# REPORT

# Speech Emotion Recognition – Bhavanavishkar


by

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# ABSTRACT

Speech Emotion Recognition has a grate application in Music stream. Using human emotion one can easily find what exact music or song he/she wants to here rather than keeping viewing on various songs and wasting time on it. Thus using emotion this music app can predict your emotional mood and recommend you the best suitable song. Thus the same process can be carried out for recommending the podcast, music and even music as per the persons emotion predicted as per speech. This will lead the music and human interaction to a greater extent. Providing annotations and emotion judgements is difficult due to the difference in interpretation from person to person but now using a CNN this has helped to train the machine to predict the exact emotion of human.

Firstly the app will take an input from the user to get the speech input from the user. The speech recognition module will identify the emotion and then suggest the songs related to the mood. The dataset is also planned to be in the regional languages so Indian people can interact better with the system. Speech Emotion Recognition model has lead the Music app which provide better human interface as humans emotion gets easily analysis and the best suitable music/song /podcast is suggest to the user. Using this module in Indian Language will enable us to make Indian originated music more stronger as most of the peoples prefer to have music in the regional language which would relatively make India Atmanirbhar.

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## Introduction:

In todays era Speech Emotion recognition has brought human interface to a next level of development. Human and machine interaction is an area where computer science is looking forward in various new upcoming technologies and taking them to the next advance level. Speech Emotion Recognition contribute in greater extent in this field. As the speech produces by humans helps us to understand and predict what is the certain emotion of a human being in a particular situation and thus can be developed. Recognition of human emotions by machines is becoming a significant focus in recent research in different disciplines related to information sciences and Human-Computer Interaction (HCI).

Humans are in use to express emotions to computers all the time whenever they come in touch with it. This has lead building of Human Computer interface to a next level where computers/machines can exactly understand the real time emotion state of a person and can handle the different programs accordingly and this eventually makes a better customer experience.

On the same root, if a machine knowns the exact emotion state of a student then by assessing those emotions it can present the perfect match to a student maybe it be in notes, videos, slides, etc. format which will create a fruitful Computer Aid Learning Technology which is the exact need in this pandemic situation. Speech Emotion Recognition can be used in various fields like gamer industry to understand the current emotion of a gamer which helps to known different frustration points while playing which can be further be improved upon. Human Emotion plays a vital role in a Marketing field which guide us to known the view reactions. This also can be implemented in automotive industry to avoid road rage to make driver experience safer.

Thus Speech Emotion Recognition has its own number of application and can be used on real time basics in various different sectors such as HR interview, automobile industry to provide better safety to driver by detecting this emotions during road rage, medical science to detect the exact state of emotion of a patient and about his wellbeing and health development, military to predict the exact state of soldiers during there training period by taking measures of emotion through speech, e-Learning for teachers there they will be notified on real time basis weather the students and gaining the exact idea what they actual wants to deliver through a students speech which will makes the teachers task simpler.

The initial project was installing the speech emotion recognition in a car for reducing the speed and thus reducing the accidents caused due to road rage. But after taking a survey on Google forms and after analyzing them , we realized that this problem statement was not as useful and hence we switched to the music app with the same concept.
The app will take an input from the user to get the speech input from the user. The speech recognition module will identify the emotion and then suggest the songs related to the mood. The dataset is also planned to be in the regional languages so Indian people can interact better with the system.

**Objective:**

The main objective of ‘Music App suggesting music based on your mood’ is to make a human and machine interface more easier and simple so that the common public would easily collaborate with it without spending there precious time on analysis various things in emotion field. Implementing Speech Emotion Recognition will help human and machine interaction is an area where computer science is looking forward in various new upcoming technologies and taking them to the next advance level. As per the present needs of a music app to suggest and guide user to a correct music using speech emotion we can easily do it and which will also take user to a good emotion state i.e this app will first show the real time emotion of user and then guide and recommend him/her the music belonging to a good and fruitful emotion condition. This will eventually make a person from angry mood to a happy mood by recommends the music on real time basis.

