Detection and Control of Urban Emergency Events using Social Media Big Data

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ABSTRACT: Crowdsourcing is a newly developed term which refers to the process of outsourcing of activities by a firm to an online community or cloud in the form of an 'open call'. Any member of the crowd can then complete an assigned task and be paid for their efforts. As the term implies, crowdsourcing is when an entity whether an individual or an organization requests specific resources from a group of people (the crowd). Businesses, individuals and organizations of all kinds have used this process to solicit ideas and raise money as well as consolidate and promote information. Nowadays, no countries, no communities, and no person are immune to urban emergency events. Detection about urban emergency events, e.g., fires, storms, traffic jams is of great importance to protect the security of humans. Recently, social media feeds are rapidly emerging as a novel platform for providing and dissemination of information that is often geographic. The content from social media usually includes references to urban emergency events occurring at, or affecting specific locations. In this paper, in order to detect and describe the real time urban emergency event, the 5W (What, Where, When, Who, and Why) model is proposed.

KEYWORDS: Crowdsourcing, emergency events, social media, big data, urban computing

I. INTRODUCTION

Crowdsourcing generally is an outsourcing technique that employs freelance, volunteer and paid human resources to complete a particular task. Crowd sourced labour often works remotely. Crowdsourcing works when a business or individual, also known as crowdsourcer, advertises a problem or project on a related website and invites subject matter experts and the general public, known as the crowd, to propose a solution or participate in finishing the task. The participating members are paid remunerations or are complemented with recognition once the problem is solved or the task is completed. Crowdsourcing is also an emerging computing paradigm that tasks everyday mobile devices to form participatory sensor networks. It allows the increasing number of mobile phone users to share local knowledge acquired by their sensor-enhanced devices, e.g., to monitor pollution level or noise level, traffic condition, etc. The sensing data from volunteer contributors such as social network users can be further analyzed and processed, and leveraged in many areas such as environment monitoring, urban planning, emergency management, as well as public healthcare/safety. By urban emergency events, we mean important phenomena with a local and temporal dimension in the physical world. For example, if a user makes a message in Weibo about a fire or crash, then she/he can be seen as a "fire sensor" or "crash sensor". The social network such as Weibo can be seen as a sensor receiver. Usually, the Weibo users can be as "social sensors." A social sensor is defined as an agent that provides information about its environment on a social network after interaction with other agents. The sensing message from social sensors can be used during a live fire emergency or traffic updates.

Background:
In urban areas many emergency events are happening every day but not everyone is aware of all these emergency events. In everyone's busy life there is need to spread such emergency event through social media. No one is much aware of this emergency events and which leads to unbalance of life. An urban emergency event is a sudden, urgent, usually unexpected incident or occurrence that requires an immediate reaction or assistance for emergency situations faced by social group (e.g., the corporations) or the recipients of public assistance.

Motivation:
Crowdsourcing is also an emerging computing paradigm that tasks everyday mobile devices to form participatory sensor networks. It allows the increasing number of mobile phone users to share local knowledge acquired by their sensor-enhanced devices, e.g., to monitor pollution level or noise level, traffic condition, etc. The sensing data from volunteer contributors such as social network users can be further analyzed and processed, and leveraged in many areas such as environment monitoring, urban planning, emergency management, as well as public healthcare/safety. Weibo1, a popular Chinese micro blogging service similar to Twitter2, has received much attention recently. This online social network service is used by about 500 millions of people in China to remain socially connected to their friends, family members, and colleagues through their computers and mobile phones. The user of Weibo concerns one question, "What's happening?" The poster of each user must be fewer than 140 Chinese words. A status update message is often used as a message to friends and colleagues. A user can follow other users; that user's followers can read her messages on a regular basis. An important feature of Weibo service is its real time nature.

Goal and Objective:
1. To monitor emergency events
2. To maintain better lifestyle.
3. Manage emergency events.

