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Implementation of Eyewitness Tracking Using Social Media API

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ABSTRACT: Geo-tagging is a process in which a device can be located using the geo-location of that device. Geo-tagging is the process of embedding the meta-data and some geographical information to video or photograph, such video or photographs provide us the location based information related to our subject. Geo-tag consists of meta data which includes the code of latitude, longitude co-ordinates, they can also include altitude and place names in it. This meta data is responsible for giving the location of any particular devices. It can help users gain data about particular location. Location specific information can be gained from the device. These features are being used by Location based services to provide better services to the user. Location based services can be query based and can provide end user with useful information. Location based services are being provided by social media application like and Twitter. With the rise of social networking epoch, there has been a surge of user generated content. Micro blogging sites have millions of people sharing their thoughts daily because of its characteristic short and simple manner of expression. In this project, by using these features provided by Twitter, we come out with the technique of locating eyewitnesses on particular subject which is provided by the legitimate user of the application. By employing the technique of locating the eyewitnesses by the description of the particular event and geographical directions, the proposed application is able to locate the people of interest.

KEYWORDS: Geo-location; API; Social media; Geo-tags.

I. INTRODUCTION

With the surge of ever growing technology it became easy to tackle various problems and find solutions to the same. In this project, we focus on building a web application which will be developed using the grounds of geo-location technology. There have been cases in which an event/incident occurs and there are hundreds of people who witness that event/incident. There are circumstances in which unexpected situations or emergencies take place and people are well aware about the incident. But an individual steps back when being asked about the same due to reasons threatening their security.

Due to this reason the investigation for the incident or crime scene remains unclear. But, with the growing trend of involvement of an individual into social media activities, it has been realized that the person reporting the event on social media instead of being the physical evidence is high. People report their presence and negative acceptance to such situations through social media alternatives like Instagram, Twitter, etc. without realizing that they are sharing their location which can be used for positive outcomes to complete the investigation. Also during emergencies like natural calamities, a group of people/children who are misplaced can be tracked if the pictures of these individuals with their



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location are shared. Thus geo-location technologies can be used for a number of purposes and used to tackle various problems

II. RELATED WORK

Using Large Scale Aggregated Knowledge for Social Media Location Discovery

- This work was presented in 2014 by Dennis Thom, Harald Bosch, Robert Kruger, Thomas Ertl with algorithms and methods to use geo-location facilities provided by various social media's to generate vital insights in areas where situational awareness is important, such as disaster prevention and crisis response. Fraction of the data is actually provided with precise geo-tags or even GPS information of their origin.
- In this work two strategies were introduced that are suitable to assign probable locations of origin to social media messages of unknown locations. They are based on aggregated knowledge about the author and/or the textual content of the message. Using the prototype implementation and a collected dataset comprising more than one year of geo-located data.
- Methods used were: Term density maps, User history based estimation, Evaluation.[1]
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Discovering and Profiling Overlapping Communities in Location-Based Social.

- This work was carried out by Zhu Wang, Daqing Zhang, Xinghe Zhou, Dingqi Yang, Zhiyong Yu and Zhiwen Yu in 2014 with recent surge of location based social media application the location based data can be utilized.
- The location based service networks have huge amount of digital footprint locations, profiles, and online social connections become accessible to service providers.
- This paper check-in traces at venues and user/venue attributes; we come out with a novel multimode multi-attribute edge-centric co-clustering framework to discover the overlapping and hierarchical communities of LBSNs users.
- Method used: User venue check-in network, Multi-mode, Multi-attribute edge clustering framework, Feature description, Feature Normalization and Fusion, Clustering algorithm, Performance Evaluations.[2]

Mining frequent trajectory patterns and point of interest from Flickr photos

- There is a massive opportunity to mine human movement data from geo-tagged photos.
- A significant opportunity exists to demonstrate the application of pattern mining algorithm using geo-tagged photo dataset.
- Flickr API is used to collect geo-tagged photos in the framework consisting of three main components: pre-processing, TPM and Visualization.
- Geo-tagging is a technology that includes a geographic reference inside the meta-data of specific types of content: photos, videos, and SMS.[3]

III. PROPOSED SYSTEM

A. System Design:

- The proposed system will be a web application which will be integrated with various API's in order to complete its functionality. The application programming interface contains the methods, functions and variables that an application will need in order to carry out desired task. We aim to use the API technology provided by Twitter to attain our goals.
- This system will consist of a web application which will support the various objectives mentioned above. In this application, a search protocol will be initiated after which the sequential steps will be carried out. These sequential steps will include submission of query which will include location in form of latitude and longitude. The application will have enhanced option to get more precise results by providing options to input time-stamps and the radius of the location of that particular area for which the search is to be initiated. Once the query is submitted with all the required fields, the search protocol will give the desired results for that particular query.