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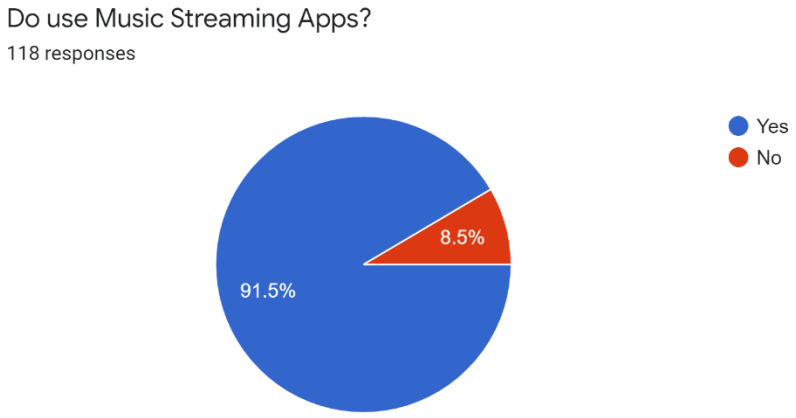
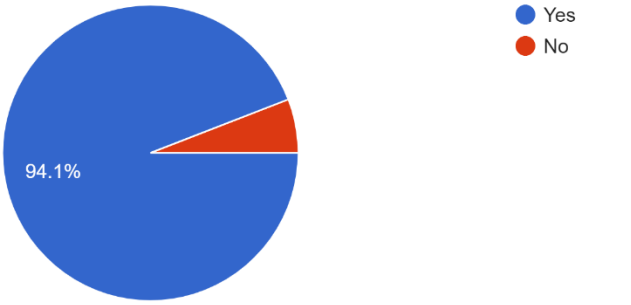


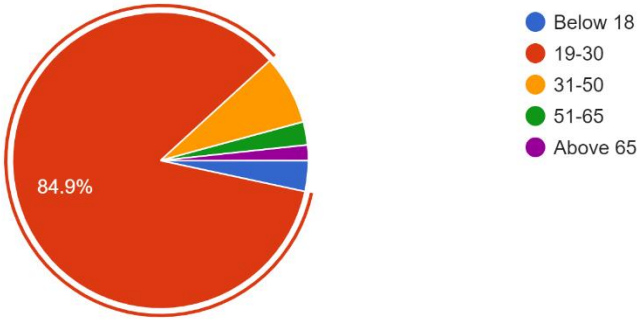
Would you like it if the app suggests you songs based on your mood?

119 responses



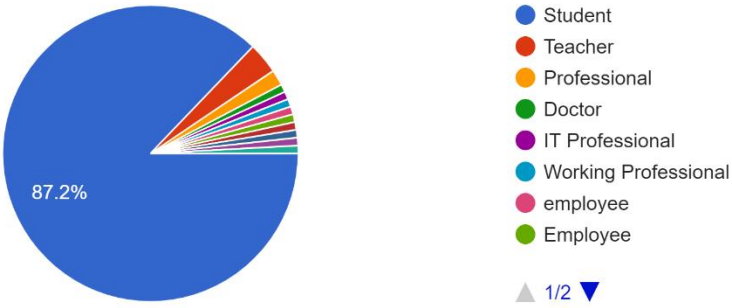

What age group do you belong to?

