



ARTICLE

Expressing Without Speaking Through Personalized Music Playlists Derived from Automatic Mood Detection

Alvin Jeon, Fort Lee High School, NJ United States

TITLE: Expressing without speaking through personalized music playlist derived from automatic mood detection

KEYWORDS: Playlist, Automatic Mood Detection, Clustering, Facial Recognition, ADHD, 176 million people, Mood Formulation,

The number of users listening to music weekly is estimated to be about 176 million in the US in 2020. This is approximately 62% of the population that listens to some form of online audio according to the data presented by Ron Jaworski, a blogger of trinityaudio. Furthermore, statistics provided by statista.com state that in 2021, the number of users worldwide subscribed to a music streaming software amounted to about 523.9 million. Despite hundreds of millions of users worldwide listening to music daily, a majority of people still instinctively listen to music that matches their mood. However, why is that the case? According to carruth.wvu.edu, mood-matching music creates a sense of reflection and prolongation of the individual's emotions. When someone is happy, upbeat music extends the period of happiness. Contrastingly, when someone is sad, listening to slow music provides feelings of reassurance that acts as a support to provide empathy and a sense of therapy. Nevertheless, despite these beneficial results that arise from mood-matching music, there is no way to truly know how one feels purely based on what they believe they're feeling. Thus, having a facial-detection system that determines the percentages of how intensely you're feeling a certain mood is a better gauge of measurement. A facial-emotion detection system will pinpoint even the smallest of movements in facial expressions to provide a precise measurement of people's emotions. Combining that with a list of specific questions, it will not only provide a list of music accustomed to their taste but also generate a playlist for individuals that prefer exciting music when they're feeling down. This system will enable several possibilities, one being the prospect of assisting adults and workers in being aware of the mood of people with mental illnesses or even children who are unable to speak and express their emotions properly.

Music combined with mood is significant to know about as a study by healthline.com discovered that in addition to reducing anxiety, music also releases dopamine within the mind, positively affecting the brain. With this in consideration, Rich Tozzoli, a Grammy-nominated producer also stated that music helps people that have



ARTICLE

had severe brain injuries remember their memories, calms people with ADHD, and assists others with mental illnesses. Adding onto this fact is that if a person with mental illnesses or speaking problems is detected by the software, then a playlist that is proportional to their mood will formulate. This in turn assists caregivers that are away from patients to hear the tone of the music playing and check up on them depending on the mood. Even without a caregiver near the patient, the music will be able to calm down erratic behaviors or boost gloomy moods. Furthermore, the software assists children that are unable to express their emotions with words by conveying their moods through music to their parents and others without being directly in front of them.

Therefore, keeping in mind all the positive aspects of music pertaining to mood and the notion of expressing emotions without speaking, I expanded this idea throughout social media platforms to spread knowledge on the correlation between mood and music. Furthermore, I created a website containing an implemented system of mood detection and a series of inquiries, providing easy access to the software and unique playlists. As I spread my campaign, I will conduct weekly surveys on users to obtain statistics on the overall effects that the software has had on their emotions during the week. In addition, a weekly report by caretakers on the usefulness of detecting emotions, or “hearing” the moods of their patients will be journalized to determine the benefits of expression without speech. These figures will enable a quantitative analysis of the outcomes, allowing for further development of the system.

CONFIDENTIAL