REVA UNIVERSITY
Bengaluru, India

HEAR IT – Uncovering Emotions

Major Project Phase-2: Review-2 Presentation

School of CSE D Section

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ABSTRACT

Speech Emotion Recognition (SER) is the act of attempting to recognize human emotion and the associated affective states from speech. This takes advantage of the fact that tone and pitch in the voice frequently reflect underlying emotion. In recent years, emotion recognition has been a rapidly growing research domain. Machines, unlike humans, lack the ability to perceive and express emotions. However, by implementing automated emotion recognition, human-computer interaction can be improved, reducing the need for human intervention. In this project, basic emotions such as calm, happiness, fear, disgust, and so on are extracted from emotional speech signals and songs that are associated with the emotion detected are played.. We employ machine learning techniques such as the Multilayer Perceptron Classifier (MLP Classifier), which is used to classify the given data into nonlinearly separated groups. The MLP classifier is trained using mel-frequency cepstrum coefficients (MFCC), chroma, and mel features extracted from speech signals. To accomplish this goal, we use Python libraries such as Librosa, sklearn, pyaudio, numpy, and soundfile to analyse speech modulations and recognise emotion.

INTRODUCTION

- Artificial intelligence (AI) systems are expected to rely on the delicate detection of human emotions from data sources such as conversation content, voice, and facial expressions in an increasing number of applications.
- Human emotions and moods can be discerned more precisely by artificial intelligence systems, such as personal assistants, chatbots, and self-driving cars, allowing them to provide better service to people (i.e., positive and negative affects).

INTRODUCTION

- For example, if customers express annoyance with a chatbot, the bot can reroute the call to a human agent. The ability for self-driving cars to slow down when they detect fearful emotions is becoming more common, and personalised care systems can encourage users to rest when they are feeling tired.

- The goal of our project is to combine Audio player and emotion detection, and allow for a user to be provided with customized music recommendations, based on their emotion as detected through speech analysis.

LITERATURE SURVEY

Year	Author	Title	Inference
2021	Abhishek, Kalyani, Vaishnav Sham.	Emotion Based Music Player.	Created an application to suggest songs for user based on their emotions by differentiating different kind of moods. This application is only based on moods and emotion depending on user's mood.

Year	Author	Title	Inference
2021	Rajdeep Chatterjee, Saptarshi Mazumdar, R. Simon Sherratt	Real-Time Speech Emotion Analysis for Smart Home Assistants.	In this article, the Mel-Frequency Cepstral Coefficient (MFCC) features were applied to conduct speaker-independent experiments for a Speech Emotion Recognition (SER) element of an AI based smart home assistant.
2020	M. Aravind Rohan,K.Sonali Swaroop, B. Mounika	Emotion Recognition through Speech Signal.	The proposed system detects one's mood by facial emotion recognition using convolutional neural networks and generates a music playlist based on the mood detected.
2018	Advait Gopal, Archana	Emotion Model for Artificial Intelligence and their Applications.	This paper also demonstrates how AI system who can understand human emotions can be beneficial for the society.

PROBLEM STATEMENT

How Does AI detect human feelings?

- Building a website with an excellent user interface and functionality that will deliver clean, accurate Emotion able to detect and plays the song related to the emotion detected through audio analysis.
- Music is one of the best mode to improve a person's mood. Out project aims to find the emotion of a person using speech and tries to enhance his mood by playing relevant songs.

OBJECTIVE

- The primary goal of this project is to improve the interaction between humans and machines.
- Building a website with an excellent user interface and functionality.
- Deliver clean and accurate Emotion detection.
- Plays a music that is associated with improving the mood of the individual whose emotion has been recognized.

COST ESTIMATION

- The project has a zero-cost budget because all of the software's that were utilized are freely available online.

