Dept. of ECE, Bharati Vidyapeeth's College of Engineering-New Delhi

MINI PROJECT REVIEW 2

ECE-1
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ABNORMAL ACTIVITY DETECTION USING ML,DL

Summary of the project work done till now:

The project mainly focuses on identification of normal and abnormal activities in a setting like a household, classroom etc. The classification will be done on the basis of Speech Emotion. We are developing a machine learning model that can identify normal and abnormal activities by giving an audio file as an input to the model.

The work that has been done till now focused on:

1. Extracting and Preprocessing the Ravdess Dataset for training of the deep learning model

2 .Developing the Deep learning model and training it with Ravdess Dataset

Outcome of the Project work till done :

1. Extracted the Ravdess Dataset.

2. Performed preprocessing on the dataset and calculated mel frequency cepstral coefficients

3. Developed and trained the deep learning model on mfcc arrays obtained by audio files having different emotions

4. Emotions were successfully identified by the model trained on Ravdess Dataset with an accuracy of 94.6% and model to be trained on Indian dataset is under development phase.

5. Started building the model based on Indian dataset.

Problem Statement with respect to work done:

Speech plays an important role in identifying the tone of a person, and tone in turn helps in identifying the behaviour of a person. The problem is to make a machine classify human behaviour as normal and abnormal based on speech produced by the person.

The problem occurring is that we have trained the machine learning model on the Ravdess dataset which is providing high accuracy for the foreign speech but is giving comparatively lower accuracy for the Indian speech.

Expected Project Outcomes:

The Tentative Outcomes are :

- Training and testing the model based on indian dataset
- Comparison results of models based on Ravdess and Indian dataset.

Project Tasks Description:

S.No	Task	Methodology	Resource Required	Start Date	Expected End Date
I.	**STUDENT 1- VRITTIK SHARMA (05611502817)** **STUDENT 2- VAIBHAV SURI (05511502817)** **STUDENT 3- UJJWAL GABA (05311502817)** **STUDENT 4- PRATYUSH RAJ (03411502817)**				
1	Training on Indian Dataset	**Step 1:** Collecting the audio files **Step 2:** Cleaning the audio files to remove background noises **Step 3:** Training on the above Dataset **Step 4:** Detection of tone of the voice using the parameters specified.s	PYTHON(LIB: pyAudioAnalysis)	March 20, 2020	April 1, 2020
2	Speech Analysis	**Step 1:** Training on Indian dataset for detecting abnormalities through changes in voice features which may include mel frequency components and fourier coefficients. **Step 2:** Detection of tone of the voice using the parameters specified.	PYTHON(LIB: pyAudioAnalysis) ,Indian Dataset	April 1, 2020	April 8 , 2020
3	Comparison of the results	Comparing the performance of the models of ravdess dataset and the indian dataset .		April 8, 2020	April 10, 2020

References:

Reza Chu , "Speech Emotion Recognition with Convolutional Neural Network" ,Section : Default ModelArchitecture,blog@https://towardsdatascience.com/speech-emotion-recognition-with-convolution-neural-network-1e6bb7130ce3 , Jun 1, 2019 [Accessed Jan 5, 2020]

Omar Raghib, Eshita Sharma, Tameem Ahmad, Faisal Alam, "Emotion analysis And speech signal processing", 2017 IEEE International Conference on Power, Control, Signals and Instrumentation Engineering (ICPCSI), Sept 21, 2017

George Georgoulas, Voula C. Georgopoulos, Chrysostomos D. Stylios, "Speech Sound Classification and Detection of Articulation Disorders with Support Vector Machines and Wavelets", 2006 International Conference of the IEEE Engineering in Medicine and Biology Society, Aug 30, 2006

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Signature with date :