Feedback Analysis of Events using Social IOT

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ABSTRACT

Abstract Lot of events happens every day across the globe. Most of the events we receive are from social media. Few widely used social media are Twitter, Face book, LinkedIn, Google etc. People share the information about the events in their own way. Most of the people who attend events share their thoughts and feedback through social media through which they can be connected to the world. One of the most powerful social media where lots of people give their feedback on any event is "Twitter". Here people express their thoughts, their ideas, feelings, parties and events that they attend etc. The tweets of the twitter are usually 140 characters long. But lot can be expressed within a given character length. These tweets are important for any person to judge and analyze the success of event. The project aims at analyzing those tweets about events of location, determines the sentiments associated with it and visualize the polarity of events based on the tweets extracted.

- **Keyword :** - *Social IoT , Sentiment analysis, Text mining, Databases, Twitter, Big Data*

1. Introduction

The Internet of Things (IoT) integrates various objects and it generates information relating to physical world. Web browsers and many different platforms provide APIs to access many of the information. End users are provided with various services relating to IoT technologies right from house management to the city management. The main idea of using social networking aspects is to develop and establish social relationships among the people. This method of social networking is evolving and gaining popularity in the previous years and the years ahead. The paradigm of the social IOT is simple and clear: to keep the people and things separate and allow them to have their own social networks. The humans protect, retrieve and interact with the objects of social network by imposing rules on it.

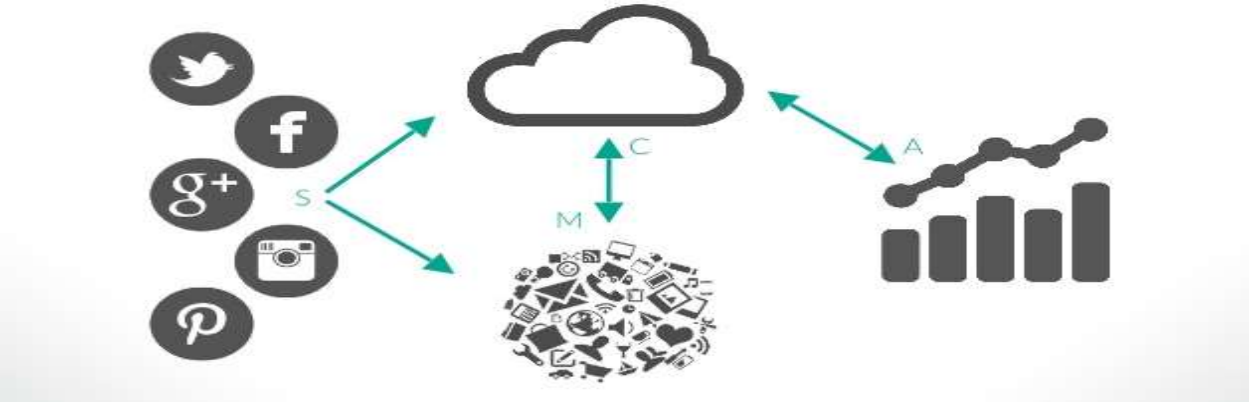

Fig -1: Social IoT reference model

S – Social media data, M – Memory (Any Database), C – Cloud storage and A – Analysis and Visualize

One of the powerful social media in the current situation is Twitter. It also leads blogging. The amount of data generated by Twitter makes it an area to the study of machine learning. There are many standard algorithms that is used to extract information from the body of the correct English. Hence, they are very useful in extracting required information, analyzing them. These tweets often contain slang words, abbreviations, wrong spellings and grammar. Few words have punctuations prefixed with it to mean a special thing. Example is # (Hash tag). These hash tags are used to specify the subject of the tweet and is easy to search for any subject with this hash tag. There might be more

than one hash tags in the tweet. This is used to specify or differentiate the different categories of subjects of same tweet. To infer user specific category of subject, hash tag clustering can be done to classify and identify to which hash tag they belong.

Tweet usually specify the events that has happening or going to happen. The streams of data from different parts of the world flow through this channel to create awareness of the situation. The events could be of several categories with different subjects specified with hash tags. It employs 5Ws - Where, What, When, Who, Why.

