

Brand Monitoring System Using Machine Learning

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Abstract - The recent technological advancement happening all over the world has led to an easy access to a high speed internet to a considerable amount of world's population. This had proliferated the number of social media users to a larger extent. People have got an open platform in the form of these social networking sites - mainly Twitter - to express their views and opinions about a product and the experiences they had after using it. Brand Monitoring System is an effective tool created in order to collect the tweets from Twitter using freely available Twitter API called as Tweepy and analyse these tweets by using Natural Language Toolkit, popularly known as NLTK and hence classify the tweet as positive, negative or neutral. This tool gives a statistical result about which product of a brand works better at a given period of time. It also determines the popularity of a specific product of the brand at a specific geographical location. Also, it determines which product is trending the most at a specific time. Due to this, various brands and startups can be facilitated by getting an idea about how their brand's products have been perceived by their consumers based on the tweets tweeted by them.

Key Words: Twitter, Brand, NLTK, Tweepy, Sentiment, TextBlob

1. INTRODUCTION

In recent times, due to the numerous technological advancements occurring in the mankind, access to a high pace internet network had become commonplace all over the world. As a result, being constantly active on a varied social networking platforms such as Facebook, Snapchat, Instagram, Twitter and many more had become one of the basic necessities of an individual. Along with connecting the long distanced friends and relatives, these platforms also act as a medium through which a person can put down his/her honest opinions about a specific topic, event, brand or its products.

As soon as the company launches its merchandise in the markets, there comes positive or negative feedbacks from its consumers depending upon whether they liked the product or not after exploiting it. These feedbacks need to be accurately analysed so as to assist the brands to plan their next move. Also, they can bring modifications in the product based on the reviews.[1]

2. REPORT ON PRESENT INVESTIGATION Brandwatch Sentiment Analysis:

It is a sentiment Analysis tool developed by PhD. Students of United Kingdom. This tool also classifies the sentiment as positive, negative or a neutral one. One can make use of this tool by paying specific charges. [2]

Sentiment140:

This is a web tool built by three graduate students at Stanford University with the purpose of analysing the Tweets obtained by Twitter APIs. After going through the long process of analysing, this tool indicates the polarity of the tweet. Determining the polarity means differentiating the tweets as positive, negative or neutral. One of the pros of this tool is that along with English language tweets, it can also analyse the tweets in Spanish language.[3]

Adobe Social Analytics:

Adobe Social Analytics tool takes the help of natural processing algorithm to analyse the sentiments. This tool examines the impact of various social networking platforms on various companies by fathoming how the perception of the product by its consumers can affect the success of the product in the market. After collecting the data and cautiously analysing the same, it correlates the effect of the perception with key business metrics such as revenue and brand value. In addition to that, it also observes how the customer care employees' interactions with their product consumers on social networking platforms such as Facebook. [4]

TweetFeel:

The polarity of the tweets obtained by Twitter APIs is analysed by a web tool called as TweetFeel. It gathers real time data on Twitter and bifurcates that data into positive or negative in real time. It makes use of a machine learning algorithm in

order to determine the polarity of tweets

3. PROPOSED SYSTEM

3.1 Methodology

The Methodology is as follows.

Step1:- Opening the Application:

-Enter the desired Product/Brand name

Step2:- Setting up the Database Connection:

-Set up the Database Connection

-Browse the Table name. If it doesn't exist, create anew one.

Step3:- Getting Stream of Tweets:

-Connect to twitter API Tweepy.

-Using Tweepy's Stream listener, get stream oftweets.

The collected Data contains three sorts of entities orobjects:

1. Text Object
2. User Object
3. Geo Object

Step4:- Analysing the sentiments:

-Delete unwanted data like emojis etc. from thetweets obtained.

-Extract polarity and subjectivity of the tweets withthe help of TextBlob and Python Library

-Delete URLs, emojis etc with the help of Regular Ex-pression in python.

-Track most often used tokens or key words usingNatural Language Toolkit.

Step5:- Visualisation of result:

-Display result on dashboard in the form of variedgraphs such bar chart , pie chart, etc.

