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# EFFECTIVE ANALYSIS OF SOCIAL NETWORKS FOR EMERGENCY ALERT AND DISASTER MANAGEMENT USING ANDROID

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**ABSTRACT**

Providing the timely help to the affected victim is paramount important for any disaster like earth quake, landslides, tsunami etc. In Disaster Emergency Management requires an effective alert message in disaster. In the existing implementation, the alert was improper about the earthquake and delaying rescue process for saving the people. In the proposed system investigate the online chat based on user tweets. The server needs to learn the user tweets by using of vector machine learning algorithm and classify the user tweets by using Naive Bayes classifier and it's separating positive and negative tweets. The location and disaster is extracted by using Stemming algorithm and also removing unwanted words from user tweets. The system crossed Maximum occurrence of particular keyword like Tsunami along with particular time and a particular location. Automatically system will send the emergency alert to the registered users as well as Nearest Rescue Team through both SMS and E-mail.

**Keywords:** disaster management, emergency alert, immediate rescue, social network, emergency support, SMS, email.

## 1. INTRODUCTION

The basic unit in society is community, in which it plays a semi-official role with some of social force particularly local disaster management. When disaster happens residents may suffer life-threatening, environmental impact, or economic loss. At this moment community becomes the battlefront for disaster relief and provides initial assistance for disaster response and rescue. Generally, most of the communities may suffer natural disasters or man-made disasters. Natural disasters include fire, flood, snowstorm, hurricane, typhoon, earthquake, and epidemic-prone disease. Man-made disasters include public accident, social disorder or terrorist attack. To ensure the functionality of communication during disaster response, there exist practical needs to build emergency network for crisis response. The construction of emergency network can rely on the top of mobile social network widely popular on the smart phone users. Advanced computing resource and location-awareness service is been provided in smart phone devices, so that we can come out a mobile social network for local disaster response. The system is positioned for community-based usage, so it turns out with several benefits. First the rescue on local disaster and response is been with nation-wide is combined on system disaster management. Community resource and national resource can be clarified and avoid the resources duplicate engagement problem. Second disaster response can collaborate with neighbourhood through the mobile community networking service, which is dedicated designed for community usage. Third the disaster response can be locally planned and manageable to enhance the locality and practicability. Finally, not only for disaster response, the emergency measures taken by disaster prevention in the system, mitigation, preparedness, and recovery. Even though we build an emergent local network for disaster response, some extreme condition still should be considered.

Different network-consuming applications are being used by many people in smart phones where the local wireless network does not have capacity to afford, especially in a disaster crisis. When network congestion happens Text messaging is a better way for communication especially. Reason is the uses of less network resources than a voice or wireless broadband data session. Second, the text messaging system will continue to keep trying to send the message even when the network seems to be congested. These features make it a more efficient to communicate when the network bandwidth is limited. Therefore, we hope this disaster response system for communication is based on text messaging and implanted as simple as possible. Disaster Management Communication System (DMCS) based on a web platform.

They compare and contrast the differences that can be found in an application on internet, client server, and application on mobiles. Disaster system in mobile phone client with web applications is the best architecture. We adopt this concept; agree this viewpoint as a principle to design our solution. Popularity in smart phones with Wi-Fi access, social networking has shift their footprints to devices of handset mobiles. In Smart phone the problem is on sharing regional disaster information it is solved using SNS disaster prevention and on disaster prevention SNS is used as the most suitable to verify that smartphone.

The main difference between desktop-based and smartphone-based social networking is the mobility, the capability of connecting network in the outdoor space at anytime and anywhere. Another difference is about the ability of context awareness, the capability of continuous and seamless sensing the environment by physical world to obtain the temporal based on spatial context from the physical world. In other words, Mobile Social Networking Service (MSNS) makes it possible to provide user experience on egocentric services. However, the frequently change of user context is a chal-lenge, it need intelligent and historical reasoning mechanism to deal with context information. The computing ability on smartphone provides such possibility.

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### 1.1 Background

Natural disaster country is Taiwan which is along the ring of fire or otherwise called as typhoon and earthquake belt. For each year Taiwan is hit by typhoons on summer time. It has caused hundreds of people dead and hurts the country's infrastructure and economy enormously during the past decade. The most typical consequences are flooding, mudflows and landslides during or after typhoon concentrate on invasion due to sudden heavy rainfall in a couple of hours and causes sediments or surface massive movement of soil

On invasion of landslides and floods, telecommunication infrastructure there is a loss in power, get damaged, and recovery need several days. As a result, disaster rescue and response are often hindered in the beginning.