- *Where:* It is used to specify the location where the event took place. Different tweets from the different cities are sent that speak about same event. Hence it is important to identify the place where the event occurred.
- *What:* The next aspect is the subject of the tweet. This can be extracted from the message or tweet based on the user specified category. Example the user can specify the categories of subject to extract like cultural, seminar, sports, conference etc.
- *Who:* This usually consists of a noun (a naming word) with adjective followed by verb.
  This is used to identify who was involved directly or indirectly in the event.
- *When:* This aspect will give an idea to the user about when the event occurred. This contains both the date and time of the event.
- *Why:* This is used by very less people. Moreover, why the events happened are not tweeted by the people. This comes in rare cases like there could be any cultural event for some festivals and occasions and to identify such special occasions.

Severity is also one of the most needs for public security to identify the disasters and its conditions. In order to identify these aspects, we classify the tweets into different sentiments like positive and negative sentiments. Later these sentiments are summarized to gather relevant answer.

- What subject is being discussed?
- Who are the actors related to the event?
- When was, the event occurred?
- Where did the event take place?
- Why was the event carried out?

1.1 Introduction to Problem Domain

There are lots of events happening around us every day. Types of events could be religious, spiritual, filmy, sports, arts, cultural, science events, exhibitions, workshops, conferences and lot more. Every event will have a specific theme, agenda and their own way of conducting it. Each event will be specific to region. Every region has their own way of conducting events. Events are conducted to exhibit something which will create awareness and happiness in the people. Usually every event is meant to the public crowd. So, whenever we remember any event, the crowd of the people comes to our mind. We see lot of people coming to the events. Some of the events will comprise of invitees like Guest, notable personalities, political leaders and dignitaries.

Every person has his own way of analyzing and looking at the events. Hence it will be very important to know about the feedback of each person on that event. Most of the people who attend events share their thoughts and feedback through social media through which they can be connected to the world. Few widely used social media are Twitter, Face book, LinkedIn, Google etc. One of the most powerful social media where lots of people give their feedback on any event is "Twitter". Here people express their thoughts, their ideas, feelings, parties and events that they attend etc. The tweets of the twitter are usually 140 characters long. But lot can be expressed within a given character length. These tweets are important for any person to judge and analyze the success of event.

Any person who has to organize events must be aware of the events that happened in the past. He must be able to analyze the venue, the crowd in the event, date and time at which the event took place and its success. The success of any event depends upon the comments of the people. Based upon the comments, one can analyze how successful was the event. The feedback or the tweets obtained from the social media i.e. twitter are analyzed using sentimental analysis.

1.2 Problem Statement

Lots of tweets are received daily by the people of world wide. There are varieties of categories of tweets that we see today. Many users want to just see to category of tweet like dance, music, sports, conferences, seminar etc and skip

rest of the tweets. They must be also aware of the current trend and the mindset of people. Hence, he prefer to look on the feedbacks of events happened. He must be able to analyze the event based on its venue, date, time and determine the success of the event by looking at whether people really liked the event or not.

1.3 Generic Proposed Solution

The approach to solve the problem defined will involve the following steps:

- Data collection
  Collection of Real time tweets from the twitter of certain categories like cultural, workshops, conferences, exhibitions etc is done. Only those tweets that contain specific keywords are collected based on specified location.
- Classification
  It is also important to have the information of the venue, date, time, location where the event took place to analyze it in a better way. All this information is stored in a database.
- Data Pre-processing
  The tweets are pre-processed before analyzing. Pre-processing is an important task that is carried out in order to remove the hash tags and unwanted data.
- Analysis
  Sentimental analysis is done on the obtained data to determine the success of the event based on the polarity of tweets.
- Displaying Results
  Visualize the count of positive and negative tweets.

All these steps follow an order to obtain the result. These operations have to be done in sequential order.

