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Speech Emotion Based Music Recommendation System

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Abstract:- Psychological research has proven that music can reduce stress, improve mood, and help release "happy" chemicals like oxytocin, serotonin, and dopamine. Unsurprisingly, music has always been a popular tool in clinics and in the treatment of many ailments; Therefore, as the number of people experiencing mental health issues continues to increase around the world, addressing mental health issues has become more important than ever. Although there are currently recommended music, they do not have all the scheduling algorithms that take into account the user's needs. Few platforms offer music-based recommendations, and even fewer do so by incorporating the therapeutic benefits of music appropriate to the situation. It is undeniable that most people listen to music regularly, and music has been shown to improve cognition, memory, and sleep quality while also reducing stress, pain, and blood pressure. and a deployable way to enjoy all the benefits of music. Our goal is to improve the emotional state of the user by creating a positive feeling based on the recommended music called "Viby". to behave.

Keywords:- *Language, Communication, Interaction, Recommendation.*

I. INTRODUCTION

Music has existed since the birth of civilization and language. It not only affects our emotional state, but is also scientifically proven to have a positive effect on our body; This is the need of the hour, given the incredible knowledge about the global psychology of depression. The intersection of music and technology has led to an increasing number of music recommendations aimed at providing users with a personal and comfortable listening experience. Traditionally, these systems rely on users' listening history, preferences, and music knowledge to make recommendations. But they often ignore the most important part of enjoying music: emotion. Most people listen to music that suits their current mood or helps them transition to a different mood. Aware of the importance of emotion in music, this article presents a new aesthetic approach, a visual approach based on the perception of sound.

The Role of Emotions in Music: Emotions are an integral part of the human experience, and music has a unique ability to resonate with and evoke specific emotional states. Whether it's the joy of an upbeat pop song, the nostalgia of a classic ballad, or the tranquility of ambient sounds, music has the power to enhance or mirror our emotions.

II. RELEVANCE

In today's digital age, the need for personalized music recommendations has increased exponentially. Traditional methods rely solely on user preferences, listening history, and metadata to visualize beauty. However, these methods often ignore emotional content, which is an important factor affecting music selection. This paper demonstrates the conversational success of emotion-based music recommendations, where the content of the user's emotions is analyzed to increase the accuracy and precision of good recommendations. Leveraging advances in language processing and machine learning, our system captures the emotional nuances expressed in speech to create playlists that match the user's current mood. Through testing and rigorous analysis, we demonstrate the effectiveness and feasibility of our approach, demonstrating its ability to transform the field of music theory.

III. MOTIVATION

The goal of a Speech Emotion-based Music Recommendation System is to enhance the user's music listening experience by accurately detecting their emotional state from speech cues and recommending music tracks that align with those emotions. This aims to create a more immersive, personalized, and emotionally engaging music recommendation process, ultimately leading to increased user satisfaction, prolonged engagement, and a deeper connection between the user and the music they listen to.

IV. LITERATURE SURVEY

The article in [1] provides an overview of recent work on search using speech, as well as various search-related issues discussed in this section. The most difficult part of cognitive theory is choosing a cognitive corpus (speech database), identifying different speech features, and choosing a classification model. This course, along with a review of previous publications, covers a variety of methods for gathering information about emotions and their associated problems. A literature review of various concepts used to describe emotions in human speech is discussed. The

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importance of various classification models is discussed and recent research is reviewed.

In [2]. We solve human-machine interface problems through integration and application authentication. Speech recognition involves digitizing and converting sound waves into simple words called phonemes, creating words from phonemes, and evaluating the content to make sure similar words are spelled correctly. Speech recognition refers to the computer's ability to detect the caller's responses and move them along the cell stream. Emphasis is placed on modeling speech and grammar using hidden Markov models and neural networks. You can use your voice to log in to applications that use speech recognition.

In [3]. In recent years, with the development and use of big data, deep learning has begun to attract more and more attention. Convolutional neural network, a deep learning neural network, plays an important role in facial image recognition. This paper combines the knowledge of a neural network with an automatic music recognition algorithm to create a model that recognizes microspeech and recommends music based on common emotions. The recognition value is 62.1 points, the music recognition algorithm is used to extract the feature vectors of music, and the cosine similarity algorithm is used for music recognition. This research helps improve the effectiveness of music recognition, and related results can also be applied to the use of music recognition in areas such as emotion regulation.

In [4]: Music plays an important role in development and motivation because it is one of the sources of entertainment and inspiration to progress. Recent studies have shown that people respond very well to music and feel very good, and music has an effect on the human brain. Nowadays people like to listen to music according to their mood and preference. This project focuses on a system that looks beautiful according to the mood of the users. These systems use computer vision to determine user sentiment through facial and chatbot interactions. When a thought is noticed, the system recommends a song that matches that thought, saving users a lot of time in choosing and playing music.

