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Traffic Detection using Sentimental Analysis

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ABSTRACT

Traffic is a major issue in many cities. There are no existing ways which are both cost effective and efficient to measure the traffic. Sentiment analysis is a contextual mining of text, which identifies and extracts subjective information in source material. The Social sites have a huge amount of information because of its vast users. In this project we will use twitter as the source. It is an active site which has many users and also tweets regarding the traffic. Sentiment Analysis is the mechanized procedure of breaking down content information and arranging it into sentiments positive, negative or impartial. Performing Sentiment Analysis on information from Twitter utilizing AI can assist organizations with seeing how individuals are discussing their image. Within excess of 321 million dynamic clients, sending a day by day normal of 500 million Tweets, Twitter permits organizations to contact an expansive crowd and associate with clients without middle people.

Keywords : Intelligent Transportation System, CCTV, Piezoelectric sensor, RS232, Magnetic sensor, Convolutional Neural Network

I. INTRODUCTION

An Intelligent Transportation System (ITS) is a propelled application which plans to offer inventive types of assistance identifying with various methods of transport and traffic management and empower users to be better educated and make more secure, increasingly organized and more intelligent utilization of transport systems.

With the concept of smart city transmuting urban communities into advanced digital societies, making the life of its residents simple in each aspect. Intelligent Transport System turns into the key segment among all. In any city transportation is a key concern; be it going to class, school and office or for some other reason residents utilize the vehicle management to go inside the city. Utilizing residents with an Intelligent Transport System can spare their time and make the city significantly more intelligent. Smart Transport System (ITS) intends to accomplish traffic effectiveness by limiting traffic issues. It enhances clients with earlier data about traffic, neighbourhood comfort ongoing running data, seat accessibility and so forth which decreases travel time of workers just as improves their security and solace.

The utilization of ITS is broadly acknowledged and utilized in numerous nations today. The utilization isn't simply restricted to traffic blockage control and data, yet in addition to street security and productive framework use. As a result of its unlimited prospects, ITS has now become a multidisciplinary conjunctive field of work and accordingly numerous associations around the globe have created answers for giving ITS applications to address the issue.

A portion of these advances includes calling for crisis administrations when an accident happens, utilizing cameras to implement transit regulations or signs that imprint speed limit changes relying upon conditions. Even though ITS may allude to all methods of transport, the order of the European Union 2010/40/EU, made on July 7, 2010, characterized ITS as frameworks in which data and correspondence advances are applied in the field of street transport, including infrastructure, vehicles and users, and in traffic management and mobility management, just as for interfaces with different methods of transport. ITS may improve the proficiency of transport in various circumstances, for example, street transport, traffic management, mobility, and so forth.

Intelligent transport systems shift in innovations applied, from essential administration frameworks, for example, vehicle route; traffic signal control frameworks, compartment the board frameworks, variable message signs, programmed number plate acknowledgement or speed cameras to screen applications, for example, security CCTV frameworks; and to further developed applications that incorporate live information and input from various sources, for example, leaving direction and data frameworks; climate data and so forth. Also, prescient strategies are being created to permit propelled displaying and examination with authentic benchmark information. A portion of these innovations is portrayed in the accompanying segments.

In this project, we will be performing the sentimental analysis of the tweets from the social media platform Twitter.

II. EXISTING SYSTEM

1. Video vehicle detection:

In this method the number of vehicles on road is calculated using a CCTV camera or any other camera for that matter. Usually, the camera is connected to a pre-built code which does the job of counting the vehicles.

2. Pneumatic road tube counting:

Pneumatic road tube sensors send an eruption of gaseous tension along with an elastic tube when a vehicle's tires disregard the tube. The weight beat shuts an air switch, creating an electrical sign that is transmitted to a counter or examination programming. The pneumatic road tube sensor is convenient, utilizing lead-corrosive, gel, or other battery-powered batteries as a force source.

3. Piezoelectric sensor:

Piezoelectric sensors gather information by changing over mechanical vitality into electrical vitality. At the point when used to tally vehicles, the sensor is mounted in a notch cut into street's surface. At the point when a vehicle rolls over the piezoelectric sensor, it crushes it and causes an electric potential - a voltage signal. The size of the sign is relative to the level of twisting. At the point when the vehicle gets off, the voltage turns around. This adjustment in voltage can be utilized to identify and check vehicles. The tallying gadget which is associated with the sensors is housed in a walled in area by the roadside. Information might be gathered locally by means of an Ethernet or RS232 association with a PC, or might be transmitted by modem.

4. Magnetic sensor

The detectors utilize the marvel of anisotropic magnetoresistance to report about the presence of vehicles based on Earth's local magnetic field bending brought about by them passing. The estimation of contortions of the Earth's attractive field utilizing attractive field sensors filled in as the reason for structuring an answer focused on vehicle identification. As per the outcomes got from the investigation into process displaying and tentatively testing all the pertinent speculations a calculation for vehicle recognition utilizing the state, measures were proposed.

