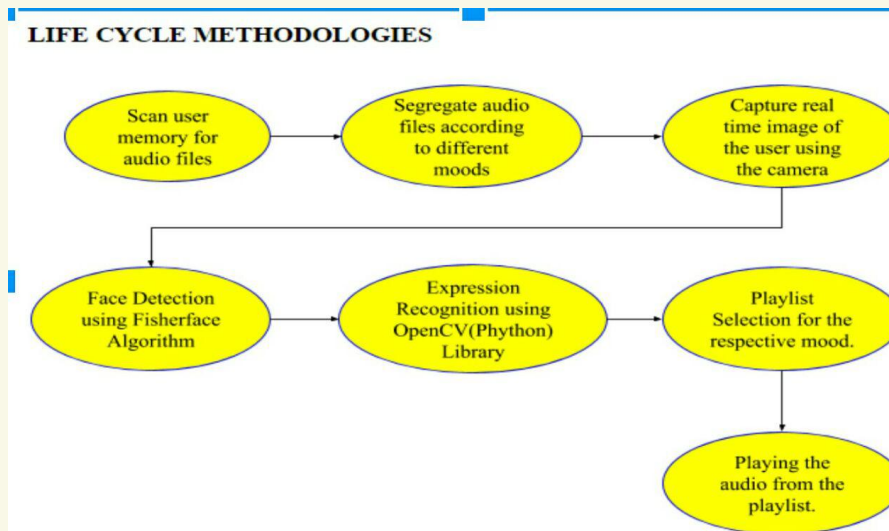
what is Machine Learning?

- Machine learning is a type of artificial intelligence (AI) that provides computers with the ability to learn without being explicitly programmed.

Procedure to recognize the emotion using computer vision and machine learning
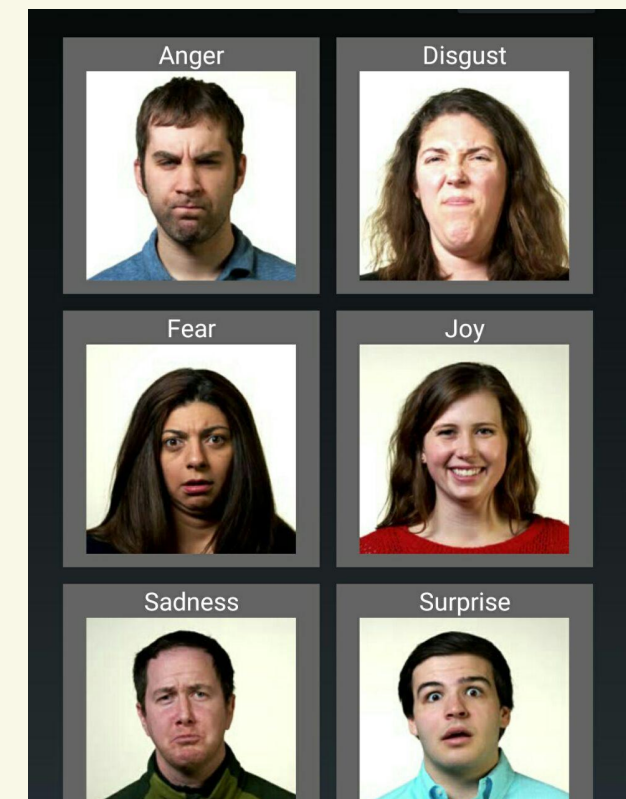
- Face detection using Haar Cascades.
- Feature Extraction using Fisher Faces.
- Emotion Classification.

Flow diagram

LIFE CYCLE METHODOLOGIES

Scan user memory for audio files → Segregate audio files according to different moods → Capture real time image of the user using the camera

Face Detection using Fisherface Algorithm → Expression Recognition using OpenCV(Phython) Library → Playlist Selection for the respective mood. → Playing the audio from the playlist.

Fisher face Algorithm

Fisher Face algorithm is a dimensionality reduction technique that uses Linear Discriminant Analysis mainly used to identify the faces but here we use it to identify the emotions.

Anger   Disgust
Fear   Joy
Sadness Surprise

Applications

- Emotion aware Music Player.
- Emotion based Advertisements.
- Assistant for patients and physically Challenged persons.
- Humanoid that detects emotions.