Visualization of Twitter Trends using World Wind on Android

Abstract

Twitter is a social networking service in which users can create short messages related to a wide variety of subjects. When a term is extremely popular on Twitter at any given moment, it's "trending." We present a new visual representation of the trending topics based on World Wind map on android O.S. Cellphones. In order to use this visual representation, one needs to determine local regions of trend topics. Moreover, one needs efficient ways to relate topics to each other when necessary, so that clusters of related trending topics are formed to be more informative about a particular subject. We show that the visualization using World Wind maps has many benefits over other visualization techniques.[1]

Introduction

Early few years ago media means TV, Newspaper etc., these were comes from to mind first. Thus day's definition of media have been changed. People can reach easy what's happening in world because of internet. Even people expression their thoughts their life shared on the social media. Social media is the best way we can get any information easy and faster. Social networking websites e.g. MySpace, has been the champion of this social phenomenon, but a new player has come up, it was the first sign for rise social networking there for it provide a new view of social Twitter was created in March 2006 by Jack Dorsey as a small project. Twitter is information network that connects you to the latest stories, ideas and news about what are you interesting. Every Tweet is 140 characters long and you can see photos, videos and conversations directly in Tweets.[2]

The popular events and subjects are also known as trending topics, and their detection helps us to better understand what is happening in the world. The visualization of trending topics is an important research question, since the representation of the trending topics has a significant impact on the interpretation of the topics by the user. This visualization can be done simply by providing a list of topics, as Twitter does (see [3] and Figure 1). However, this representation suffers from a number of drawbacks that prevent the user in assessing the importance of the topic correctly. First, although the list is ordered from the most popular topic to the least popular topic, one cannot infer the importance of each

1) #benceaşk
2) #Çokseritakipbaşlıyor
3) #enbüyüktehlike
4) #gündemiakgençlikbelirler
5) #birgülmeŞekli
6) tutuklandı
7) #çarşıdemek
8) @trendmaniac

9) parkı
10) @picadambaattin

Figure 1. Trending topics on Twitter, recorded on 22 June 2013.

topic relative to the other topics. Second, a list also does not convey the dynamics in the trend, e.g., is the topic still trending to become more popular or is a different topic growing more popular? Third, it could very well be that several topics on the list are related to each other and should be grouped into a coherent set of topics. For example, it is not clear on the outset that topics 3 and 9 in Figure 1 are related to each other. This group of topics could provide more semantics to users than a single topic alone.

Visualization; is kind of information`s graphical presentation, with the purpose of project according the viewer with a qualitative understanding of the information contents. It also shows a transforming object`s process, concepts, numbers into a form that is possible to see by human eyes.[4]

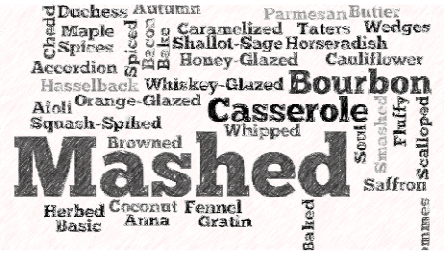

Figure 2. Twitscoop dynamic tag cloud.

Related Work

There is a one project which is related ours. The project name is Trendsmap. As like our project; the words on the map are taken from twitter. They choice and show important words and topics. The development was started June 2009 and the site launched in September 2009.[5] Trendsmap worked on web base but we are going to do this on Android platform. This is the one of big differences from us. Also they used Ruby and Javascript programing languages, we will use Java language and Android SDK. They use google to help them get trends location (geoip). This doesn't always work correctly. We will use yahoo to help us get trends location (woeid) but we must convert this into latitude and longitude because of trends location showed always correctly on WorldWind with ours GIS data(woeid).

