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DEPARTMENT OF INFORMATION TECHNOLOGY

Emotion Identification using Audio

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AGENDA

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- OBJECTIVES
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INTRODUCTION

- Emotion identification is a field of study that aims to develop algorithms and systems that can automatically identify the emotions conveyed by a speaker's voice.

- This application has a wide range of applications such as human computer interaction, voice-controlled devices and speech therapy.

- Emotion can play an important role in decision making. If emotion can be recognized properly then a system can act accordingly.

LITERATURE SURVEY

TITLE	AUTHOR	YEAR	METHODOLOGY
Speech Emotion Recognition by utilizing speech signals	Narayan	2020	Domain specific recognition by utilizing speech signals from call centre application. Detecting negative and non-negative emotion are the main focus of this research.
Speech Emotion Recognition using Random forest to trees method	Rong et al	2017	Presented an ensemble random forest to trees method with a high number of features for emotion recognition without referring any linguistic information remains an unclosed problem. This method is applied on small size of data with high number of features.
Identifying emotions by representing hierarchical computational structure	Lee et al	2011	It represent a hierarchical computational structure to identify emotions. The main concept of different level in tree is to solve the classification task in easiest way

PROBLEM STATEMENT

- To identify the type of emotion from user’s speech. The user has to upload the audio file and based on the emotion expressed in the audio the algorithm will do the prediction.

OBJECTIVES

- To develop a system that can accurately classify emotions such as happiness, sadness, anger, and neutral.
- To build a model to recognize emotion from speech using librosa , sklearn library etc.
- To develop a web application that gets audio file as input and type of emotion as output.

PROPOSED SYSTEM

- In this project, MFCC(Mel frequency Cepstral Coefficient) has been used as the feature for classifying the speech data

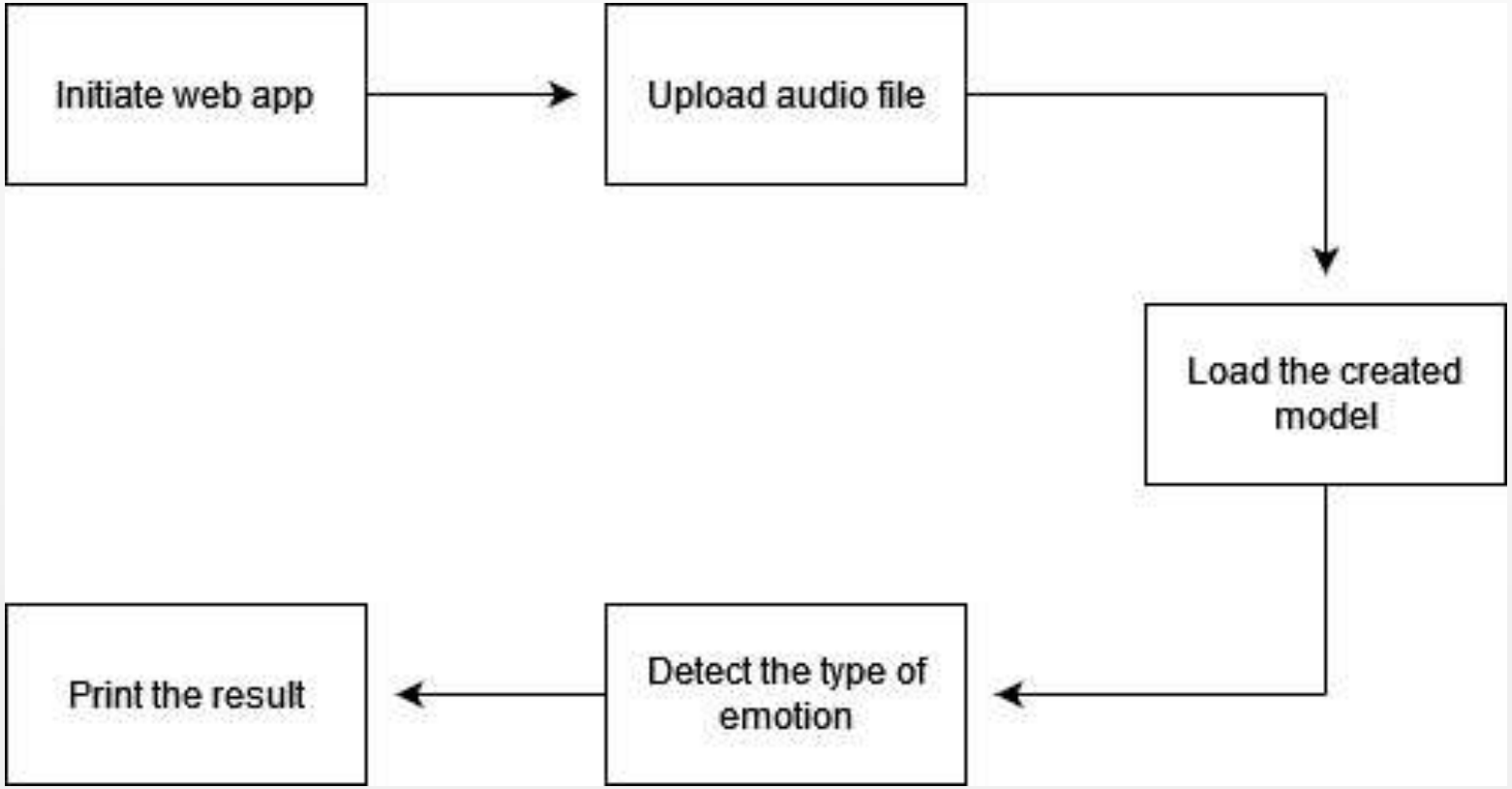
  into various emotion categories employing artificial neural networks.

