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## Telephony Sentiment Analysis

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### ABSTRACT

Analysis of the Emotion of a person has been developed over the earlier period decades. The majority of the works in it spun over text emotion analysis content analyzing strategies. Yet, audio emotion analysis opinion is in the beginning phase of the research network. Our work presents the study of various algorithms of sentiment analysis to identify Emotion by dissecting the acoustic highlights of an individual's voice. The direction of study on datasets and the strategies which are utilized to recognize feeling through voice and actualized the framework to distinguish the best structure for the errand fully expecting and conveying it in a future application

Sentiment analysis has evolved over past few decades, most of the work in it revolved around textual sentiment analysis with text mining techniques. But 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. We analyzed different techniques to perform speaker discrimination and sentiment analysis to find efficient algorithms to perform this task

Sentimental analysis plays a vital role now-a days because many start-ups have been emerged based on user-driven content. Many service-based organizations are basically user opinion based online agents rendering services to consumers. The proposed method helps to convert speech review into text based on speech recognition module. The user reviews (text) are stored in cloud for audit purpose. Once the audit is performed the reviews are posted in the respective applications. In these user-driven reviews about a product is taken into sentimental analysis to get positive, negative and neutral words. This would make the consumer come to a decision in a fraction of a section rather than going through number of reviews, thus tremendously saving time. Our main contributions include a voice-based trust model for computing user feedback comments. The proposed system involves machine learning language for classification and assigning weight age to each positive, negative and neutral word. The proposed method scaled well for different types of opinion

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Keywords: Sentiment - An Emotion , Weightage - Technical Term In ML

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### 1. Introduction

Emotions square measure cnide states associated with the sensory system welcome on by neurophysiology changes otherwise connected with concerns, sentiments, conduct reactions, and tier of pleasure or dismay Emotion is nothing however Associate in Nursing expression is a good/negative event that's connected with a selected illustration of physiological development. Peggy Thoits depicted emotions as including physiological segments, social or emotional labels (anger, stress, and so forth), expressive body exercises, the assessment of conditions and settings.

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### 2. Sentiment Analysis

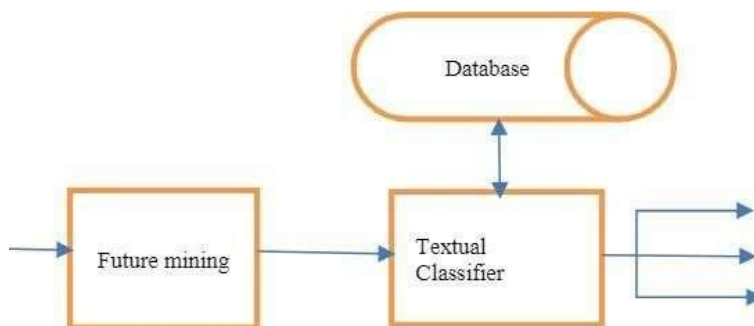
Sentiment Analysis is the translation and characterization of feelings (positive or negative or impartial) inside the given information. It can be done through content, sound, video examination systems. Sentiment analysis is that the analysis of individuals' feelings or behaviour towards a circumstance,

speech on points, or by and enormous. Thought assessment is moreover employed in numerous applications. Here, the paper comprehends the perspective of people subject to their speech with all others. For associate degree appliance to understand the mentality or perspective of the people through a discussion. It has to acknowledge World Health Organization is interfacing within the speech and what's spoken. To execute a speaker and speak affirmation system, 1st perform the sensation assessment on the infonnation isolated from previous strategies. Understanding the attitude of people is astonishingly helpful in numerous events. as an example, PCs you will see and react to human non-lexical corespondent as an example, and sentiments. In such a case, leading to recognizing somebody's emotions, the machine will modify the settings satisfying their desires and tendencies. The investigation organize has gone when dynamic sound materials, as an example, tunes examine, news, political disputes, to content. to boot, the system in like manner worked on sound assessment to think about client bolster phone conversations and numerous conversations including quite one speaker. Since there's quite one speaker within the speech, it gets awkward to look at the sound annals. it's needed to recommend a technique that may think about the presenter character and execute sound examination for solitary speakers and report their inclination.

### 2.1. Structure

Files Assessment Analysis has to boot alluded as Stunnarbeiteilung, that acknowledges the slant sent in a very book by then assessments it to seek out whether or not report imparts positive or negative opinion. a bigger piece of labor on feeling investigation has centered on procedures, as an example, Innocent Bayesian, call tree, reinforce vector machine, most extraordinary entropy. within the work, the sentences in every record square measure named as crazy and goal, and a short time later customary AI techniques square measure applied for the passion

Automatic Sentiment Analyzer Based on Speech Recognition elements. With the goal that the furthest purpose classifier ignores the inconsequential or confusing terms. Since social function and naming the information is repetitive at the judgment level, this strategy is nothing but onerous to check. To perform slant examination, we've used the going with procedures — Naive Thomas Bayes,

