

Multi-Channel Emergency Disaster Data Extraction from Social forms using Big Data and IOT based Analysis.

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Abstract-In the system that resides consist of free format of social media that allows anyone and everyone to post just about anything make it difficult to find relevant information The other issues are malcontents during disaster. In the system that is proposed consist of , SMS alert is sent to the respective users who belong to a community / group. After they accept for the communication in the social networks then they can post their information and finally published. In the Modification part, apart from the proposed system, Android based SMS based social network communication is initiated. Android based normal internet social network communication is also initiated to obtain the overall opinion about a particular issue. There is also deployment of Zigbee based IOT communication establishment, applicable when mobile network is not present. Big data is used for data analysis about the public opinion.

Index Terms- Social media, communication, Zigbee, Social networks, Misinformation, Data Analysis.

I. INTRODUCTION

Disaster Management is a holistic process involving the affected population, the rescuers, the relief providers, and also potentially the well-wishers. Evidently, to handle the repercussions of a disaster, accurate information is critical. Traditional sources of information for disaster management comes from surveys conducted by volunteers fail to be objective and tend to be opinionated. Also, the process is slow, cumbersome, takes more resources, lesser scopes of collaboration among different organizations operating in the field, limited reach and so on. Due to these issues, not all information reaches all the concerned bodies which makes disaster management difficult, less efficient and that slows down the entire socio-economic recovery process. Information and Communication Technology or ICT has the potential to provide a solution for efficient and fast supply of relevant information. One of the latest contributor in ICTs progress is

social media. In case of disaster situations, people who are directly involved or affected by a crisis can provide important and near precise information using social media. Social media proves to be an efficient platform for the organisers as it also engages the data and opinions from the masses at ground level in a self-organized manner to work as an aide to solve problems.

However there are some major drawbacks in social media in-formation from the perspective of a disaster manager. to gather small objective data, one-tone interaction provides relevance, continuity and control. However, the free format of social media that allows anyone and everyone to post just about anything makes it difficult to find relevant information. The other issues are impulsive and inaccurate information conducive to rumour spreading, technical limitations like network availability, power supply, and the affected populations familiarity with social media platforms, etc. However, an organised usage of social media wherein more immersive and accurate data can be collected during emergencies for needed assessment by collecting snapshots for situational analysis, emergency assistance through response, understanding the overall extent of causalities and its effect and so on can help to exploit social media features to its full potential and work as a constant decision support at the time of crisis. This paper proposes a system that enables question answering among the volunteers and the organisers efficiently ensuring interactive and guided information extraction from ground level using social media. This prototype gets information from the user's tweets or SMS interactions and stores it in one database. The proposed framework comprises of three components viz., inviting the users for participation, automated interaction for data crowd sourcing and, organisation of received data. The Third International Workshop on Crowd Assisted Sensing Pervasive Systems and Communications, 2016 contributions are highlighted below.

Concept of automated interactive information crowd sourcing in a disaster management context. Automated data collection platform using SMS and Twitter. Automated data

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filtering and sorting at the user level to find out specific answers as per the need of a disaster manager. A web platform for the disaster manager to view sector, location and time segregated data in order to make decisions on the go.

II. RELATED WORKS

In the wake of the Great East Japan Earthquake on March 11, 2011, social media was used, for example, for sending information from disaster affected areas, sorting as well as sharing information on relief activities, and disseminating insightful information. The Japan Self-Defense Forces (JSDF) utilized social media albeit on a limited scale. Social media has challenges, such as the risk of transmitting incorrect information, but nevertheless has significant importance and potential. For this reason, the JSDF will need to be able to utilize this form of media more proactively. To this end, the JSDF should keep in mind the development of the influencer, who has influence on the dissemination of information, and the person inside, who transmits information from within the organization, taking advantage of the organizational characteristic of the JSDF, i.e., it is composed of a wide range of age groups. The introduction of devices, the use of JSDF officers personal devices as well as the development of an environment for interacting with volunteers, NGOs and others on social media are imperative. If the JSDF enhances their sensitivity towards social media and utilizes it more actively, then social media can be used as an effective means not only for large-scale disaster responses but also for the collection, exchange and transmission of information in various other crisis situations.