2. Methodology

2.1 System Architectural Diagram

The architectural diagram shows how different modules interact with each other. There are various modules in the system. Each module has their own functionality. They are –

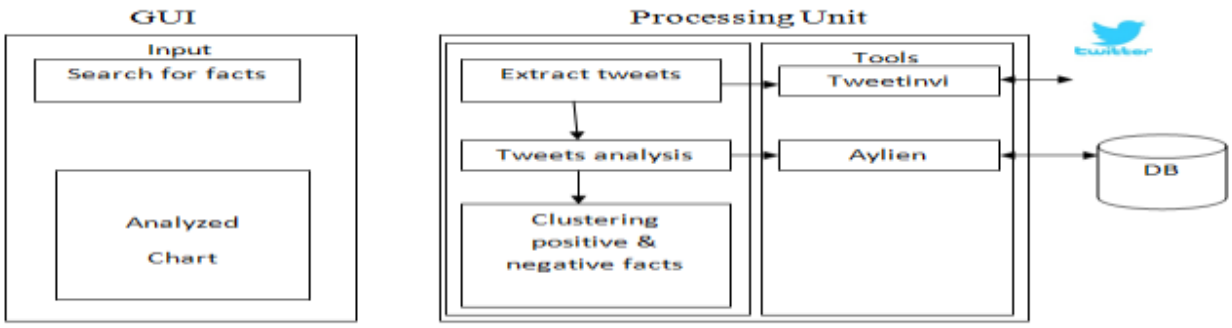

Fig -2: System Architecture for Proposed system

2.2 Extraction Module

This module is used to load the tweets from twitter into database. The tweets are extracted based on the rule specified. The rule is to extract only those tweets that fall under the specified category. Tweetinvi is the API that is used to extract the tweets from the twitter.

2.3. Analysis Module

This is the major step of the entire system. The data (tweets) collected are first pre-processed by removing the hash tags, stop words and unwanted data. These are stored as columns that contain the text, date, category to which they belong, place in the SQL database. These texts are analyzed based on their sentiments to determine whether it was a positive tweet or negative tweet. The tool used for this is Aylien that is used to cluster positive and negative feedbacks.

2.3 User Dashboard (GUI)

This module takes the input from the user. The user first must select the date or month for which he has to view the tweets. Then he has to select the category of tweet he wants to see and

Choose whether he must look up at positive comments or negative comments. All these constitute an input module.

2.4 Output Module (Visualization)

This module is used to view the output. The output has a graph representing the count of positive and negative tweets with the display of tweets along with the URL. In case if the user wants to see what, the event was, then he can click upon the URL link provided on the output. This URL navigates to twitter page to see the detailed information of event.

3. RESULTS AND CONCLUSIONS

Fig -3: User Interface

The Above Fig -3, shows the user Interface. It is the login page for the user. There is a calendar to select the Start and End date for which the tweets must be displayed. There is a refresh button to change the dates selected denoted by "R". Also, there is a list of categories given to the user. The user can select any of these categories. Finally, he also selects the polarity. Polarity 0 indicates that he wants to see negative feedbacks; Polarity 1 indicates that he wants to see neutral feedbacks and Polarity 2 indicates that the user wants to see positive feedbacks.

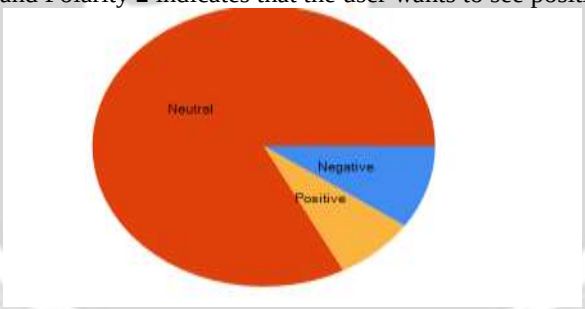

Chart -1: Event Analysis

Fig -4: Final Output

The above Fig -3 and chart 1, displays the final output. Based on user's input, this result will be displayed. The output consists of a pie-chart showing the count of negative, positive and neutral tweets. Below the pie-chart, there

are list of tweets corresponding to the polarity chosen. There is a URL associated with the tweet. This gives the user an easy understanding about feedback of that event.

Fig -5: Event Details

The above Fig -5, shows the detailed information about an event. Upon clicking the URL provided in the final output, it navigates to corresponding event page. So, that the user can view the detail description about that particular event and also, he can comment or like in real time.

4. REFERENCES

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