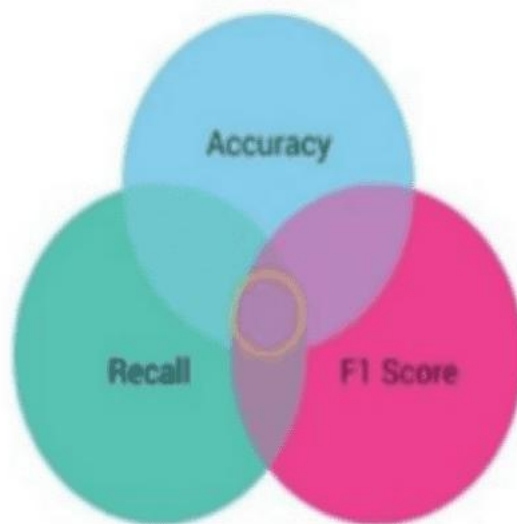


**FIG (a)** SentenceNeutralFigure and arrangement of basic Sentiment Analysis System

2.2. The past literature and various sentiment analysis techniques are discussed in this section. The sentiment of the reviews is identified by approaches [1],[2],[3],[4],[5],[6],[7],[8]. The accuracy of the classifier is increased by reducing the noise in textual data by pre-processing it. Bo Pang and Lillian Lee [9] proposed that Naïve Bayes and SVM is the efficient method for providing highest accuracy. Xiangjie Kong, Huuizhen Jiang, Zhuo Yang, Zhhenzhen Xu, feng Xia, Amr Tobla [10] embraced Random Walk model for giving highest accuracy in academic domain. Huakang Li, Yixiong Bian, Xiuying Xu, Guozi Sun [14] suggested Monte Carlo decision tree algorithm for mining interest similarity with highest performance when compared with other techniques. G. Vinodhini [11] proposed NB is the best technique for estimating the quality of the document. Jayashri Khairnar and Mayura Kinikar [12] put forward that SVM excelled when comparing with other techniques in sentiment classification. Faruk and Arnab [13] initiated a model for trust management with highest accuracy. Rudy Prabowo [16] explored a new approach for improving the performance of the classifier. Dongjoo Lee et al [15] says the when dealing with huge volume of data, PMI give better accuracy. Soudamini Hota, Sudhir Pathak [19] recommended SVM and KNN as a best method for handling noisy data in textual information. Table 1 describes the list of measurements used in different application in sentiment analysis.

2.3. Tables

AUTHOR	TOPIC	MEASUREMENTS	DESCRIPTION
Lik Mui, Arihalberstadt, Mojdeh Mohtashemi.	A Computational model of Trust and Reputation	Accuracy (Size)	This paper presented a model to show the difference between the trust and reputation in terms of the size of the network.
A. Arenas, L. Donon, P.M. Glesier and R. Guimera, A. Diaz-Guilera	Community analysis in social network	Accuracy (Size)	Presented a model to scale the characteristic of the community size distribution of different social network with two different exponents.
BoPang, Lillian Lie	A Sentimental Education: Sentimental Analysis using subjectivity summarization based on Minimum Cut.	Accuracy (Performance)	This paper proposed that SVM and NB are better technique for improving the performance of a model up to 86.4 %.
Erik.Boiy, Pieter Hens, Koen Dschacht, Marie Francine Moens	Automatic Sentiment Analysis in Online Text	Accuracy (speed and size)	This paper shows the varying level of accuracy when symbolic and machine learning methods were applied to different social network dataset.
Doreen Hill	Using Meaning specificity to aid negation handling in	Accuracy (Performance)	This paper compared the accuracy of 1-,2-,3-,4-, gram and



Fig(b) Factors in Sentiment Analysis

MFCC and Chroma techniques to extract the features of the audio given by the user and later on, we used MLP classifier techniques to classify the emotion and give it to the recommend-er system which recommends the user some files to view to change the mood of the user and let them feel less lonely.

This work presents a generalized model that takes an audio which contains a conversation between two people as input and studies the content and speakers' identity by automatically converting the audio into text and by performing speaker recognition. In this research, we have proposed a simple system to do the above-mentioned task. The system works well with the artificially generated data-set, we are working on collecting a larger data-set and increasing the scalability of the system. Though the system is accurate in comprehending the sentiment of the speakers in conversational dialogue, it suffers some flaws, right now the system can handle a conversation between two speakers and in the conversation only one speaker should talk at a given time, it cannot understand if two people talk simultaneously. Our future work would address these issues and improve the accuracy and scalability of the system.

As future work of this work, the refinement of the rule set to extract more dependency relations from datasets and that will help to improve the precision and recall values of the system. If the system is able to correct all the spelling and grammatical errors present in the review documents in the pre-processing step itself then it will definitely improve the recall value of the system. This paper used the tool called Sentiwordnet as a source of the information for determining term orientation. It is a good idea to use Sentiwordnet tool with other scoring measures to arrive at better scores for the given terms. It will surely generate a better sentiment score and it will help in making up for the inaccurate scores generated sometimes from the Sentiwordnet. The thing noted in the review documents was that users generally prefer to express their emotions and feeling in short sentences or single line texts and in abbreviations, hence the research should be carried out in that direction as well.

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