Several disaster alert and response system were created which was not dynamic. When a natural or manmade disasters should immediately alert to the nearest rescue team. The alert system is not providing a dynamic analysis in locating the disaster place. The cellular network fails when a disaster occurs also fails in communication and Internet access is no longer available so it takes more time in sending alert to the nearest rescue team. Static analysis delays the existing in Emergency Management.

The social media is used for monitoring the disasters, users to help the people in disaster time and share emotions of sadness. Now Smartphone applications are the popular for disaster response.

As using smartphone applications (APPs) for social networking has become so popular now, our solution is set up an emergent mobile social networking service for community disaster response. There are too many people using too many network consuming applications in smartphones where the local wireless network does not have capacity to afford, especially in a disaster crisis. Text messaging instead is a better way for communication especially when network congestion happens. The main reason is that text messaging uses less network resources than a voice or wireless broadband data session. Second, even when the network is congested, the text messaging system will continue to keep trying to send the message. They suggest that mobile phone client with web applications can be the best architecture for disaster system. We agree this viewpoint, and adopt this concept as a principle to design our solution.

## SOCIAL NETWORKING AND SMART PHONE

Smartphone technology is successful in businesses and their employees have trouble imagining a day without them. Today using smartphone we can take pictures, play music and keep track the people contacts through the installation of apps.

Based on the popularity of Wi-Fi access with smart phones, social networking has shift their footprints into mobile handset devices. Use smartphone with Social Networking Service (SNS) easy to know the disaster information and sharing the problem in disaster prevention and verify that smartphone is the most suitable device for SNS on disaster prevention. The main difference between desktop based and smartphone based social networking is the mobility, the capability of connecting network in the outdoor space at anytime and anywhere. Another difference is about the ability of context awareness, the capability of continuous and seamless sensing the environment to obtain spatiotemporal context from the physical world. In other words, Mobile Social Networking Service (MSNS) makes it possible to provide user experience on egocentric services. However, the frequently change of user context is a challenge, it need intelligent and historical reasoning mechanism to deal with context information. The computing ability on smart phone provides such possibility.

Geo-social networking is another emergent trend for MSNS development, in which location based services and capabilities such as geocoding and geo tagging are used to help additional social interaction and enrich the usability of social network. In disaster scenarios, geo-social networking can allow rescuers or victims to coordinate around activities collaboratively since geo-location information could assist people to detect and track potential dangers for disaster response and rescue. Similarly, our ECSN is also a type of mobile geo-social networking but having real community inhabitants living out there. Mobile Community Networking occurs in real communities and depends on the locality of inhabitants. In other words, when virtual mobile social network combines with real community entities, the drawbacks of virtualization in social network will no longer exist.

This is the main reasons so only we are explains Natural disaster concept in this section. Endless application is been provided, the sensors will be built by programmatically in smartphone. The several apps are available for, health and fitness to track the miles you've run, the calories consumed and even your current heart rate. Internet radio and podcasting apps put you in touch with whole new world. Compass apps, leveling apps and flashlights provide handheld utilities. Apps that let you paint, modify photos or create music tap into your creativity.

### 1.2 Related work

We have analysed several papers for Disaster Emergency alert methods, algorithms and filtering user tweets. Y. Zhiwen proposed smartphone technologies for effective communication in disaster time [1]. Cong Liu implements E-net for emergency response, in static analysis [2] alert delays in emergency management. Jin-Yun Xue developed emergency support to the affecting peoples through [3] service agents, debut its delays in functioning of rescue wings Internet things are needed. Yoshi Yama proposed advantages of social media [4] to research about disaster happenings, it delays in emergency period. G. Katkar proposed wireless mobile nodes [5] its can freely allow people to communicate rescue peoples. D. Quercia proposed about disaster prevention using through social networks and smart phones, [6] but there is no alert system he proposed. Y. Yue implemented an architecture to interactions social networks [7] but had developed

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under higher cost. B.Nicolai implements Disaster Management Communication System (DMCS) [8] by collecting information from people and emergency response to team, but delays communication in alert system. Peter Simmons proposed a uses of social media to identify the disaster [9]. K. Post implements a nation-wide infrastructure for emergency in higher cost [10] and the disaster alert using social network is effectively. J. Rana developed a social networking for communication [11] the social network for communicating and posting the disaster place in tweets.

## 2. PROPOSED SYSTEM ARCHITECTURE

This paper proposes an algorithm to monitor tweet analysis, SMS and email, when the user receives a tweets posted by his or her friends it will be analysed Android based Social Network site to be accessed and the Tweets given through android phone should also be considered along with Easy Interface based Buttons can also added.

