

● Speech based Emotion Recognition

Presented by,

Harish Kumar K , 20BRS1231

Introduction

A parenting style is a psychological construct representing standard strategies that parents use in their child rearing. As a parent it's their responsibility to take care of mental health especially when they are about to reach their adolescence. In this age, children may find it difficult to cope up with psychological and physiological changes which generally happen in their body and if the parents are not friendly enough to listen to the problems of their children, the children may ultimately choose the wrong path. So to avoid these kinds of problems, I have designed a system which is able to predict the emotion state of the children through their phone calls and notify the parents when it recognizes their children is sad and thereby we can prevent major suicides around the world.

Motivation behind the project

According to the survey conducted by World Health Organization (WHO), at least a million people are estimated to die annually from suicide worldwide in which the death of people at the age group of 15 to 19 has been growing eventually over the years. The increase in death of teenagers is mostly because of reducing interaction of parent and the children. Due to less interaction between parent and the children, it has been difficult for the children to cope up with the changes which usually happen for the teenagers. Since some people could not be able to handle the pressure, they ultimately choose a way to end their life. Therefore, I have planned to design the system based on which helps the parents to know the mental health of their child, thereby suicides around the world can be reduced eventually.

Objective of the project

According to the survey conducted by World Health Organization (WHO), at least a million people are estimated to die annually from suicide worldwide in which the death of people at the age group of 15 to 19 has been growing eventually over the years. The increase in death of teenagers is mostly because of reducing interaction of parent and the children. Due to less interaction between parent and the children, it has been difficult for the children to cope up with the changes which usually happen for the teenagers. Since some people could not be able to handle the pressure, they ultimately choose a way to end their life. Therefore, I have planned to design the system based on which helps the parents to know the mental health of their child, thereby suicides around the world can be reduced eventually.

Literature survey

Paper 1

Title : Speech Based Human Emotion Recognition Using MFCC

Authors : Likitha. M. S , Gupta, S. R. R., Hasitha, K , & Raju, A. U

What has been done : In this paper, speaker emotions are recognized using the data extracted from the speaker voice signal. Mel Frequency Cepstral Coefficient (MFCC) technique is used to recognize emotion of a speaker from their voice.

Problems : Only 3 emotions (Happy , sad and anger emotions) has been taken for taken for the analysis

How it can be rectified : Testing and analysing for more more emotion will help in checking the efficiency of the model.

Paper 2

Title : Speech-based Emotion Recognition and Next Reaction Prediction

Authors : Fatemeh Noroozi, Neda Akrami, Gholamreza Anbarjafari

What has been done : In this paper, at first the emotion reaction prediction system proposed in this paper, different emotions are recognized by means of different types of classifiers and then prediction of a sequence of the next emotion reaction using neural networks.

Problems : Average prediction rate of reactions by neural network is low

How it can be rectified : Use of better methods than suggested from the paper can increase the accuracy.

Paper 3

Title : Emotion recognition from speech

Authors : Kannan venkataramanan , Haresh Rengaraj Rajamohan

What has been done : In this paper, They have used LSTM(Long short term memory), CNN (Convolutional Neural Network), Hidden Markov Models(HMMs) and Deep Neural network (DNN) for emotion recognition and has been compared with each other

Problems : The accuracy for the speech recognition is low even for the pure audio

How it can be rectified : Use of better methods than suggested from the paper can increase the accuracy.

Paper 4

Title : Recognizing Emotion from Speech Based on Age and Gender Using Hierarchical Models

Authors : Ftoon Abu Shqra , Rehab Duwairi , Mahmoud Al-Ayyoub

What has been done : In this paper, they have used hierarchical classification models to recognize the emotion from speech based on age and gender.

Problems : Training and testing data are low when compared to other papers.

How it can be rectified : Use of more data can be used for the better evaluation of model.

Paper 5

Title : Feature selection for fast based emotion recognition

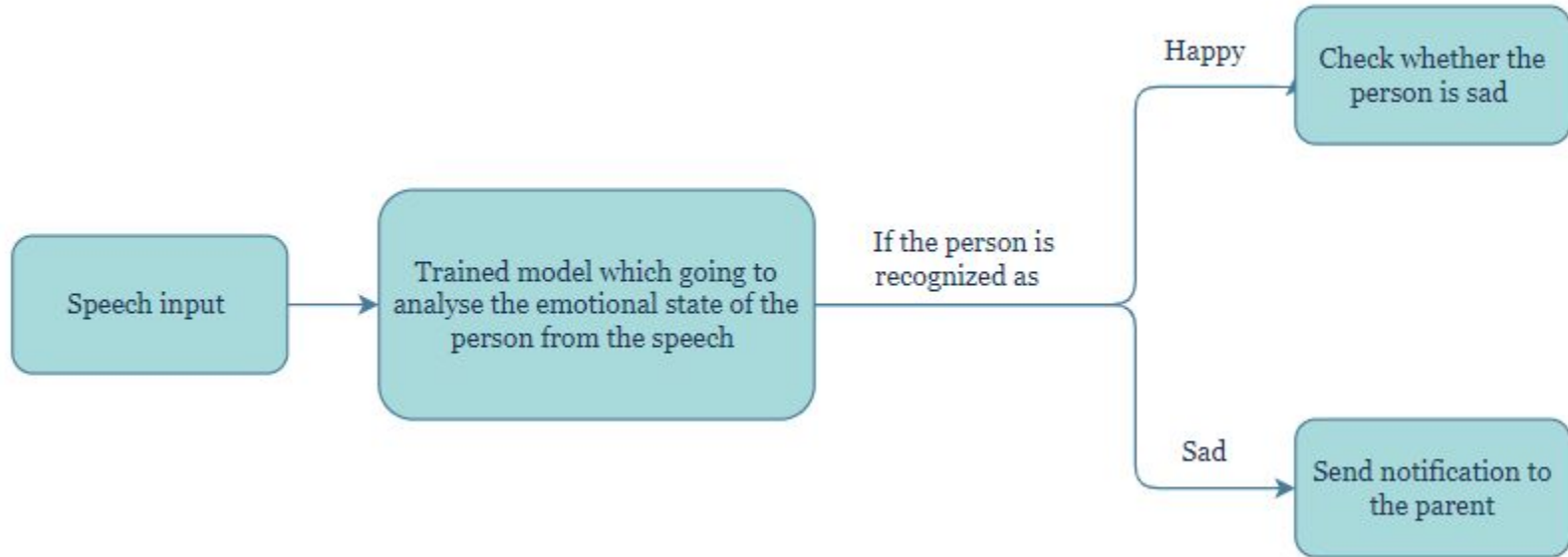
Authors : Luming Zhang , Mingli Song , Na Li, Jiajun Bu, Chun Chen

What has been done : In this paper, they have proposed novel feature selection algorithm to filter out the low efficiency features towards fast speech emotion recognition

Problems : Only anger have better accuracy compared to other emotions

How it can be rectified : Use of better model can increase the accuracy

Block diagram



Conclusion

The increase in suicides rate of teenagers around the world in the 21st century as threatened the parents around the world which leads the parents to invade in the privacy of their children. This leads to discomfort for both parents and their children. So we have come up with an idea of monitoring the emotion state of the children by the parents without invading their privacy. In our system, we monitor the emotion state of the children using emotion analysis of voice from there own phone calls and when the system deduct that the person is extremely sad, a notification is sent to their parents. So that the parents can sort of the problem of their kids easily. By this most of the suicide rates of teenagers around the world can be avoided which leads to healthy society and better future

References

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