Twitter Conversations Map (Rafelsberger,2008) found on VirsualComplexity.com and from this map we get the conversation among 1500 users at different locations. Nonetheless, none of them can handle both spatio-temporal characteristics and internal properties of social networks simultaneously. Therefore it can be seen that there exist a gap between spatio-temporal data representation and traditional social node-link diagram, The geo visualization environment in this case can be used to link these two since it can integrate different visualization approaches from

different disciplines to provide theory, methods and tools to support visual thinking and exploration about geospatial patterns Moreover, it has been applied in the field of social science and furthered to handle spatio-temporal network data in 2D map and space time cube [6]

Methodologies

First of all we need to get Twitter trends from Twitter API. Android applications are written in the Java programming language. The Android SDK tools compile the code—along with any data and resource files—into an Android package, an archive file [7]. Even though we can't use Twitter API in Java without Library. Only one Java library is available name is Twitter4J an unofficial Java library for the Twitter API. With Twitter4J, you can easily integrate your Java application with the Twitter service. Twitter4J helps to get Twitter trends and writing java codes with Twitter API. [8]

Twitter API Data; The data will be o design an applications is from the Twitter Search API [9]. The Search API provides search Twitter for Tweets matching a given search query. For example when you can pass a latitude, longitude and a radius, it will return Tweets from the target coordinates.

Twitter Search Operators; Twitter allows for several operators in the search text [10]. For instance, when the search " :)" ,returns tweets of "positive attitude," an d when the search ":(" , returns tweets of a "negative attitude." Setting q="project :)" return people excited about project and searching q="project :(" return less than enthusiastic Tweets about project.

Twitter Trends; Although the use of the Search API is required, And use other Twitter API endpoints in the design. Locations from twitter are mapped in GIS data. latitudes and longitudes are retrieved from GIS data

Figure 3 . World Wind globe

Android SDK; Android Development Tools is a plugin for the Eclipse. ADT prolong the capabilities of Eclipse provide to set up a new Android project, procreate an application UI, add packages on the Android Framework API. Developing in Eclipse with ADT is the fastest and best way to get started for this project. With the guided project build it provides, as well as tools integration, custom XML editors, and debug output pane, ADT is able to submit you an amazing boost to improve in Android applications.[11]

Next step is create a layer for show Twitter trends on World Wind map. We should to integrate location of twitter`s trends layer on World Wind. We need to use World Wind Android SDK for execute in Android O.S. For instructions on developing World Wind Android applications using an IDE, refer to Managing Projects from Eclipse with ADT [12]

Why World Wind ?; The U.S. Department of Energy impressed World Wind , after the release of World Wind in 2005. Creators of World Wind designed World Wind to be a technology could simply plug into their application and application required other to plug into it. There are over than a million requests for World Wind data per day.[13]

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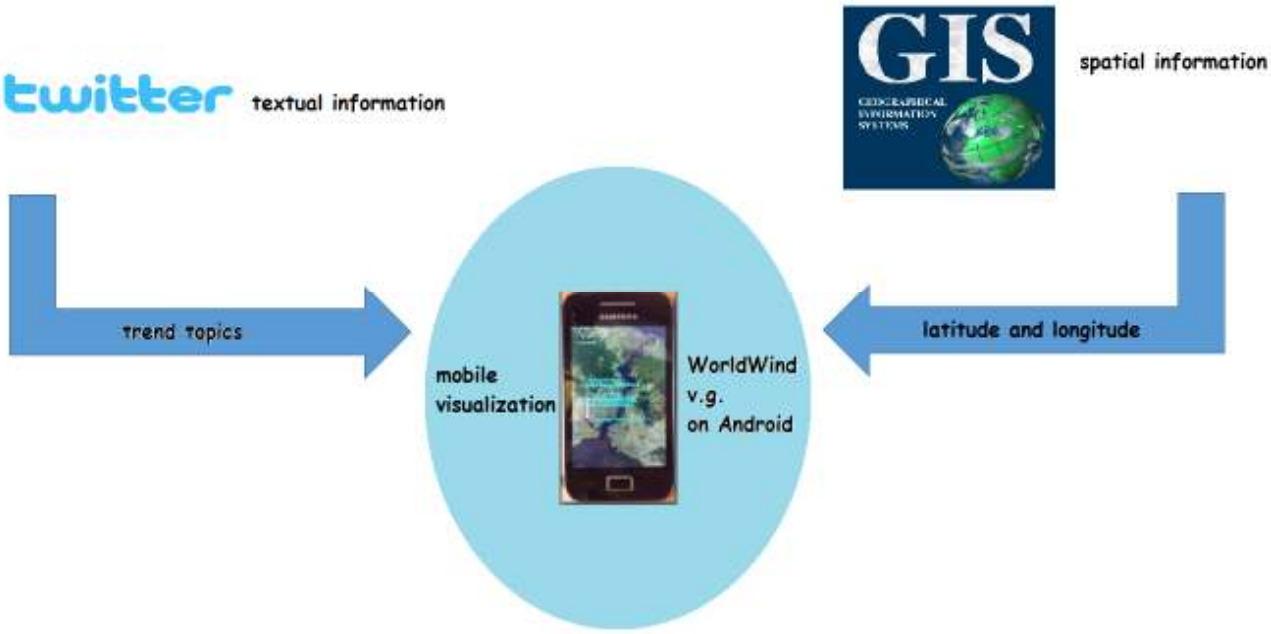

