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TWEET For Instantaneous Effect Vulnerability on Natural Disasters

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ABSTRACT
In this paper twitter is used for various real-time notifications such as that necessary for help during a large-scale fire emergency. We also create an alerts system our registered users to deliver a notification during natural disasters which helps saving many lives. In this paper we investigated the real-time nature of Twitter, devoting particular attention to event detection. Semantic related tweets were applied to tweets to classify them into a positive and a negative class. Twitter user as a sensor, and set the problem as detection of an event based on sensory observations. Location identification methods such as particle filtering are used to estimate the locations of events. As an application, we developed an earthquake reporting system, which is a novel approach to notify people promptly of an earthquake event. It is hoped that this paper will provide some insight into the future integration of semantic analysis with micro blogging data. The particle filtering and sequential importance sampling algorithm used in the proposed system helps us to identify the keyword that is required help us to gather more information from various places. Finding the people of specific areas through particle filtering and sending alerts to the people is a new concept of intimating people which will pay a way for spreading the news at faster in social network.
***Keywords*:-** Twitter, Particle Filtering, Semantic Analyses, Sensor, Sequential Importance Sampling algorithm, Location Identification

I. INTRODUCTION

This online social network is used by millions of people around the world to remain socially connected to their friends, family members, and co-workers through their computers and mobile phones. This is a popular micro blogging service, has received much attention recently. Twitter asks one query, "How is weather?" Answers must be fewer than 140 characters. A status update message, called a tweet, is often used as a message to friends and colleagues. A user can follow other users; that user's followers can read her tweets on a regular basis.

A user who is being followed by another user need not necessarily reciprocate by following them back, which renders the links of the network as directed. Many researchers have published their studies of Twitter to date, especially during the past year. Most studies can be classified into one of three groups: first, some researchers have sought to analyse the network structure of Twitter. Second, some researchers have specifically examined characteristics of Twitter as a social medium .Third, some researchers and developers have tried to create new applications using Twitter. Twitter is categorized as a micro blogging service. Micro blogging is a form of blogging that enables users to send brief text updates or micro media such as photographs or audio clips. Micro blogging services which is based on the real-time nature of one social networking service, is applicable to other micro blogging services, but we specifically examine Twitter in this study because of its popularity and data volume. An important characteristic that is common among micro blogging services is their real-time nature.

The reporting system can be further enhanced by using other more efficient methods for finding

possibilities for checking tweets for more keywords for that other efficient algorithm can be used which support real time reporting system .As We have developed system for real time event detection for generating report for earthquake reporting system on Tweeter likewise there are many social medias evolving nowadays which are getting popular day by day. That social approach can be done. As information passing system is developed further system can be developed to take proper action according to the report generated.

II. EXISTING SYSTEM

Twitter is categorized as a micro blogging service. Micro blogging is a form of blogging that enables users to send brief text updates or micro media such as photographs or audio clips. Users can know how other users are doing and often what they are thinking about now, users repeatedly return to the site and check to see what other people are doing. We have a several drawbacks like first Each Twitter user is regarded as a sensor and each tweet as sensory information. These virtual sensors, which we designate as social sensors, are of a huge variety and have various characteristics some sensors are very active and others are not. Second, A sensor might be inoperable or malfunctioning sometimes, as when a user is sleeping, or busy doing something else, Finally, Social sensors are very noisy compared to ordinary physical sensors. Regarding each Twitter user as a sensor, the event-detection problem can be reduced to one of object detection and location estimation in a pervasive computing environment in which we have numerous location sensors: a user has a mobile device or an active badge in an environment where sensors are placed

III. PROBLEM STATEMENT

This paper presents an investigation of the real-time nature of Twitter that is designed to ascertain whether we can extract valid information from it. We propose an event notification system that monitors tweets and delivers notification promptly using knowledge from the investigation. In this research, we take three steps: first, we crawl numerous tweets related to target events; second, we propose probabilistic models to extract events from those tweets and estimate locations of events; finally, we developed an earthquake reporting system that extracts earthquakes from Twitter and sends a message to registered users. We have several advantages like first this paper provides an example of integration of semantic analysis and real-time nature of Twitter, and presents potential uses for Twitter data. Second, for earthquake prediction and early warning, many studies have been made in the seismology field. This paper presents an innovative social approach that has not been reported before in the literature.

IV. SYSTEM ARCHITECTURE

This paper presents an investigation of the real-time nature of Twitter that is designed to ascertain whether we can extract valid information from it. We propose an event notification system that monitors tweets and delivers notification promptly using knowledge from the investigation. In this research, we take three steps: first, we crawl numerous tweets related to target events; second, we propose probabilistic models to extract events from those tweets and estimate locations of events; finally, we developed an earthquake reporting system that extracts earthquakes from Twitter and sends a message to registered users as shown in below figure 1.