The proposed algorithm deals with analysing tweet, MS and Email. When the user receives a tweets posted by his or her friends it will be analysed Android based Social Network site to be accessed and the Tweets given through android phone should also be considered along with Easy Interface based Buttons can also added. When an emergency alert is send as SMS and E-mail to the registered tweet users as well as to the Nearest Rescue Team. Disaster Related keywords are used to identify the Tweets which acts to identify the Location so that Emergency Support can be given to the needy people via SMS and Email. By which it consume less Time consume, because the automatic alert is immediately send to the nearest users location. And we may able to reduce the Loss rate, due to the immediate action taken by the rescue to to save the people from disaster.

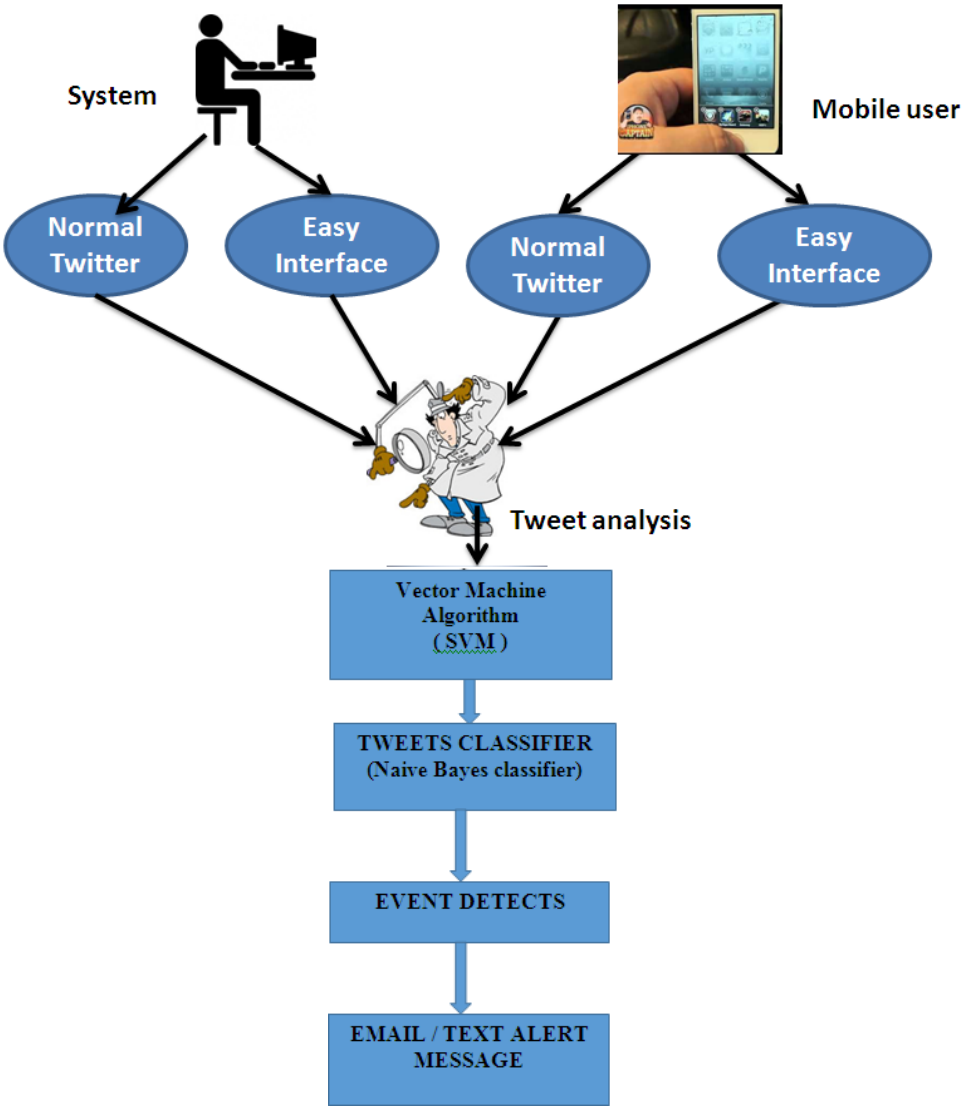


**Figure-1.** System architecture.

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### 2.1 Application creation

#### 2.1.1 System design

Creating an application for post the tweet using Advanced Java Concepts JSP and Servlets. While creating the application, well assign the design fields like Username, Password, Phone, Location, Email etc. Once user is created the server will store the user detail, after user can sign in to the chat application. The User will enter the tweets through this application.

Server is used to verify the user information and allow the User to Tweet with their friends. Also the Server analyse the contents user. So that we the server will extract the Keywords. Also the Server will be retrieving the user information is used to find the Users location and we can provide the any necessary help to them.