Figure 4. System diagram

Last step is create a Android application then we must create a GUI in it. After all of these we will integrate all of created things into which we created application above. Software will be developed on desktop computer in Microsoft Windows 8 64-bit OS using Eclipse JUNO with Android SDK .

In this section, we articulate what each visual element is for, how it interacts with others and how users can explore the system on the prototype.

In this project, non-spatial textual Twitter data combined with GIS (geographic information system) data will be integrated into World Wind. To extract Twitter trends, Twitter API will be used. GIS data will be used for geographic information. Trends extracted from Twitter data with their geographic information extracted from GIS data will be displayed on World Wind.

Application

We were using WorldWind android open sources at the first time but we couldn't get well enough result as we were expecting therefore we decided to use World Wind QGlobe sources. QGlobe is the first known port of World Wind to the Android platform. The team at QinetiQ has generously donated their source code for free and open distribution.[14] QGlobe provide us to run maps on some android O.S. Cellphones .And also we are able to get 15 different place`s

trends in 15 minutes because of twitter API`s been changed by twitter. It allows us to see trends where we are moving our fingers on screen map.

Figure 3 shows the interface of the application. Istanbul, Turkey with current trend topic are on virtual globe

Figure 5. The application with trends

Figure 6 shows the Twitter and trending topics retrieved in Istanbul and Ankara on 25.06.2013 at 11:00 a.m. component visualization is depicted in Figure 7

Figure 6. Twitter Trending topics

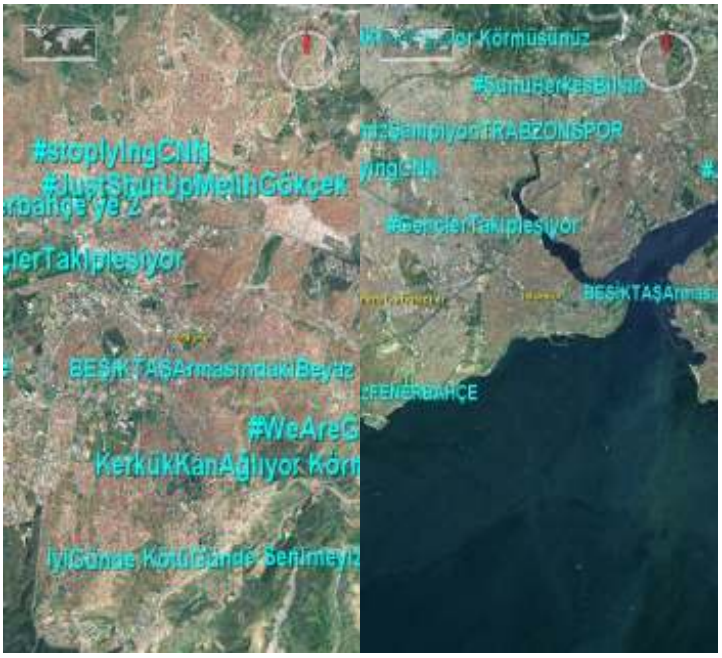

Figure 7

Discussion

Twitter trends and maps them out all the way to the local level that provide to see what Twitter users are talking about in all around the world. Twitter, one of the largest social networks which is people think can write at any time. We can get any information from any local state and get know better of this place through to trends and its possible with data visualization; visual presentation of data , meaning "information abstracted in some form , including attributes or variables for all units.". [15] We purposed to everybody is able to reach these information and see them easily therefore we imagined to twitter trend visualization on android O.S. and it can provide us to show trends in anywhere and anytime.

Conclusion

Our main purpose of the project is visualization twitter trends on android O.S. We`ve started to project get trends from Twitter API then we integrated GIS data with Twitter trends. After we run WorldWind on Android, we created layers as they shows all region`s ten trends. End of the project we are able to see trends on map on Android wherever region we want.

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