**LITERATURE SURVEY**

[2.1]Lakshmish Kaushik, Abhijeet Sangwan, John H. L. Hansen **“sentiment extraction from natural audio streams”,**International Conference on Science and Technology 2014.

This paper explains about sentiment analysis of speech data.Automatic sentiment extraction for natural audio streams containing spontaneous speech is a challenging area of research that has received little attention. In this study, we propose a system for automatic sentiment detection in natural audio streams such as those found in YouTube. The proposed technique uses POS (part of speech) tagging and Maximum Entropy modeling (ME) to develop a text-based sentiment detection model. Additionally, we propose a tuning technique which dramatically reduces the number of model parameters in ME while retaining classification capability. Finally, using decoded ASR (automatic speech recognition) transcripts and the ME sentiment model, the proposed system is able to estimate the sentiment in the YouTube video. In our experimental evaluation, we obtain encouraging classification accuracy given the challenging nature of the data. Our results show that it is possible to perform sentiment analysis on natural spontaneous speech data despite poor WER (word error rates).The technology maximum entropy gives the accurate sentiments.

[2.2] Rohit Raj Sehgal,Gaurav,Raj Shubham Agarwal **”Interactive Voice Response using Sentiment Analysis in Automatic Speech Recognition Systems” ,**International Conference on Advances in Computing and Communication Engineering (ICACCE-2018)

Dual Tone Multi-Frequency Signalling technique was used to obtain inputs from the keypad. In this unique frequencies are sent over the audio channel for computer to understand. Speech recognition and artificial intelligence powers the automatic speech recognition systems, these systems can be applied in the call center environments. ASR enabled system uses machine learning and sentiment analysis to serve the customer needs efficiently. Naive Bayes treats the problem of sentiment analysis as a problem of text categorization. During sentiment analysis we define the positive and negative sample datasets and then generate a model that would be able to generate accurate results in the real time scenarios. Multinomial Naive Bayes is one of the most commonly used Naive Bayes model for classification. Max Entropy Classifier This a more computationally technique but generates result with least biases. In Max EC the probability that a document belongs to a particular class given prior must maximize the entropy of the classification system. This paper explains the use of sentiment analysis to identify if the customer are satisfied the ASR system’s performance. This paper presents approaches and techniques for how sentiment analysis can be used in call centre environments to recognize user emotion.

[2.3] PreedawonKadmateekarun, Sumitra Nuanmeesri **“Emotion Recognition on The Basis of Audio Signal Using Naive Bayes Classifier”,**International Conference on Science and Technology 2015, RMUTT

This paper explains the classification of audio signal into four basic emotional state. For that we have considered different statistical features of pitch, energy, and ZCR (Zero Crossing Rate) MFCC (Mel frequency cepstral coefficient) from 2000 utterances of the created audio signal database. In that, Pitch feature is extracted by AMDF (average magnitude difference method) and energy is calculated by sum of square absolute value of magnitude spectrum. And MFCC is calculated by taking DCT (Discrete cosine transform) of its energies spectrum by keeping the DCT coefficients 1-14 and discarding the rest. In statistical modelling, regression analysis is a statistical process for calculating approximately the variables. It comprise many techniques for modelling and analyzing several variables. In this paper Naïve Bayes Classifier is used to classify the audio signal into four different emotions. Speech signal is random signal so we have to predict the future sample and Naïve Bayes Classifier is totally probability based classifier so in speech analysis for accurate prediction we are using Naïve Bayes classifier. In the speech signal for recognition of signal classifier require millions of dataset. The advantage of Naïve Bayes classifier is that it recognizes the signal with minimum dataset.this paper gives the result of accurate sentiment using naïve bayes.

[2.4]Min Zhao,TaoZhenZhang,Jianping Chai **”Based on SO-PMI Algorithm to Discriminate Sentimental Words’ Polarity in TV Programs’ Subjective Evaluation”,**International Symposium on Computational Intelligence and Design 2015

Text mining is the technology to analyze the massive data so that it can make subjective evaluation about television programs. It can give decision support and improve competitiveness for each department in radio and TV industry. This paper mainly introduces how to using sentiment-oriented point wise mutual information (SO-PMI) to judge sentimental words’ polarity and calculate sentimental words’ intensity. It lays a solid foundation for the further study of subjective evaluation about television programs. Emotional words are divided into dynamic emotional words and static emotional words. Calculating emotional words’ intensity by SO-PMI algorithm is mainly aimed at static emotional words. And dynamic emotional words have different polarity in different domain. The paper makes a thorough research on judging sentimental words’ polarity and calculating sentimental words’ intensity based on SO-PMI algorithm and sentimental analysis technology. The results will lay a solid foundation for the further study of subjective evaluation about television programs..

[2.5] Maghilnan ,Rajesh Kumar **”Sentiment Analysis on Speaker Specific Specific data”,** 2017 International Conference on Intelligent Computing and Control (I2C2)

Audio sentiment analysis is still in a nascent stage in the research community. In this proposed research, we perform sentiment analysis on speaker discriminated speech transcripts to detect the emotions of the individual speakers involved in the conversation. In this paper, we propose a model for sentiment analysis that utilizes features extracted from the speech signal to detect the emotions of the speakers involved in the conversation. The process involves four steps: 1) Pre-processing which includes VAD, 2) Speech Recognition System, 3) Speaker Recognition System, 4) Sentiment Analysis System. The proposed system uses speech, speaker recognition and sentiment analysis. We have presented a detailed analysis for the experiments performed with various tools and algorithms. The tools used for speech recognition are Sphinx4, Bing Speech API, Google Speech API.recognition rate is used as the performance metric. For sentiment analysis, standard sentiment analysis datasets viz. twitter dataset, product review dataset [6] are used to commute the accuracy of the system.

[2.6] Christos Troussas, MariaVirvou, Espinosa, Kevin Llaguno, JaimeCaro **“Sentiment analysis of Facebook statuses using Naive Bayes classifier for language learning”,** International Conference on Advances in Communications and Informatics (ICACCI)2017

Social media plays a vital role in sharing informations.People share their experiences, opinions or simply talk just about whatever concerns them online. The large amount of available data attracts system developers, studying on automatic mining and analysis. In this paper, the primary and underlying idea is that the fact of knowing how people feel about certain topics can be considered as a classification task. People’s feelings can be positive, negative or neutral. A sentiment is often represented in subtle or complex ways in a text. An online user can use a diverse range of other techniques to express his or her emotions. Apart from that, s/he may mix objective and subjective information about a certain topic. On top of that, data gathered from the World Wide Web often contain a lot of noise. Indeed, the task of automatic sentiment recognition in online text becomes more difficult for all the aforementioned reasons. Hence, we present how sentiment analysis can assist language learning, by stimulating the educational process and experimental results on the Naive Bayes Classifier.This paper gives the accurate result of text data from the reviews of facebook