#### 2.1.2 Extracting the keyword

The Server will analyse the Tweets between the Users and the extract the Keywords using Particle Filter. The Particle Filter will they be extracts the Keywords from the user tweets. By using the Stemming algorithm we can filter and remove the unwanted words in the tweets.

#### 2.1.3 Automatic alert to rescue team

In this module system send the SMS alert and Email to the rescue team once we attain the Maximum Peak of the extracted Keyword. System generate an SMS alert will include the Java Archive file called JSMS and for Email Alert using Email Coding and send to the Rescue Team via Internet. For sending an SMS, mobile will connect with server using the Nokia PC suite and Data cable. This Nokia PC suite configured mobile will transmit the SMS to the rescue team.

This is an example message if disaster is detected user will be receive both email alert and text message alert.

**Dear Mathew**

We have just detected an earthquake around Chennai, Please take care.

### 2.2 Proposed model algorithm

#### 2.2.1 Stemming algorithm

In Stemming algorithm Pre-processing is the first in Text mining. Stemming is used to remove the prefix and suffix words from user tweets also its removing the frequently used words. We are Natural Language Processing is used to check the words in grammatical forms. The automatic stemmers is used to reduce the indexing file size and its used to stem user locations and Disaster.

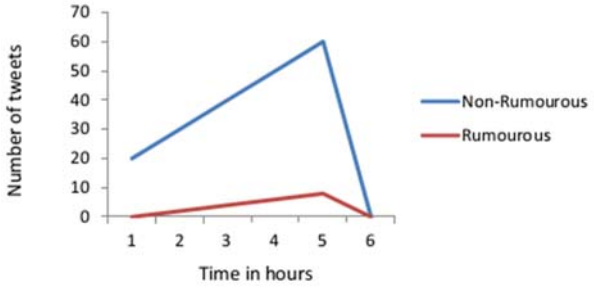
For example

Hey Tsunami is affecting Chennai watch it

Stemming algorithm is used to extract location and disaster from the user tweets and also remove the unwanted words from tweets like above, can, along ect.

#### 2.2.2 Support Vector Machine (SVM)

Support Vector Machine is used for machine learning, server need to analysis the user tweets. SVM is used to give training to the server to understand and analysis the tweets. It's used to analysis the rumours and non-rumours tweets, it can analysis both linear and non-linear datas.




#### 2.2.3 Naive Bayes classifier

Naive Bayes classifier is used for classifies the user tweets, we have gave instruction and gives training to the classifier, Naive Bayesian classifies is used to classifies user tweets automatically. It's requires need some training tweets set to classifies the user tweets. Naive Bayes classifier is used to classifies the tweet rumour'ss and non-rumours, it's classifies tweets based on training sets. The system crossed Maximum occurrence of particular keyword like Tsunami along with particular time and a particular location. Automatically system will send the emergency alert to the registered users as well as Nearest Rescue Team through both SMS and E-mail.

**Experimental results and discussion**

Proposed Efficiency: Many people are suffer from disasters which are occurred due to natural or manmade disasters. In this paper Disaster alert and management system is developed using the social network. A tweet is posted through system or mobile users about the disaster happening and it is integrated through easy interface, these tweets are been analysed by the disaster related keywords and location keywords, while event is detected. Automatically system will send the emergency alert to the registered users as well as Nearest Rescue Team.