-Display geographical segment recognition on map

3.2 Module:

1. Tweet Collector:

Just as the name suggests, "Tweet Collector" collects the tweets from Twitter with the help of one of the varied streaming twitter APIs that have been made available to the developers by Twitter. In this case, we are making use of the Twitter API named Tweepy to collect the data to the local host with the purpose of easy analysing.

2. Sentiment Analysis Tool:

The prime motto of this tool is to differentiate the data that has been collected by Tweepy into positive, negative or neutral sentiments. This is done with the help of Natural Language Toolkit.

3. Dashboard:

This module is basically used to analyse and then display the generated outputs in the form of graphs such as bar chart, pie chart and line graph so as to make it easy to the users.

3.3 System Design

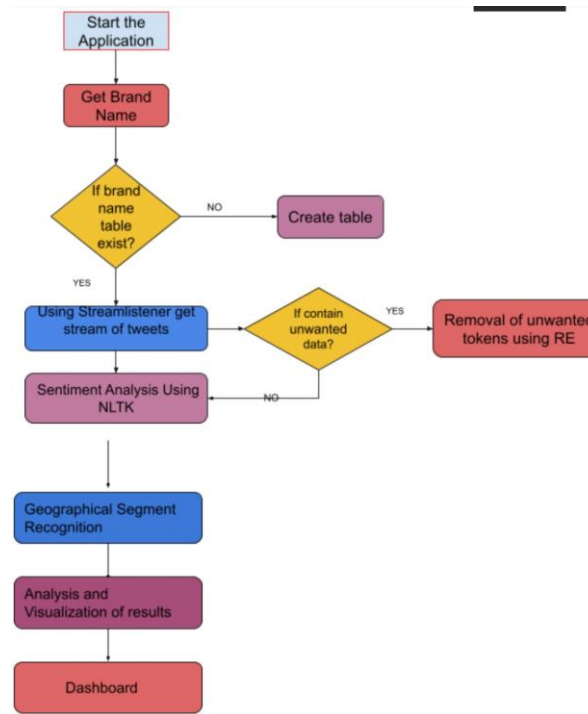
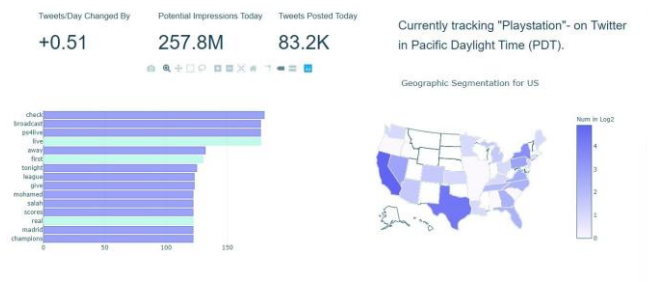


FIG 1 : Brand Monitoring System Design

4. RESULT AND ANALYSIS

Our aim, as defined earlier, is to create a dashboard with different visuals, to showcase trends regarding the product of the client. As we are using NLP to acquire data analysis, we tried to represent main elements like sentiment polarity with respect to time, geographical analysis w.r.t.o trends regarding popularity or number of tweets in a particular geographical area. Moreover, we developed a bar chart to showcase other trending topics over tweeters.





As one can see, the dashboard is dynamically created for every product name a user wants to search in order to get the analytics of that word over social media like on twitter. For testing, we used playstation as product name and as shown above is the output of dashboard obtained. Dashboard comprises a scatter plot used to show the polarisation, but with different representation over time. Various other attributes can also be added like Change in Number of tweets per day, number of tweets, a pie chart for sentiment visualisation, etc. Below lies more graphs, one with a bar graph which shows trending tweets at a given time and another one represents a map i.e. polarity of tweets w.r.to geographical regions. Thus, this all contributes to a good analytical representation of product related tweets which achieves our goal.

5. CONCLUSION

Keeping in mind the current problems or obstacles faced by various brands, we have developed our Brand Monitoring System. Thus, we hope that varied brands can be benefited by our tool in order to make their products more profitable, popular and affable worldwide.

6. ACKNOWLEDGEMENT

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