- The usage of the Neural Networks provides us the advantage of classifying many different types of emotions in a variable length of audio signal in a real time environment.

- The performance of the model will be evaluated using metrics.

- This technique manages to establish a good balance between computational volume and performance accuracy of the real-time processes.

BLOCK DIAGRAM

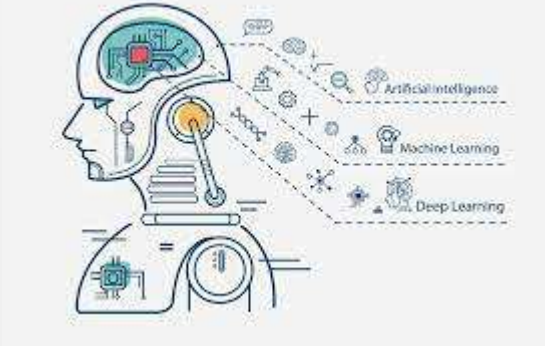


MODULES

Preprocess the dataset	Preprocess the dataset using the librosa library
Build the model	Build the model using the Multi Layer Perceptron neural network
Model integration	The model is then integrated with the web using the python flask framework
Print the results	Find the type of emotion expressed in the audio and print the results in the web app screen

SOFTWARE REQUIREMENTS

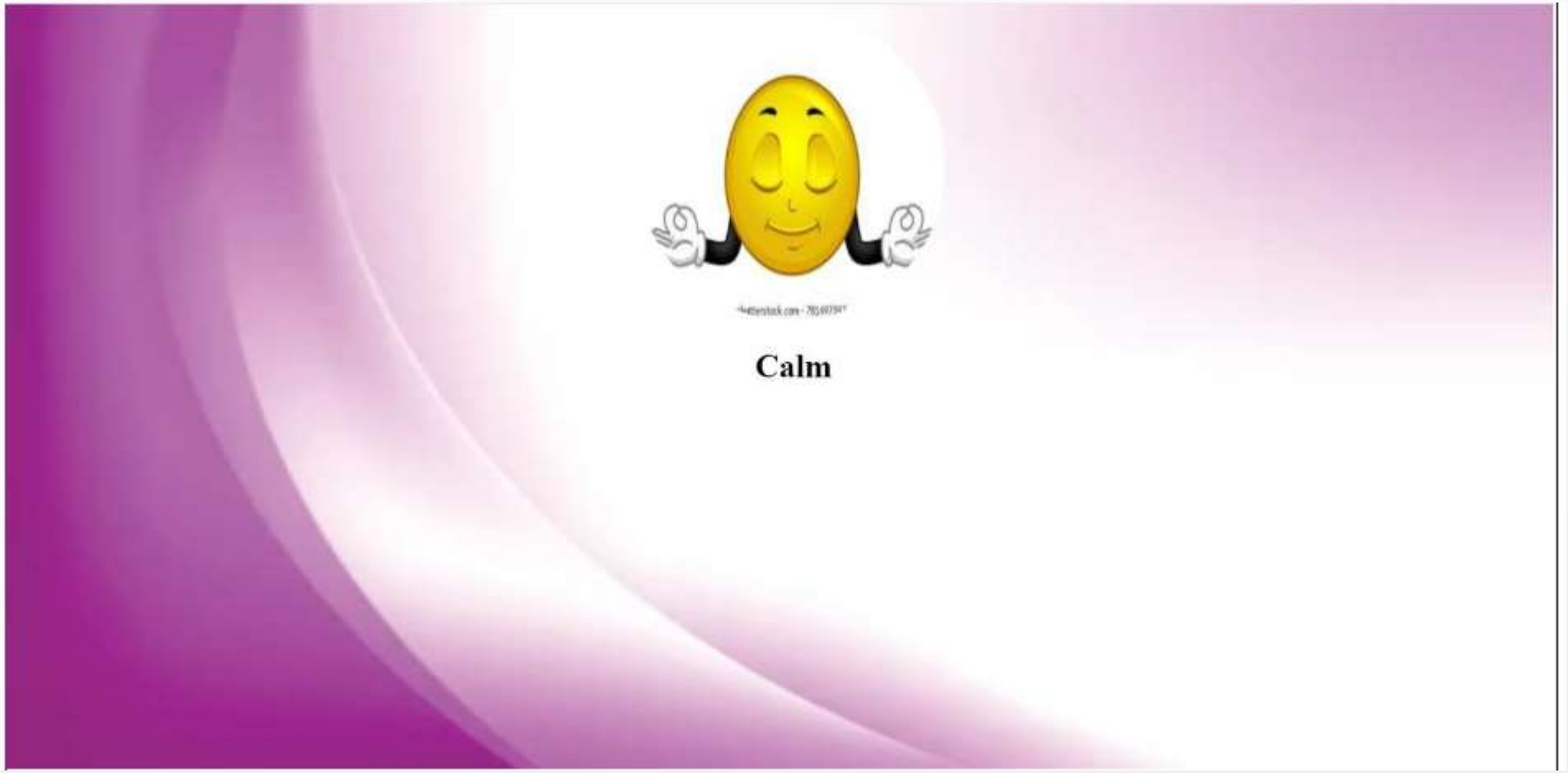
1. Python flask
2. Machine Learning
3. HTML,CSS and JS



RESULTS


Speech Emotion Recognition
Choose File
test-audio.wav
submit
SPEECH EMOTION
RECOGNITION

RESULTS



CONCLUSION

- Multilayer Perceptron and librosa has been used for emotion detection through speech.
- The proposed system detects the type of emotions in the audio uploaded.
- The proposed system can be embedded inside a web application to provide the type of emotion in the audio uploaded.
- The proposed system can be enhanced by adding multiple audio inputs.

REFERENCE

[1] Rong et al., (2017), ‘Speech emotion recognition methods’, AIP Conference Proceedings.

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THANK YOU