



Information Technology

Music Recommendation Based On Face Emotion Recognition

A decorative graphic consisting of several overlapping, flowing, wavy lines in shades of light blue and white, resembling a stylized wave or a dynamic swirl, positioned on the right side of the slide.

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Problem Statement



Develop a system that presents a cross-platform music player, which recommends music based on the real-time mood of the user through a web camera using Machine Learning Algorithms.



- ▶ This project emotion based music player is helps the user to automatically play songs based on the facial emotions.
- ▶ Face emotion recognition is a technology that uses artificial intelligence to analyze facial expressions.
- ▶ It identify emotions such as happiness, sadness, anger, neutral and surprise.
- ▶ If the person has a negative emotion, then a certain playlist will be include related types of music
- ▶ And if the emotion is positive, then a certain playlist will be include related types of music

Drawback Of Existing System



- ▶ Detector is most effective only on frontal images of faces
- ▶ Sensitive to lighting conditions
- ▶ We might get multiple detections of the same face, due to overlapping sub-windows.
- ▶ Manual selection of songs.
- ▶ Randomly played/shuffled songs may not match the mood of the user.

Expected Advantages of Proposed System



- ▶ Extremely fast feature computation.
- ▶ Efficient feature selection.
- ▶ Users don't want to select song manually.
- ▶ No need of playlist.
- ▶ Users don't want to classify the songs based on the emotions.



1. Support Vector Machine

- ▶ Support vector machines are a set of supervised learning methods used for classification, regression and outliers detection.
- ▶ SVM can be used for text classification, image classification, spam detection, handwriting identification, and face detection.

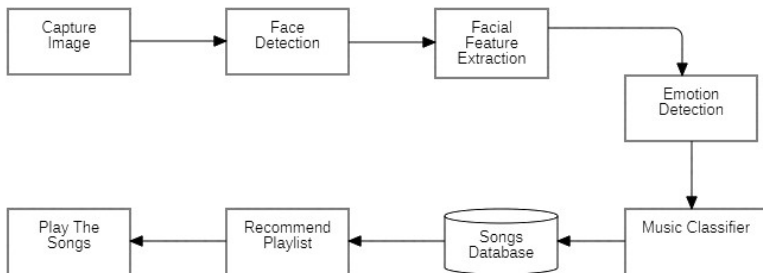
2. Viola Jones Algorithms

- ▶ Viola-Jones was designed for frontal faces, so it is able to detect frontal the best rather than faces looking sideways, upwards or downwards.

3. Convolution Neural Network

- ▶ Convolutional neural be used for face recognition, verification and clustering
- ▶ The face detection is done using CNN The captured image is input to CNN which learns features directly. And analyse the current emotion of the user.

System Architecture



Use-case Diagram

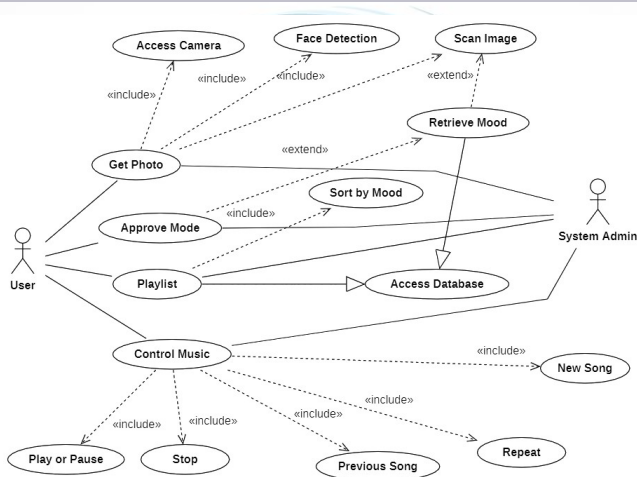
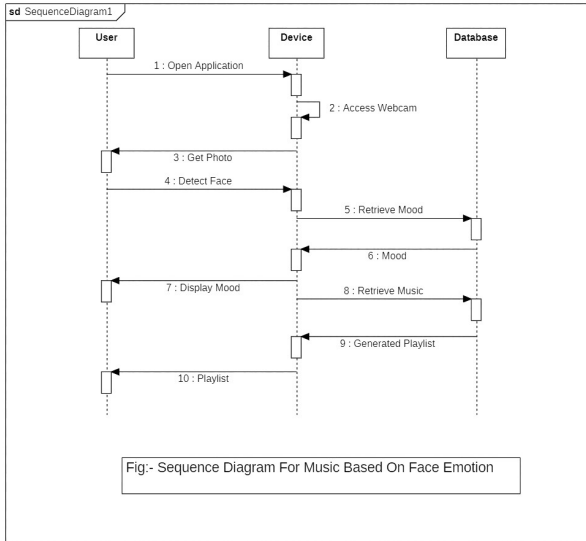
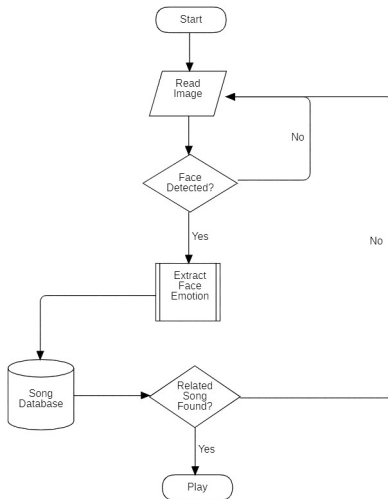


Fig. UseCase Diagram For Music Based On Face Emotion

Sequence Diagram



Flowchart Diagram



Flowchart Diagram For Music Based On Face Emotion



SOFTWARE REQUIREMENTS

- ▶ OS: Windows 7 and above /UBUNTU
- ▶ Programming Language: Python
- ▶ Software: PyCharm IDE

HARDWARE REQUIREMENTS

- ▶ RAM: 8 GB Or Above
- ▶ Internal Storage: 8 GB Or Above

- ▶ In this system, we provide an overview of how music can affect the user's mood and how to choose the right music tracks to improve the user's moods.
- ▶ After determining the user's emotion, the proposed system provided the user with a playlist that contains music matches that detected the mood.
- ▶ Music recommendation system based on facial emotion recognition will reduce the efforts of users in creating and managing playlist



1. "Music Emotion Recognition: A State of the Art Review" by Yi-Hsuan Yang, et al. (2014) - This paper provides of emotion recognition in music, including techniques for recognizing emotional content in audio and lyrics.
2. "Deep Learning for Music Emotion Recognition: A Review" by Wenwu Wang, et al. (2019) - This covers the application of deep learning techniques in music emotion recognition, which is a fundamental component of emotion-based music suggest systems.
3. "Emotion-Based Music Recommendation: A Survey" by Zhao, Shuo, et al. (2019) - While it may not focus on facial emotion recognition, this survey provides into the broader field of emotion-based music recommendation, including the use of various emotion recognition modalities.
4. "Multimodal Music Emotion Recognition: A Survey" by Soleymani, Mohammad, et al. (2018) - This survey discusses the use of multiple modalities, including audio, lyrics, and visual cues, for music emotion recognition detect by facial expressions.



Thank You!