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- The results will provide all the details of the user present at that specific location with the specifications mentioned in the query.

B. System Block Diagram:

STEP 1: WE PRE-PROCESS ALL THE TWEETS AS FOLLOWS:

STEP 2: REMOVE ALL URLS (E.G. WWW.EXAMPLE.COM), HASH TAGS (E.G. #TOPIC), TARGETS (@USERNAME), SPECIAL TWITTER WORDS (“E.G. RT”).

STEP 3: CALCULATE THE PERCENTAGE OF THE TWEET IN CAPS.

STEP 4: CORRECT SPELLINGS; A SEQUENCE OF REPEATED CHARACTERS IS TAGGED BY A WEIGHT. WE DO THIS TO DIFFERENTIATE BETWEEN THE REGULAR USAGE AND EMPHASIZED USAGE OF A WORD.

STEP 5: REMOVE ALL PUNCTUATIONS AFTER COUNTING THE NUMBER OF EXCLAMATION MARKS.

Block Diagram

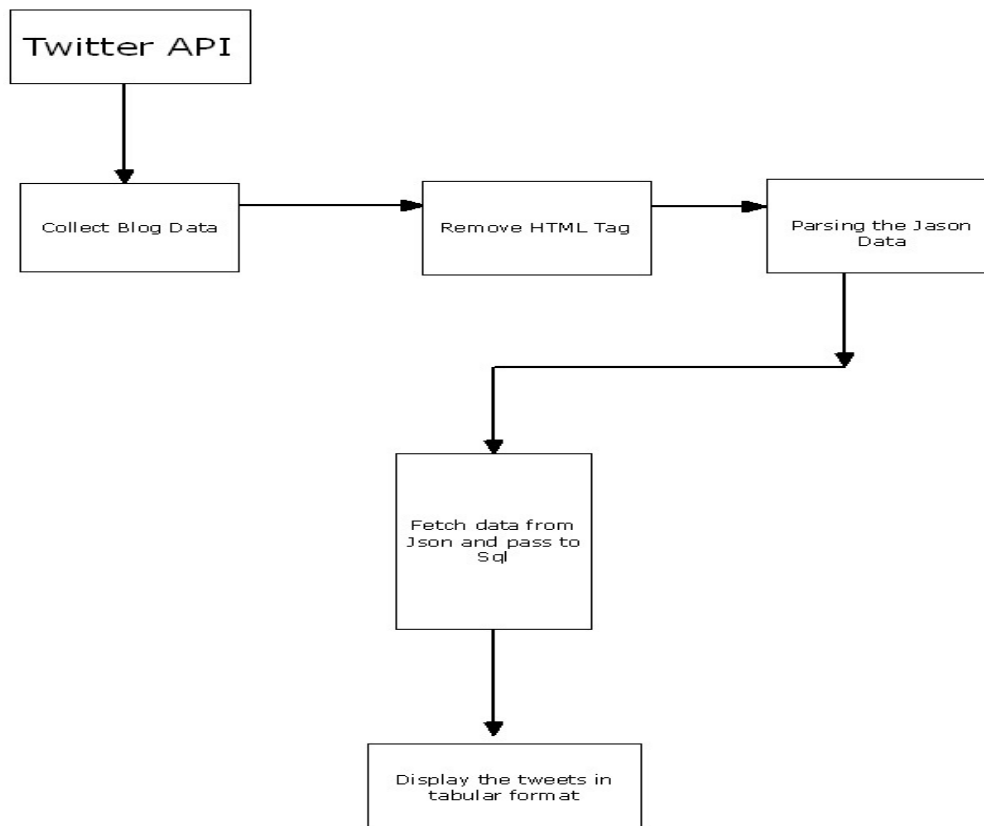


Fig: System Block Diagram

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IV. RESULTS

This is the initial page of Eyewitness Tracker application which requires authorized Username and Password to be entered for authentication and security purpose.