119 responses



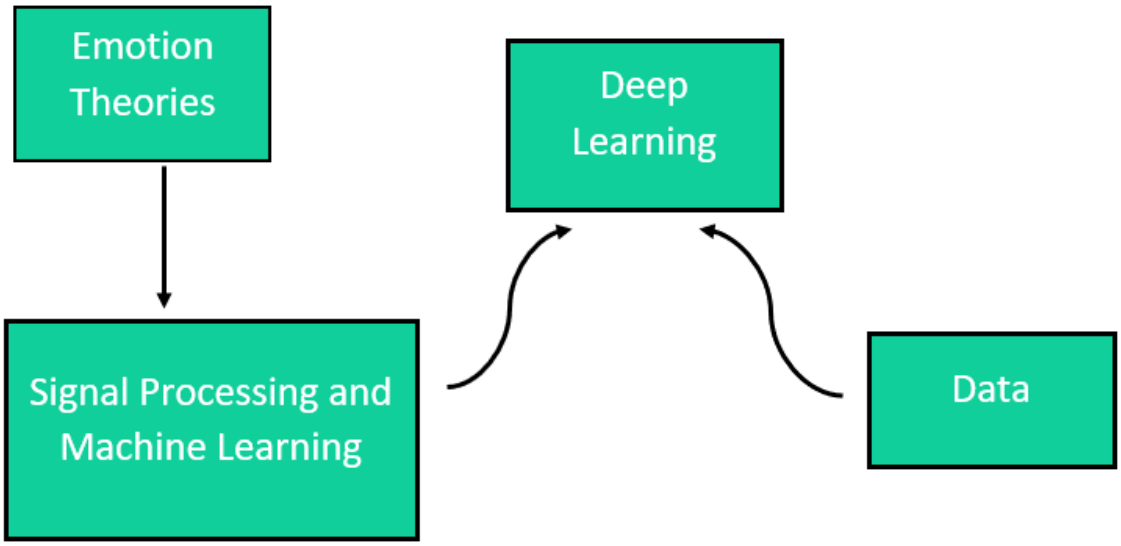

Are you a student or a teacher?

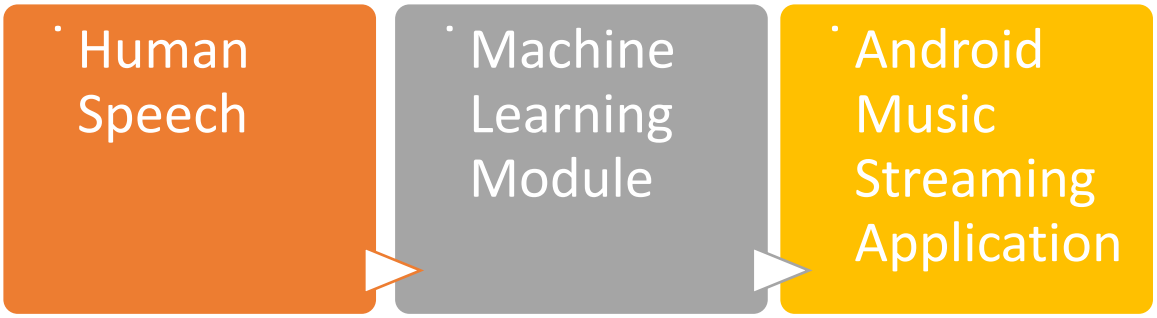
117 responses

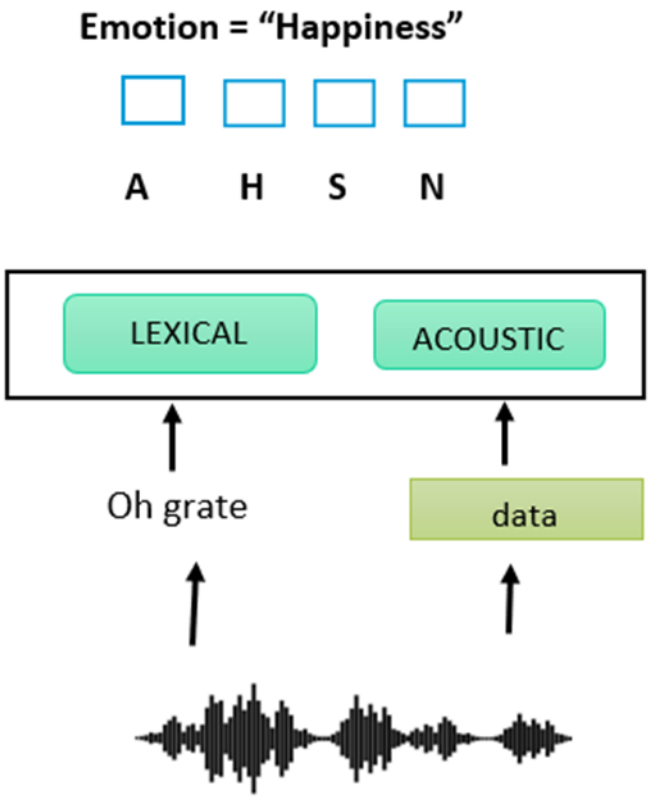


**System Design:**

The basic ideology of designing a Mood based Musical app is such as it will firstly carry out the analysis of speech of user and collect various datasets regarding the same and further pass it on to Machine learning model which will guide the user the current state of emotion and recommend him/her the best suitable version of music and would eventually lead to a fruitful emotion of user and will provide a better human interface.