METHODOLOGY

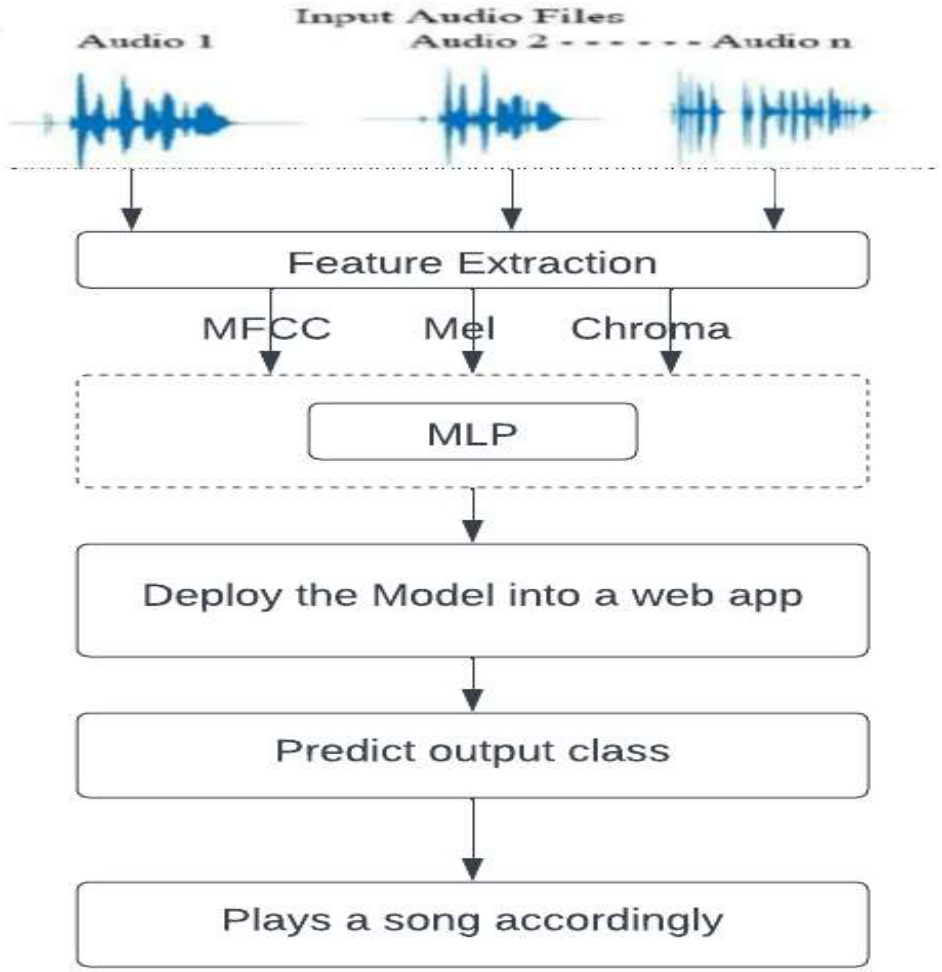
Data Collection: In this project we used 2 datasets one is for audio files with different emotion, and the other is for mp3 songs data collection.

Audio files dataset: RAVDESS dataset (**https://www.kaggle.com/datasets/uwrfkaggler/ravdess-emotional-speech-audio**)

Mp3 song dataset: Customized Song dataset.

Analyze: Our model will analyze the input using MLP Classifier.

METHODOLOGY



EXPERIMENTAL RESULTS

DURATION ANALYSIS

Compliance with Society, Ethical and Social Practices

- human computer interaction
- Self Driving cars
- Smart Home automation
- Healthcare - Psychiatrists
- Hear It uses music's innate mood-lifting benefits to assist individuals enhance their mental health and overall well-being.

COMPLIANCE WITH ENVIRONMENT AND LEGAL FEASIBILITY

FUTURE ENHANCEMENT

CONCLUSION

- Overall the model building and training is completed successfully.
- We are still working on adding accents for various nationalities.
- We are still working on GUI design for user approach

REFERENCES

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THANK YOU