

Sentimental Analysis For Customer Care Performance

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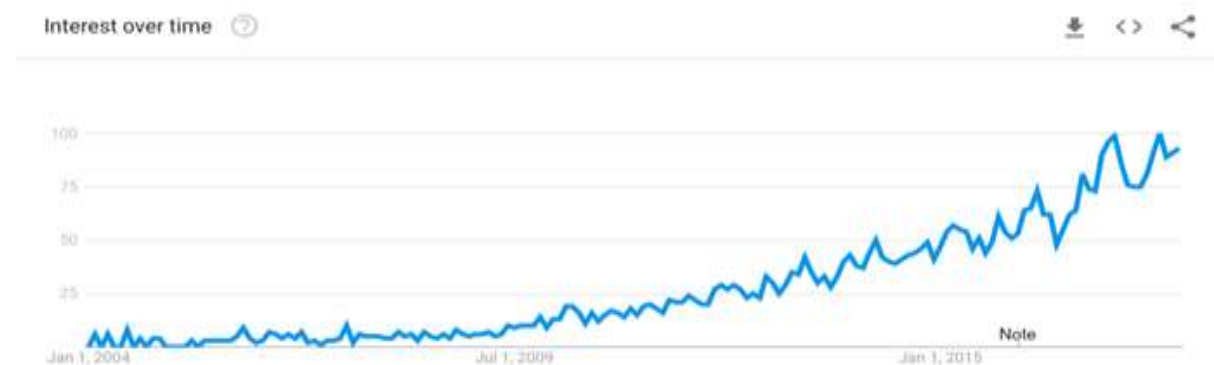
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Abstract: The data is expanding rapidly. Different types of industries, organizations, and business store their data on an electronic medium. A big amount of data flows over the internet. Traditional data mining tools are not capable to handle textual data as it requires time and effort to extract information.[1]. In this proposed system we will transliterate audio call recordings in order to detect emotions of the speakers. Our system originally involves calls from call centres but can have exposure in other areas too. The proposed system deals with speech-to-text conversion, text classification and text clustering.

Keywords: Sentimental analysis, Text mining, Natural language processing

I. Introduction

When making everyday decisions, we often look for other people's opinions. We read consumer reviews before buying appliances, put in place discussion panels when choosing a political party, ask friends to recommend a restaurant. And now Internet has made things easy to find out the viewpoint of millions of people on everything from latest electronic applications to political philosophies. Data has encouraged text analysis, enlarging the subject of study from manual fact- and information-centric view of text to enable sentiment aware applications. Increasingly businesses realize the importance of Internet users' opinions about their product and services.[3] Sentiment analysis has been gradually becoming vogueish. Here's how it has been trending over the previous years in according to GoogleTrends:



“Fig.1”

We can definitely tell that with the development of e-commerce, SaaS tools and digital technologies, sentiment analysis is becoming the thing. [2]

1.1 Sentimental Analysis

It's the process of analysing online pieces of writing to determine the emotional tone they carry. Organization around the world has the same problem that other kinds of customer service centres do: They have too much data to explore. A single organization might generate thousands of hours of call recordings per day. This Paper focuses on quality monitoring for customer care unit that can be described as the process of listening to the recorded calls in order to measure the performance of a service agent.

1.2 Challenges of Sentiment Analysis

Sentiment Analysis is like emotion recognition – preceding what the sentiment of a given sentence is, we need to figure out what “sentiment” it denotes. It is the procedure of verifying the in-depth timber behind a series of sentences, used to gain an understanding of the caller's perspective, opinions and outlook expressed. Sentiment can be split into clear buckets like happy, sad, angry, or bored? Or is it dimensional, and sentiment needs to be evaluated on some sort of bi-directional spectrum?

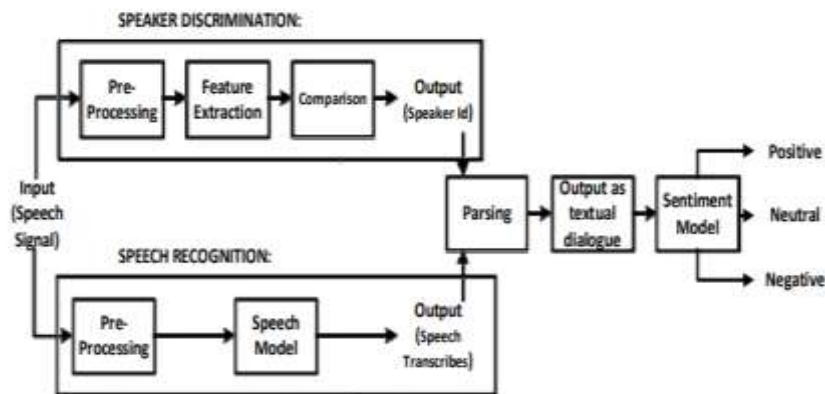
In addition to the definition problem, there are multiple meanings in any human generated sentence. People express opinions in complicated manner; related to devices like sarcasm, acerbity, and indirect meaning can mislead sentiment analysis. The sole way to really understand these devices are through context: knowing how a paragraph is started can strongly impact the sentiment of later internal sentences.

Nearly all of the current thinking in sentiment analysis happens in a explicit framework: sentiment is analysed as belonging to a certain bucket, to a certain degree. For example, a given sentence may be 49% happy, 23% sad, 99% excited, and 45% hopeful. These numbers don't sum up to 100 – they're individual indications of how "X" a sentence's sentiment is.

To address the context issue, a lot of research surrounding sentiment analysis has focused on feature engineering. Creating inputs to a model that recognize context, tone, and previous indications of sentiment can help increase accuracy and get a better overall sense of what the author is trying to say. Finally, one more challenge in sentiment analysis is deciding how to train the model you'd like to use.

II. Proposed System

In this paper, we have proposed a new call monitoring system to analyse all recorded phone conversations that are conducted between agents and customers in the call centre's or customer care units. The overview of the proposed system is denoted by the Fig 2 below. The system architecture can be modelled into three parts : natural language processing(NLP) and storage, sentimental analysis, scoring and assessing of service agent's performance. [4]



“Fig. 2”

The proposed system needs a speech recognition application to convert audio recordings to text recordings. We use Google Speech API to transform the audio data into textual data. The analysis results of conversations between agents and customers are stored. Call centers generally use key metrics to analyze customer service agent's performances.

Thus, the proposed system provides high advantages with early notification system for managers, automatic customer service agent performance scoring and daily, weekly, and monthly performance analysis, when compared to current technologies. [4]Support Vector Machine (SVM) has been chosen for the classification. The SVM is a learning machine for group classification. It is used to classify the texts as positives or negatives. SVM works well for feature selection due its possibility to handle enhanced traits. Other advantages for SVM include robustness & redundancy. Support Vector Machine has shown significant results in previous research in sentiment analysis.

III. Conclusion And Future Scope

This work presents a general model that accepts any type of voice calls & studies its contents through natural language processing & then mining the text content. In the proposed system, we propose several text mining techniques on recorded telephone calls mimicking real agent/customer conversations after translating them into text in order to bring into notice the speaker's' emotions, and hence predict whether the customer is satisfied or dissatisfied of the service provided.

These days, customer use internet or social media to share both their +ve (positive) & -ve(negative) experiences with brands. Sentiment analysis tools can detect both mentions conveying super positive pieces of content showing strengths of a product, or a service and negative mentions, bad reviews, or technical problems users write about online. Instead, the focus will be on how to make results interpretable and actionable. In the

meantime, we'll be ensuring we are working at making sentiment analysis as more accurate and understandable as possible.

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