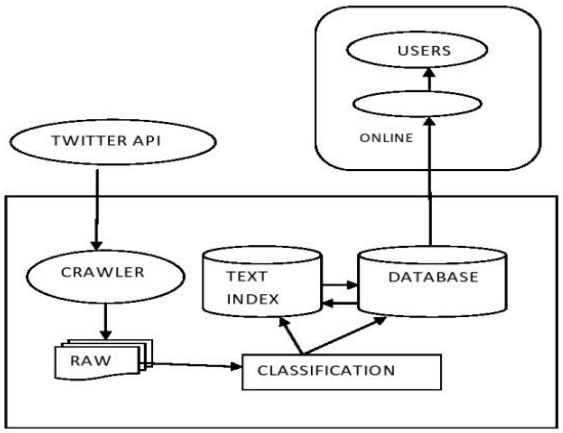

Figure: 1. System Architecture

V. IMPLEMENTATION

In this paper it is classified into different modules its descriptions.
Tweet collection Module
Crawling tweets from Twitter Module
Twitter Search API Module
Filtering tweets using machine learning Module
Semantic Analysis on Tweets Module
Earthquake reporting System Module

MODULES DESCRIPTION

A. *Tweet collection Module*

In this module, we develop our system by posting tweets by the users. It is necessary to collect tweets referring to an earthquake from Twitter. This process includes two steps: crawling tweets from Twitter and filtering out tweets that do not refer to the earthquake. For crawling and filtering tweets, we recommend using script programming languages.

B. *Crawling tweets from Twitter Module*

To collect tweets or some user information from Twitter, one must use the Twitter Application Programmers Interface (API). Twitter API is a group of commands that are necessary to extract data from Twitter. Twitter has APIs of three kinds: Search API, REST API, and Streaming API. In this section, we introduce Search API and Streaming API, which are necessary to crawl tweets from Twitter. We explain REST API later because REST API is necessary to extract location information from Twitter information. Additionally, it is known that Twitter API specifications are subject to change. When using Twitter API, it is necessary to know the latest details and requirements. They are obtainable from Twitter API documentation.

C. *Twitter Search API Module*

The Twitter Search API extracts tweets from Twitter, including search keywords or those fitting other retrieval conditions, in chronological order. It is possible to use language, date, location and other conditions as retrieval conditions. Some points must be considered when using Twitter Search API:

• It is possible to collect tweets posted only during the prior five days. It is not possible to search tweets posted six days ago.

• It is only possible to collect the latest 1500 tweets at one time. (Technically speaking, it is possible to access one page with a request and track pages back to the 15th page. One page includes 100 tweets at most. Therefore it is possible to acquire the latest 1500 tweets at one time.)

• One is limited to API requests.

D. *Filtering tweets using machine learning Module*

We collected data from tweets including keywords related to earthquakes, such as earthquake, shake. Those tweets include not only tweets that users posted immediately after they felt earthquakes, but also tweets that users posted shortly after they heard earthquake news, or perhaps they misinterpreted some sense of shaking from a large truck passing nearby.

When the seismic activity reached its peak, the graph of tweets invariably showed a peak. However, when the graph of tweet counts showed a peak, the seismic activity did not necessarily show a peak. Some "false-positive" peaks of the graph of tweet counts arise from mistakes by users or some news related to earthquakes. Therefore, we must filter tweets to extract those posted immediately after the earthquake. We designate tweets posted by users who felt earthquakes as positive tweets, and other tweets as negative tweets. Here, we describe the creation of a classifier to categorize crawled tweets into positive tweets and negative tweets, using Support Vector Machine: a supervised learning method.

E. *Semantic Analysis on Tweets Module*

Semantic Analysis on Tweet Search tweets including keywords related to a target event Example: In the case of earthquakes “shaking”, “earthquake” Classify tweets into a positive class or a negative class Example: “Earthquake right now!!” ---positive “Someone is shaking hands with my boss” --- negative Create a classifier Semantic Analysis on Tweet Create classifier for tweets use Support Vector Machine (SVM) Features (Example: I am in Japan, earthquake right now!) Statistical features (7 words, the 5th word) the number of words in a tweet message and the position of the query within a tweet Keyword features (I, am, in, Japan, earthquake, right, now) the words in a tweet Word context features (Japan, right) the words before and after the query word.

F. *Earthquake Reporting System Module*

In this module, the users will be altered if the earthquake occurs based on their location and the tweets. Effectiveness of alerts of this system Alert E-mails urges users to prepare for the earthquake if they are received by a user shortly before the earthquake actually arrives.

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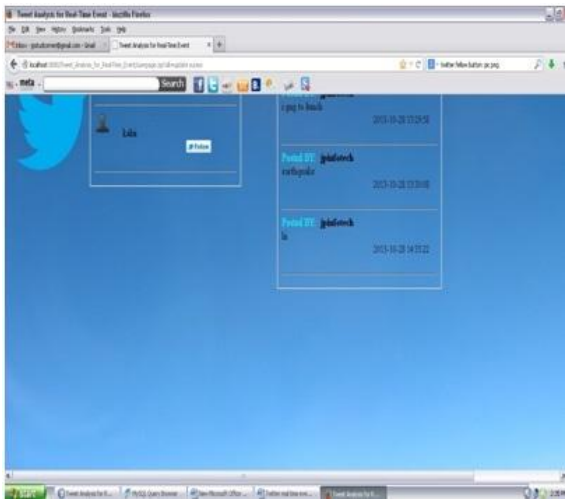

Figure: 2. User typing "Earthquake"

VI. CONCLUSION

As described in this paper, we investigated the real time nature of Twitter, devoting particular attention to event detection. Semantic analyses were applied to tweets to classify them into a positive and a negative class. We regard each Twitter user as a sensor, and set the problem as detection of an event based on observation of sensor. To estimate the location particle filtering events are used. As an application, we developed a weather reporting system, used to notify promptly about the climate and climate changes in the country and send alert information about the natural disasters.

As described in this paper, we presented an example that leverages the real-time nature of Twitter to make it useful in solving an important social problem: natural disasters. It is hoped that this paper will provide some insight into the future integration of semantic analysis with micro blogging data.

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