5. Acoustic(sound) detector:

At the point when a vehicle passes the mouthpiece the recorded acoustic sign shows a top in vitality. The vitality shape is smoothed and tops are consequently situated for the discovery of vehicle sound sign. Mel frequency cepstral coefficients are removed for discovery the areas around identified pinnacles. The element vectors are utilized for preparing ANN/KNN classifiers. The effectiveness of the technique is represented utilizing test information which contains around 160 vehicles having a place with various classifications.

III. SYSTEM IMPLEMENTATION

Mining traffic-relevant information from social media data has become an emerging topic due to the real-time and ubiquitous features of social media. In this project, we detect the traffic using the data obtained from the social media platform - Twitter.

Why social media?

As many as 2.95 billion people use social media. Why Twitter?

Twitter has a whopping 330 million active users on a monthly basis. Moreover, Twitter data is available to the general public using the Twitter developer account.

IV. WORKING

1. Login or create an account in Twitter Developer's platform. It is using this platform that the Twitter gives access to its data(Tweets in our case) to the general public.

Create a new project in Twitter Developer's account. A project must be created stating the reason why we need the data. Twitter will take time to scrutinize our data and approves or disapproves after some days.

Take the API keys and the access tokens from the Twitter Developer account. The different types of API's we get from this are Filter API, Sample API, Reset API, Representational state API.

Now is the time we write the code to extract the required tweets from the obtained raw data.

Using Tweepy we give the keywords. Here we are trying to extract the tweets keywords which we have given as input are road closed, highway congestion, slow moving traffic, etc.

Now we extract all the tweets we got from the previous step in the JSON file format.

The tweets contains many attributes. We do not require all of those. All we need is ID, created at, text, geo location and the retweet count. Thus, we specify that we need only these attributes.

For the code we need the tweets file to be in the CSV format. Thus, now we convert the JSON file into the CSV file format.

Now is the time to apply the sentimental analysis to the CSV file. Sentimental analysis is applied only to the text attribute present in the CSV file.

Three processes have to be performed now. The three processes are Data Cleaning, POS tagging and Tokenizing.

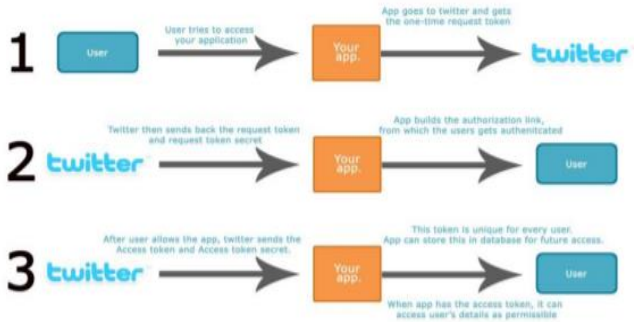
Data Cleaning involves removal of emojis, commas, punctuation, stop-words, special characters, unicode characters, front and back slashes, URLs, hashtags and @.

POS tagging of crude content is a major structure square of numerous NLP pipelines, for example, word-sense disambiguation, question noting and feeling investigation. In its least difficult structure, given a sentence, POS tagging is the errand of recognizing nouns, verbs, adjectives, adverbs, and more.

Tokenization is the demonstration of separating a succession of strings into pieces, for example, words, phrases, symbols and different components called tokens.

Now is the time to calculate the sentiment score using the SWN labelling (SentiWordNet Labelling). Here we give score to each and every tweet. The score will be either 1, 0 or -1. 1 means that the tweet is positive, 0 means the tweet is neutral and -1 is for negative tweets.

Now the total number of positive, negative and neutral tweets are calculated and the final result is displayed using the bar graph.



V. RESULTS AND DISCUSSIONS

The system is ready to count the number of positive, negative and neutral tweets for a given set of keywords.