II.   LITERATURE SURVEY

Sr. No	Project Name	Author Name	Proposed System Advantages and Disadvantages	This paper refer to:
[1]	"A Real -Time Event detection and Notification using Social Media"	Ushadevi B G , Rajshekhar S.	In this paper, the real-time nature of Twitter is used to detect events. Each Twitter user is considered as asensor, and detection of an event is based on sensory observations.	This paper refers to Real time event detection.
[2]	"Opinion mining and sentiment analysis"	Bo Pang and Lillian Lee	This survey covers techniques and approaches that promise to directly enable opinion-oriented informationseekingsystems.	focus on methods that seek to address the new challenges raised by sentimentaware applications
[3]	"Trade Area Analysis using User Generated Mobile Location Data"	Yan Qu, Jun Zhang	In this paper, illustrate how User Generated Mobile Location Data (UGMLD) like Foursquare check-ins can be used in Trade Area Analysis (TAA) by introducing a new framework and corresponding analytic methods. Three key processes were created: identifying the activity center of a mobile user, profiling users based on their location history, and modeling users' preference probability.	Studied user Generated Mobile Location Data (UGMLD) like Foursquare check-ins can be used in Trade Area Analysis (TAA)
[4]	"Earthquake Shakes Twitter Users: Real-time Event Detection by Social Sensors "	T. Sakaki, M. Okazaki, and Y. Matsuo.	In this paper, we investigated the real-timenature of Twitter, in particular for event detection. Semanticanalyses were applied to tweets to classify them into apositive and a negative class.	Studied real time emergency events.

[5]	" How the Live Web Feels about Events. "	G. Valkanas and D. Gunopulos	In this paper, we focus on the problem of automatically identifying events as they occur, in such a user-driven, fast paced and voluminous setting.	Studied real time emergency events detection.
[6]	"Continuous keyword search on multiple text streams"	V. Hristidis, O. Valdivia, M. Vlachos, and P. S. Yu.	In this paper we address the issue of continuous keyword queries on multiple textual streams. This line of work represents a significant departure from previous keyword search models that assumed a static database	Studiedcontinuous keyword queries on multiple textual streams
[7]	" The NIST Definition of Cloud Computing,"	P. Mell and T. Gance	These paper gives basic ideas of cloud computing, definition of cloud computing, its type, models, use, importance etc.	Studied cloud computing in detail.
[8]	"Cyber-attacks on us companies in 2014"	R. Walters	This paper proposed list of known cyber attacks.	Studied cyber attack and its effect on organization.
[9]	"OMG, from here I can see the flames, a use case of mining location based social networks to acquire spatiotemporal data on forest fires. "	B. Longueville, R. Smith, and G. Luraschi.	This paper aims to improve the understanding on how LBSN can be used as a reliable source of spatio-temporal information, by analysing the temporal, spatial and social dynamics of Twitter activity during a major forest fire event in the South of France in July 2009.	Studied Location-based Social Networks (LBSN) isdesigned as platforms allowing the creation, storage and retrieval of vast amounts of georeferenced and user-generated contents.
[10]	"A Tutorial on Interactive Sensing in Social Networks."	V. Krishnamurthy and H. Vincent Poor.	This paper considers models and algorithms for interactive sensing in social networks in which individuals act as sensors and the information exchange between individuals is exploited to optimize sensing.	Studied Tutorial on Interactive Sensing in Social Networks.

III.   EXISTING SYSTEM APPROACH

In urban areas many emergency events are happening every day but not everyone is aware of all these emergency events. In everyone's busy life there is need to spread such emergency event through social media. No one is much aware of this emergency events and which leads to unbalance of life. An urban emergency event is a sudden, urgent, usually unexpected incident or occurrence that requires an immediate reaction or assistance for emergency situations faced by social group (e.g., the corporations) or the recipients of public assistance.

Disadvantages of Existing System
1) Not efficient in real event detection.
2) Not all accurate and errors in event information.

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IV.   PROPOSED SYSTEM APPROACH

We propose, in order to describe the real time urban emergency event based on crowdsourcing using Weibo, the 5W (**W**hat, **W**here, **W**hen, **W**ho, and **W**hy) model is proposed. Crowdsourcing or participatory sensing may be a potential solution solving the description of urban emergency events. The proposed 5W model aims at collecting and analyzing the information from social sensors. The social network can be seen as a sensor receiver. Usually, the social network users can be seen as social sensors. The proposed 5W model is set as a hierarchical data model including three different layers.

