ECE-1
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ABNORMAL ACTIVITY DETECTION USING ML,DL

Proposed Project Summary:

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 basis of Speech Emotion.The Speech is an extremely important indicator of the type of activity going on.Speech can be used to indicate abnormal activities on basis of emotions like fear, anger etc.There are other factors like Pitch, Frequency, Voice tone, Modulation etc which play an important role.The amalgamation of the aspects will be used to determine abnormal and normal activities.The analysis will be done on Ravdess Dataset and an Indian Speech dataset which will be made from scratch.The results from the 2 datasets will be then compared and analysed.

Problem Statement:

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 is divided into 2 subtasks, one is making an indian dataset of speech and training the machine with it and the other is to train the machine with a foreign dataset of speech and then comparing both in terms of accuracy.

Expected Project Outcomes:

The Tentative Outcomes are :

- Indian Dataset of speech with different emotions
- Training model for ravdess dataset to determine abnormal and normal behavior of a person
- Training model for Indian speech dataset
- Compared analysis of ravdess and Indian Dataset for analysing the person's behavior (abnormal or normal)

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	Speech Analysis	**Step 1:** Training on ravdess 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. **Step 3:** Calibrating the model for reinforcement	PYTHON(LIB: pyAudioAnalysis) ,RAVDESS DATASET	Feb 1, 2020	Feb 15, 2020
2	Creation of 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. **Step 5:** Calibrating the model for reinforcement	PYTHON(LIB: pyAudioAnalysis)	Feb 15, 2020	Feb 29, 2020
3	Comparison of the results	Comparing the performance of the models of ravdess dataset and the indian dataset .		March 1, 2020	March 15, 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   :