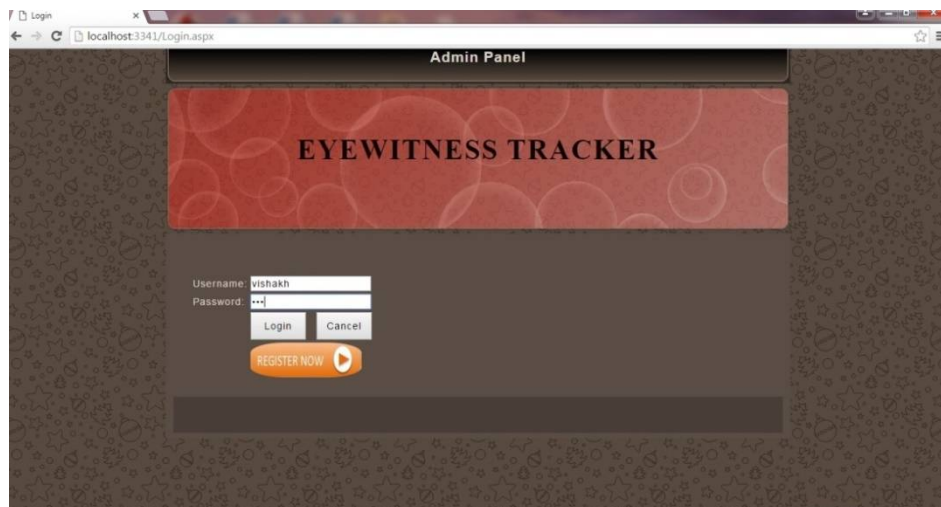


Fig : Existing User Login

After successful login it will redirect the authorized user to the home page of Eyewitness Tracker which will contain the options for searching tweet, viewing the logged-in profile and log-out option.

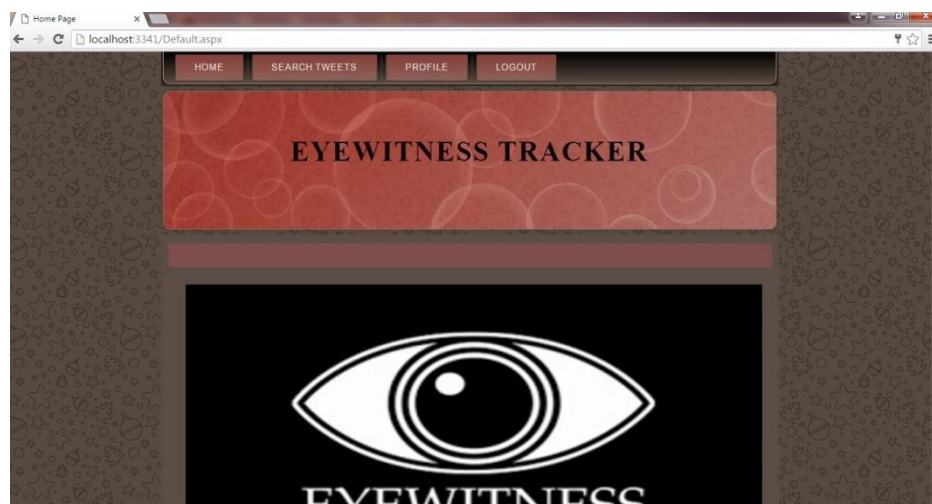


Fig: Home Page Of EyeWitness Tracking



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To create new authorized user one must click on Register Now it will redirect the user to this page which will display this form with the following fields to be submitted

EYEWITNESS TRACKER

Username :

Password :

First Name :

Middle Name :

Last Name :

Phone :

Email Id :

Address :

Upload Profile Pic : No file chosen

Fig: New User Login

This is the search tweet page which is displayed after clicking on Search Tweets button, then this page accepts query as input and gives output according to query in grid view

EYEWITNESS TRACKER

Search Here :

TweetId	query	Name	Tweet	Location	CreateDate
1	kala ghoda 2016	mycutedolls	RT @myfashionlady: #KatrinaKaif In #Sabyasachi saree for Kala Ghoda arts festival! https://t.co/259WGGpxwg https://t.co/co2UmFA68R		Sat Apr 09 10:50:06 +0000 2016 View
2	kala ghoda 2016	@VikramAroraStudio	my work covered in #eldecor https://t.co/sKYZlQkPF7 #vikramarora #art #installationart	mumbai, india	Fri Apr 08 03:04:25 +0000 2016 View
3	kala ghoda 2016	kamaconnection	Katrina In Sabyasachi Saree For Kala Ghoda Arts Pageant, 2016 https://t.co/nVGAPTgOKJ #bollywood	Toronto	Thu Apr 07 22:45:30 +0000 2016 View

Fig: Display of results as per the query entered by the user

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To view the content of each tweet in output one must click on View which contains the URL of the tweet