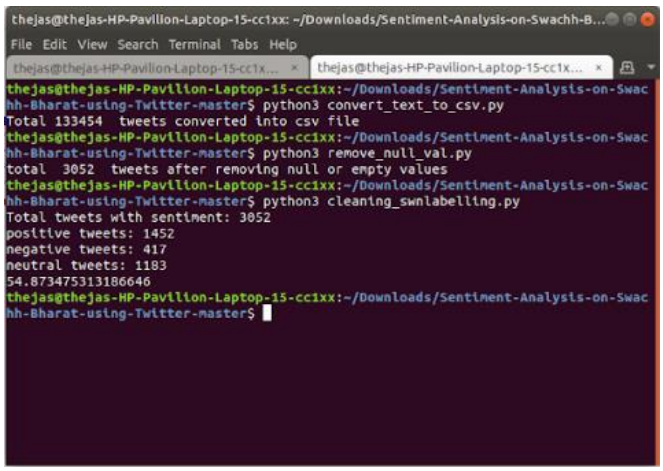


Fig 5.1. Sentiment Analysis Report

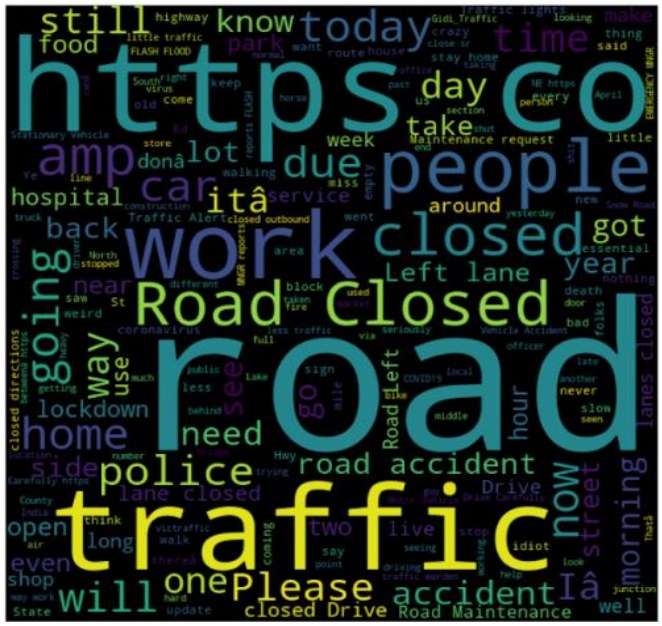


Fig 5.2. Word Cloud

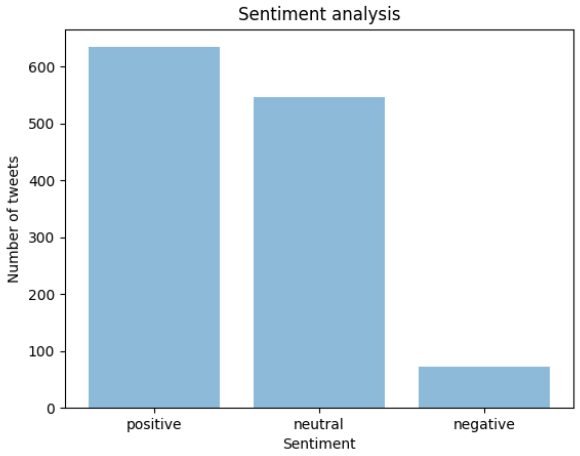


Fig 5.3. Bar Graph

VI. CONCLUSION

We have proposed sentiment analysis about traffic to analyse the traffic related issues in new perspective. In proposed system we have used rule based algorithm for English language.

VII. FUTURE WORK

The efficiency of the system will be increased by further classifying the neutral tweets as much as possible into positive and negative tweets using the CNN(Convolutional Neutral Network) algorithm.

CNN(Convolutional Neural Network) Algorithm

The algorithm includes the following procedure are :

- Data Cleaning
- Splitting Data
- Tokenize and Pad sequences
- Defining & Training CNN
- Testing

VIII. REFERENCES

[1]. Bing Liu, Lei Zhang. A survey of Opinion Mining and SentimentAnalysis. Mining Text.

[2]. Pang B, Lee L 2008 Opinion mining and sentiment analysis. Foundations and trends in information retrieval, 2(1-2):1-13.

[3]. Karamibekr M, Ghorbani A A 2012 Sentiment analysis of social issues. Int. Conf. on Social Informatics, 215-221.

[4]. Vohra S, Teraiya J 2013 Applications and Challenges for Sentiment Analysis: A Survey. Int. Journal of Engineering Research & Technology (IJERT), 2(2):1-5.

[5]. Purtata Bhoir, Shilpa Kolte, “Sentiment analysis of movie reviews using lexicon approach” IEEE Intell. Syst. March 2016.

[6]. Gann W-JK, Day J, Zhou S (2014) Twitter analytics for insider trading fraud detection system In: Proceedings of the sencond ASE international conference on Big Data.. ASE.

[7]. A. Harb, M. Planti, M. Roche, A. Harb, M. Planti, M. Roche, N. Cedex, and A. Harb, “Web Opinion Mining How to extract opinions from blogs, Categories and Subject Descriptors.”

[8]. P. D. Turney,“Thumbsup or thumbsdown?: Semantic orientation applied to unsupervised classification of reviews,” in Proc. 40th Annu. Meet. Assoc. Comput. Linguist., 2002, pp. 417–424

[9]. T.Zagibalov,J.A.Carroll, “Automatic Seed Word Selection for Unsupervised Sentiment Classification of Chinese Text”.Proceedings of the 22nd International Conference on Computational Linguistics (Coling 2008),Manchester, August 20081.

[10]. Pak, A., Paroubek, P.: Twitter as a corpus for sentiment analysis and opinion mining. Proceedings of LREC 2010 (2010).

[11]. Go, A., Bhayani, R., Huang, L.: Twitter sentiment classification using distant supervision. CS224N Project Report, Stanford (2009).

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