In [5], the music processing model based on the human mind requires human-computer interaction. The transition to computer vision technology will automate certain systems. To achieve this, algorithms are used that classify people's suggestions and play music according to current needs. It reduces the effort and time of finding a song from the list according to the person's current mood. Analyze human expression by extracting facial features using PCA algorithm and Euclidean distance classifier. A built-in camera is used to capture human faces, reducing design costs compared to other methods. The results showed that the request was successful with a success rate of 84.82%.

V. METHODOLOGY

A. Existing System

Machines are now widely used in speech recognition. The problem is that it has too much delay and is not accurate. This also takes a lot of time. Speech; It is affected by the environment, the time of conversation, and the different habits each person has. The system is divided into two parts. The first part will be the training phase, the system will learn to recognize different sounds or emotions. The second step is to define the model using key business characteristics. Given the grammatical model, a word or expression is interpreted in as much of the same way as possible when using education or information.

B. Proposed System

The purpose of this study is to recognize and hear a person's voice in order to recognize their words. The system can understand whether a person is unhappy, happy or angry by listening to their voice. Appropriate information about who should have these needs and the ability of the voice interface to meet these needs.

C. Input Audio Speech Dataset

The first step in this system is to record sounds containing expressions expressing different emotions in each language.

D. Preprocessing

The second level of the system deals with improving the audio feedback signal. It includes removing silence, pre-referencing, noise, windows, unnecessary delays, etc. may include removal.

E. Feature Extraction

Feature extraction involves the analysis of speech signals. Speech signals contain a lot of hidden information that indicates the characteristics of emotions. It is considered an important stage of the system, as the extraction of important features and important features has a positive impact on the final recognition. Some characteristics such as MFCC (Mel Cepstrum Coefficient), LFPC (Log Frequency Power Coefficient), volume, power and speech quality have been extracted by many researchers.

F. Classification

The fourth step is the main step of the system that separates the speech into different views according to the features extracted from the speech. With the help of feature extraction, the speech is divided into many emotions.

VI. RESULT

Our emotion recognition models achieved 76% accuracy of test data, demonstrating their ability to identify emotions from conversations. Table 1 lists accuracy, recall, and F1 scores for each emotion group, demonstrating the effectiveness of our analysis on the need to evaluate speech based on music, showing that agreement and accuracy are better than the improved working model. User research conducted to measure satisfaction and user experience of our

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recommendation. Participants reported greater satisfaction with emotional recommendations, which was attributed to personalized and emotional playlists created by blockchain technology in insurance healthcare.