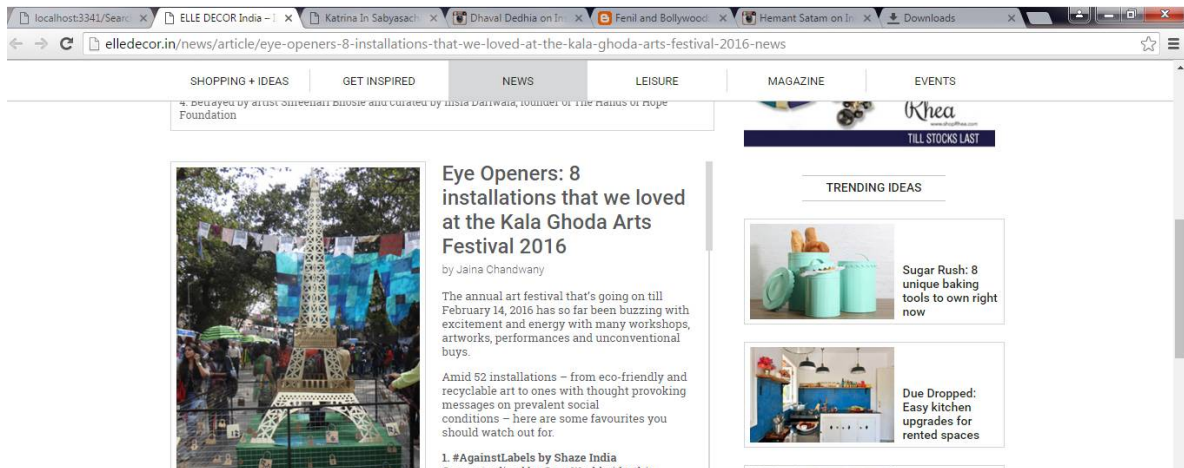


Fig : Displaying the images as per the query entered by the user

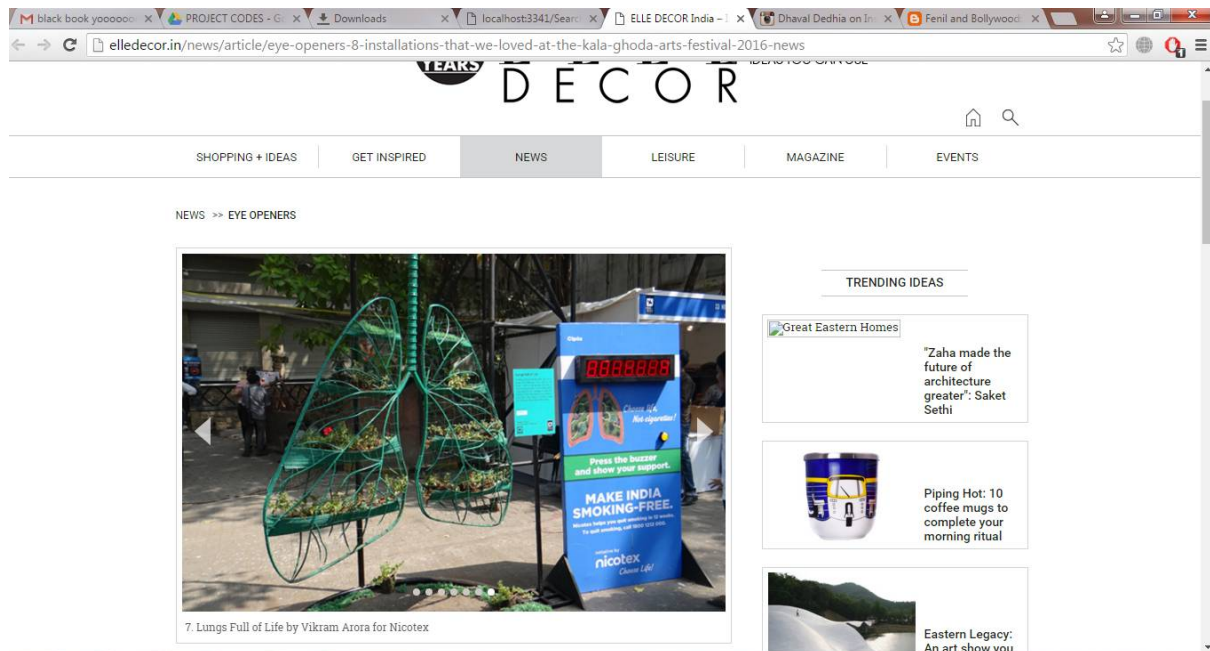


Fig: Display model at “Kala Ghoda 2016”

V. CONCLUSION AND FUTURE WORK

The main purpose of the web application is to make the best use of the sensitive information which is shared unknowingly or knowingly with consent of an user as a part of the information for the greater good of people which is served. Also the best use of available location based services for various social media application by using their application programming interface (API's) to resolve various issues is seen. Care has been taken that the access to sensitive information available through this web application will be given only to authenticated authorized personals eliminating any threats for the security of this application.



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- The future scope of this project is to embed another location based service networks like Instagram and Facebook by using their API's
- Improving security measures by enabling one time password for user registration
- Making this web application compatible on every device and operating system

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