Here i have attached the experimental results as screenshot,

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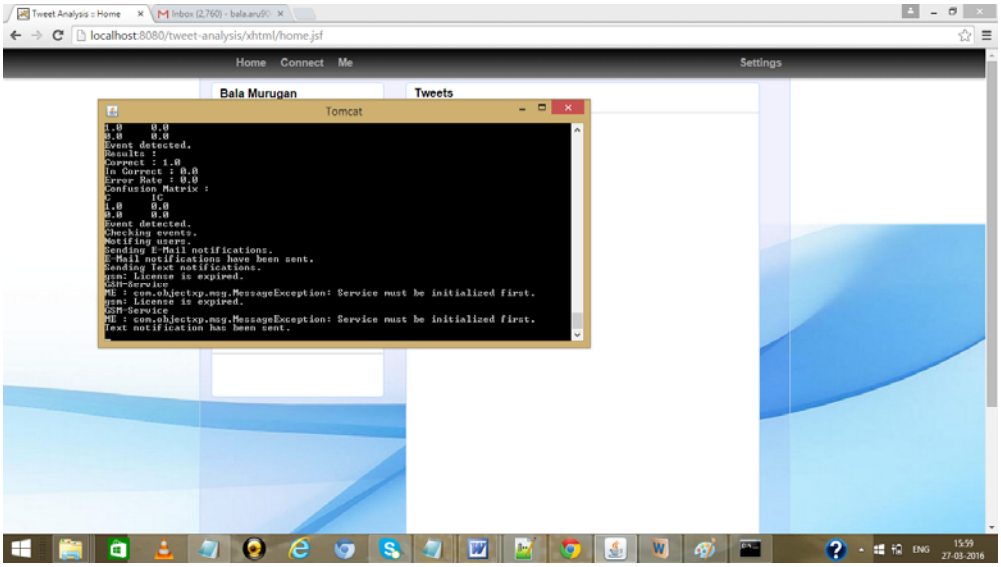
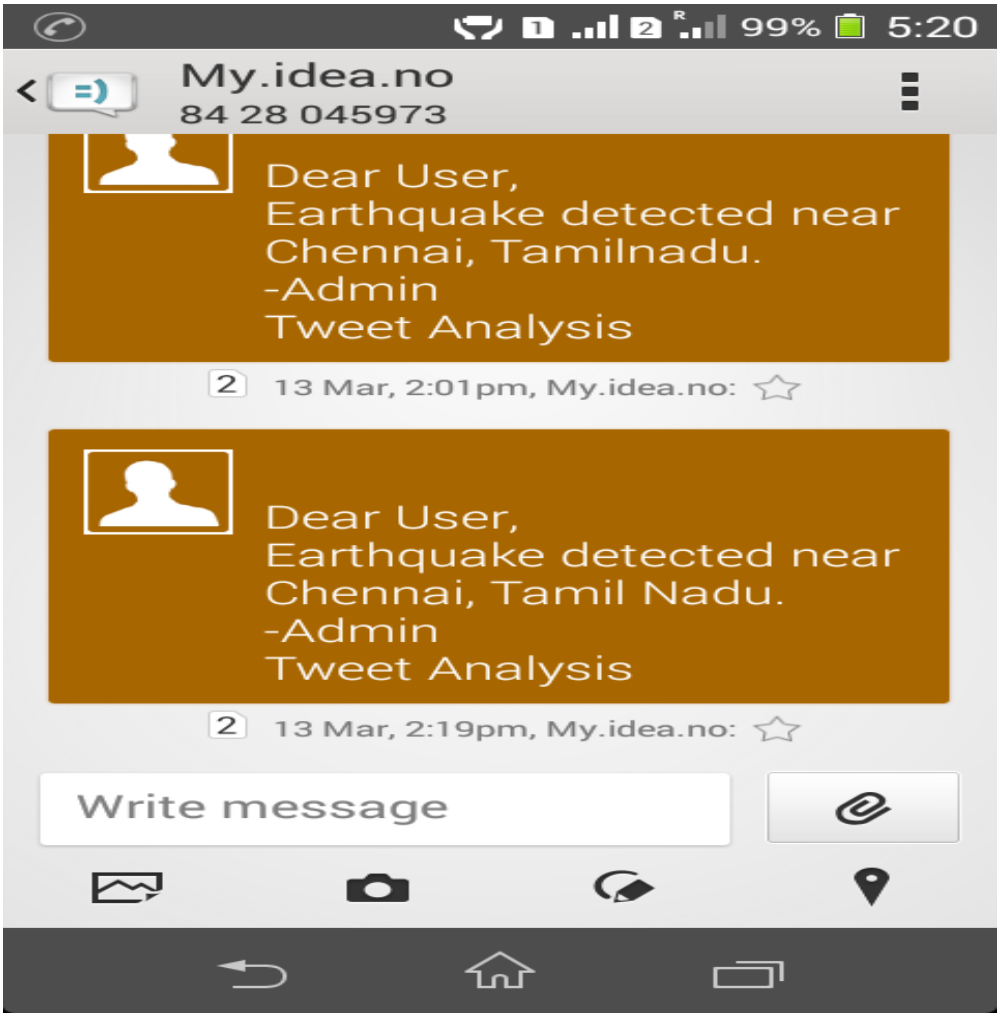



**Event detect screenshot**




**Disaster alert message**

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## CONCLUSIONS

In this paper proposed a Real Time Event detecting in social networks like Twitter. This System send the emergency alert message to all registered users and rescue team it's used to rescue and save the peoples. We analysed social networks fully while disaster is detected system send alert message automatically via both sms and email to registered user.

## FUTURE WORK

In addition, some related future works needed to be followed such as further analysing the performance of the disaster response service, searching for the value added application domain of Mobile Community Networking Service and to take experiments with practical disaster crisis to validate in the real world.

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