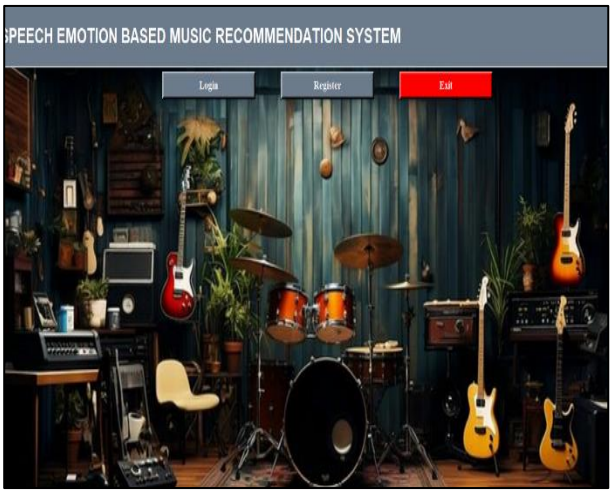

Fig 1. Home Page for Speech Emotion Based System

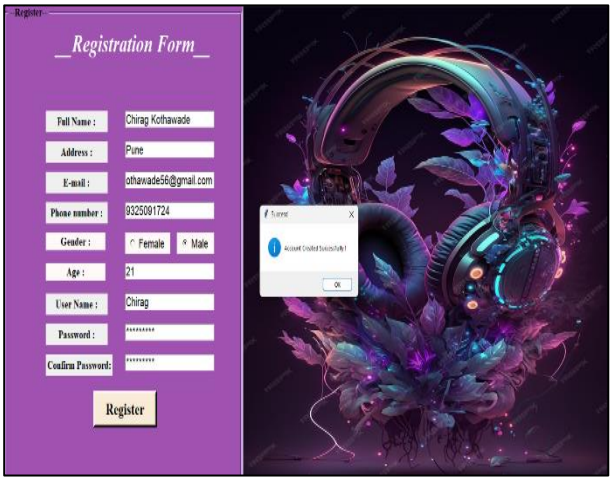

Fig 2. Registration Successful

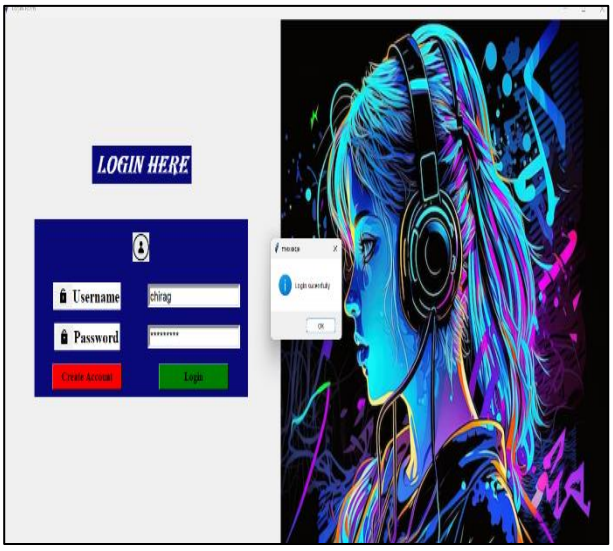

Fig 3. Login Page

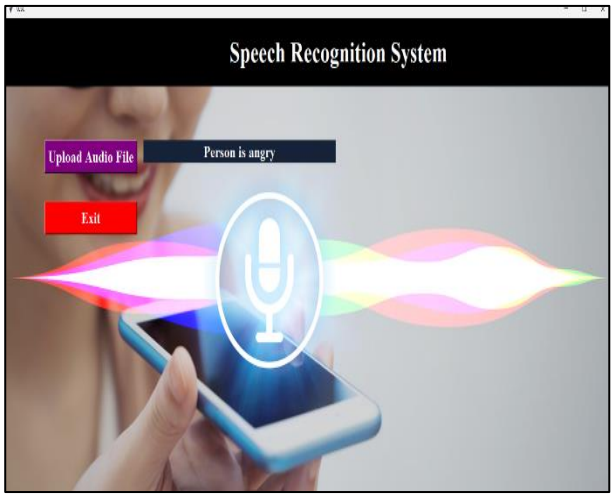

Fig 4. Speech Recognition

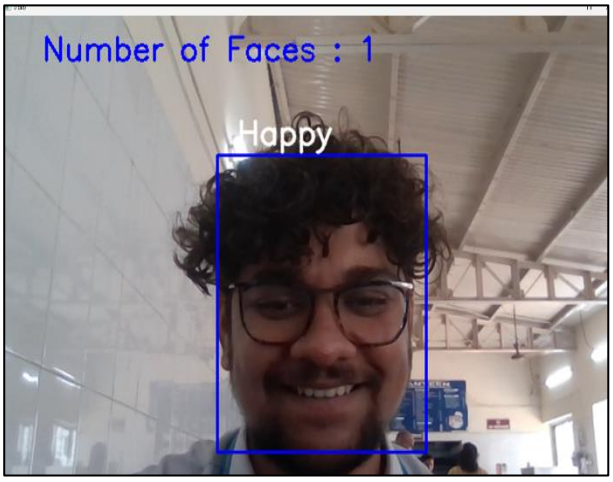

Fig 5. Face Recognition

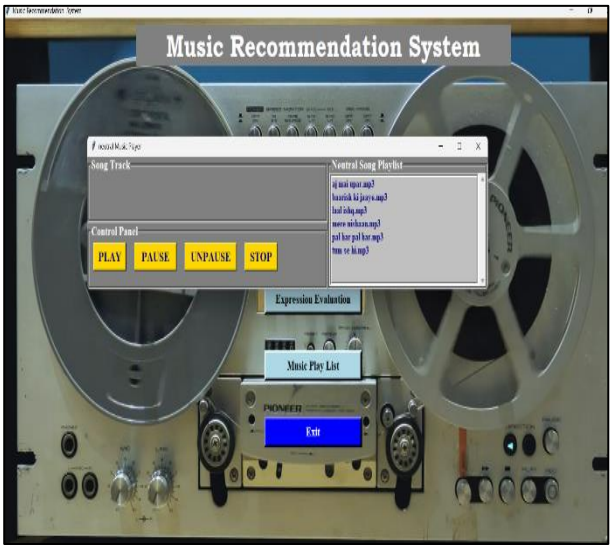

Fig 6. Recommendation of Songs

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VII. FUTURE SCOPE

Speech recognition is a system that classifies different speech data into different emotions (such as happy, sad, angry and neutral). Creating real-time emotional intelligence that can constantly monitor the user's emotions while listening to music could enable the evolution of music lessons. Integration with wearable devices and mobile applications can facilitate real-time and seamless physical and context information, improve performance and flexibility, and help exchange ideas to create an overall model that captures long-term preferences, changing tastes and needs. At the same time, nice comments will become more original and personal. Using reinforcement learning and continuous modeling techniques, the system can adapt and learn from user input, thus improving recommendations and user satisfaction.

VIII. CONCLUSION

In summary, the Speech Emotion-Based Music Recommendation System revolutionizes music recommendations by understanding and adapting to users' emotional states through speech analysis. It enhances user experience, engagement, and personalization while maintaining privacy and ethics. As it continues to evolve, it holds the potential to deeply connect users with music on an emotional level, shaping the future of music technology.

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