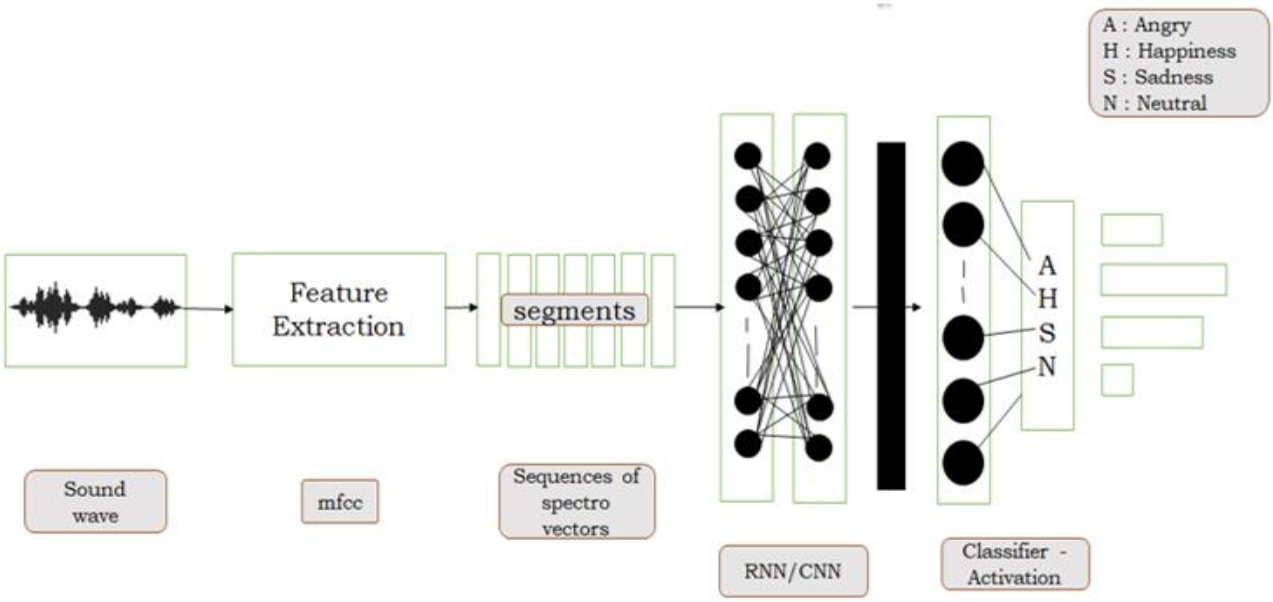



Human Speech
Machine Learning Module
Android Music Streaming Application

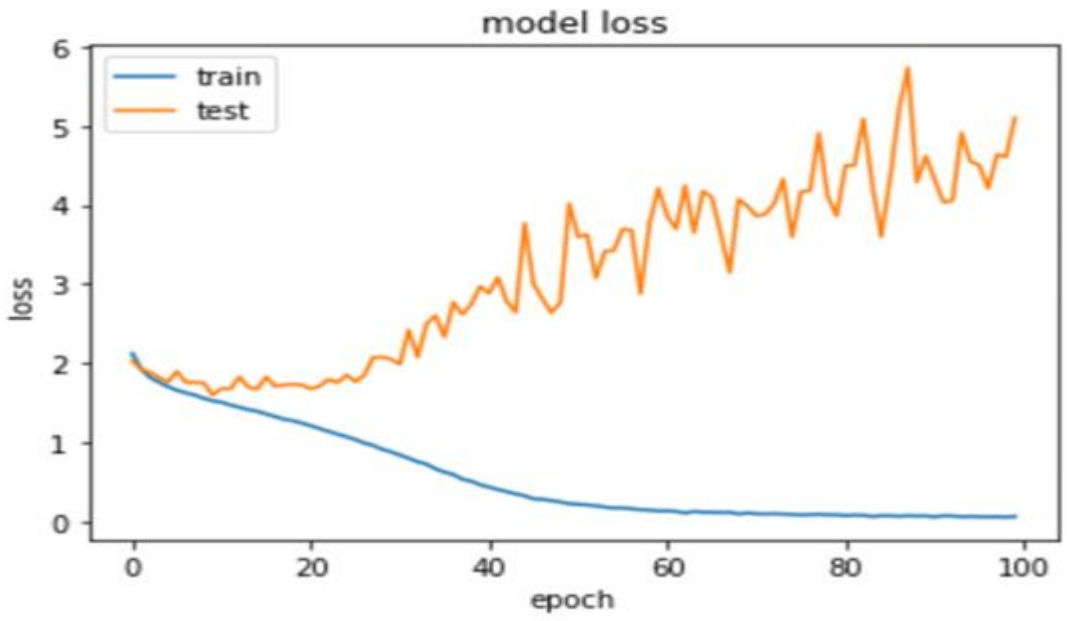