1.   Social sensors layer.
2.   Crowdsourcing layer.
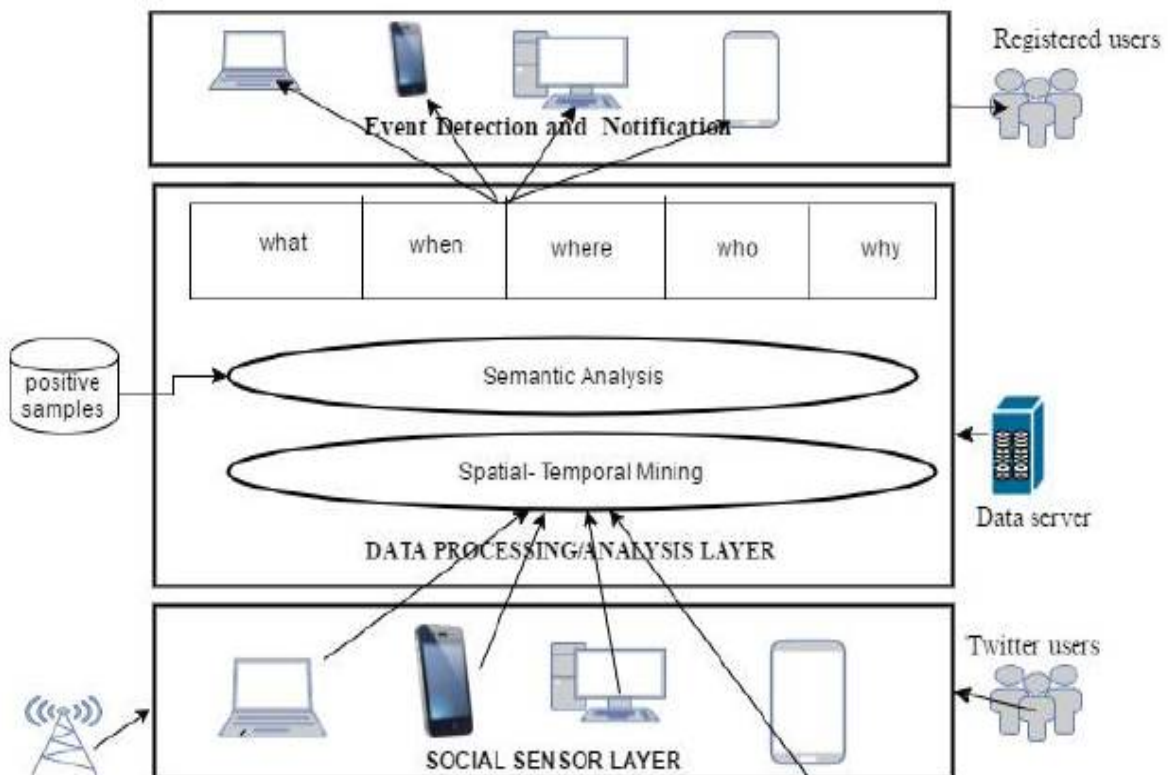3.   5W based description layer.

V.   PROPOSED ARCHITECTURE

Figure 1: System Architechture

The Auditor will continuously audit Service provider's certification and check reliability of service provider. Auditor will check reviews and ratings of customer also will check the file integrity uploaded by customer. And at the end customer can also take the auditor opinion about the service provider's reliability status.

Advantages of proposed system:
1)   Provides real time event detection.
2)   More realistic and useful for our daily life.
3)   Well maintained and well managed.

VI.   CONCLUSION

The ever-changing cloud environment, fast update cycles, and the increasing adoption of business-critical applications from cloud service providers demand for highly reliable cloud services. Continuously auditing such cloud ser-vices can assure a high level of security and reliability to (potential) cloud service adopters. However, methodologist efficiently and continuously audits cloud services are still in their infancy. With our study, a first step to increase trustworthiness of CSC is provided by conceptualizing architecture to continuously audit cloud services.

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