Emotion = "Happiness"
A H S N
LEXICAL
ACOUSTIC
Oh grate
data

**System Implementation:**

- Block Diagram



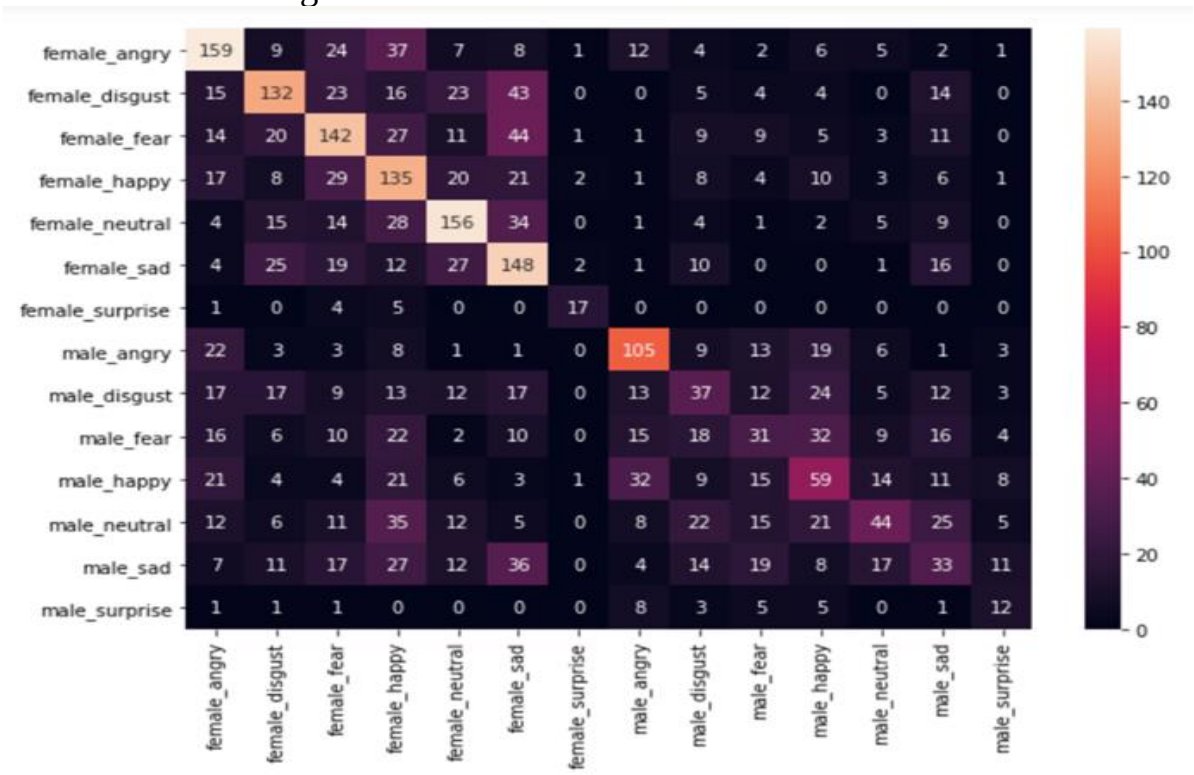

- Loss vs epoch:



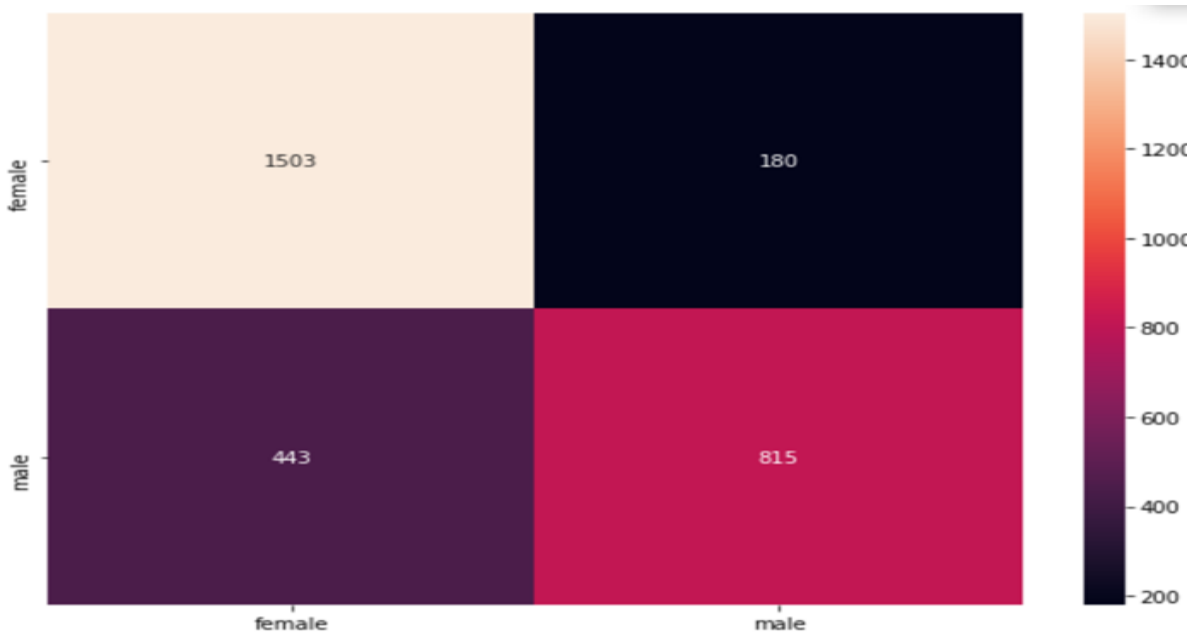

- Predicted output:

| | actualvalues | predictedvalues |
|---|---|---|
| 170 | female_happy | female_happy |
| 171 | female_fear | female_fear |
| 172 | male_fear | male_fear |
| 173 | male_fear | female_happy |
| 174 | female_angry | female_sad |
| 175 | female_angry | female_happy |
| 176 | female_happy | female_happy |
| 177 | female_fear | female_fear |
| 178 | female_neutral | female_neutral |
| 179 | female_angry | female_happy |

- Emotion Recognition:



- Gender Recognition:




Categories –
• Anger • Disgust • Fear • Happiness • Sadness • Surprise • Neutral

**Application:**

Here we have designed a Speech Emotion Recognition Model for a real time mood analysis based Music app. In this app can be used for developing a good emotion for user where it can be also implemented in various regional languages. This module can also be implemented by physiotherapist, doctors for good emotion state of patients which will surely help in there better recovery. Speech emotion Music app can also be implemented to take feedback and reviews from viewers about a song in different expects which will increate a better customer experience.

# Conclusion and Future scope:

The app could be useful as it will be a Indian app with all the features needed by a lot of people as received by the Google forms of people between the age of 15-30 years of age. The future plans are to include a recommendation module which will be based on suggesting music based on each person's mood and preferences of each person.

The project can be scaled by making it in each regional languages for making the usage easier for everyone. This module can also be used by various Doctors, Teachers and especially by music, automotive and automobile industry.