During the East Japan Earthquake and Tsunami, social media helped the affected individuals immensely, serving as a means of information sharing, and a way for people in Japan and elsewhere to volunteer and to provide information-based support to affected individuals. Social media was used to perform operations to rehabilitate the dislocated people, support the disabled individuals, volunteering organizations, fund-raising, and moral support systems. This study discusses methods in which the civilians and the government agencies use social media to tackle disasters.

Government and Non-Government Organisations use self reported information from social media platforms to collect valuable information using the public as sources of information on the ground. The authors explore the capacity of usage of social media platforms for tackling emergency with specific attention to twitter. Limited research has been done to check the efficiency of Twitter's capability to help organisation in crisis situations. This paper helps in understanding the usage of new-age technologies in crisis management. A deep case study pertaining to Public Information Officers (PIO) of the Los Angeles Fire

Department discusses the important role of the information providers within emergency management organizations and highlights the challenges these organizations face in extracting usable information from social media and Twitter.

In the workshop, PIOs and researchers shared ideas for proper usage of social media for Public Information Officer's work(PIO). Results show that PIO have learned to incorporate social media activities into their work, though they still struggle with issues of trust and liability. Based on workshop design activities, the paper offers a set of design recommendations for supporting the social media needs of PIO work practice such as the ability to monitor, document, and report social media activity.

The social media needs of PIO work practice such as the ability to monitor, document, and report social media activity. In this vision paper, this study proposes Smart Crowd, an intelligent and adaptive crowd sourcing framework. Contrary to existing crowd sourcing systems, wherein the organizations need to understand the depth of the hired talent to foresee a paradigm shift in that process, considering unpredictability of human nature, namely human factors. Smart Crowd makes the process the crowd sourcing the information intelligent, in such as a case by interaction within the workers and hence improving the underlying process. This paper outlines the opportunities in Smart Crowd, and highlights the directions for their proper usage hence potentially revolutionising the existing crowd.

The reason crowd sourcing platforms have worked successfully is that included tasks are small and simple, and do not require a long and tedious engagement from volunteers. The crowd is typically diverse and prone to provide unscientific, misleading and inaccurate information. Hence workers need to be brought back into the loop by enabling worker-centric crowd sourcing of information. The current research seeks to verify how human factors such as skills, expected wage and motivation, contribute to making crowd sourcing kick-o-again. In particular, the discussion suggests team formation for collaborative tasks, adaptive task assignment, and task composition to help workers find useful tasks.

As examples when Earthquake struck Haiti and tsunami in Japan, civilians proved that social media can be an effective tool for disaster management. Evidently Social media provides time-sensitive information and reports. This provides opportunity for first responders and disaster relief organizations to collect relevant and usable information about the disaster, victims, and their needs. This also presents a problem for these organizations to collect and process the requests from different social media. Given the huge volume of requests, it is necessary to filter reports and select those of high priority for decision making. Little is known about how the two phases should be smoothly integrated. This paper

reports the use of social media during a simulated crisis and crisis response process, the ASU Crisis Response Game. Its main objective is to create a training capability to understand how to use social media in crisis. There are lessons learned from this exercise that may benefit first responders and organisations who use social media to manage relief support during the disaster.

This study of digital volunteers in the case of Haiti earthquake describe and report of self-organizing in the information space of a micro blogging environment. The paper explores the motivations, resources, activities and products of digital volunteers.

III. EXISTING SYSTEMS

Free format of social media that allows anyone and everyone to post just about anything make it difficult to find relevant information. The other issues are erroneous information and rumours centering a disaster.

- 1) Disadvantages:
 - Congestion occurring , Less security
 - Waiting time is increased , Less accuracy

IV. PROPOSED SYSTEMS

SMS alert is sent to the respective users who belong to a community / group. After they accept for the communication in the social networks then they can post their information and finally published.

In the process of modification, apart from the proposed system, Android based SMS based social network communication is initiated. Android based normal internet social network communication is also initiated to obtain the overall opinion about a particular issue. Zigbee based IOT communication establishment are deployed when applicable mobile network is not present. Big data is used for data analysis about the public opinion.

- 1) Advantages:
 - Avoid Congestion , Less time consumption
 - Accuracy is improved , High security

V. DATA FLOW

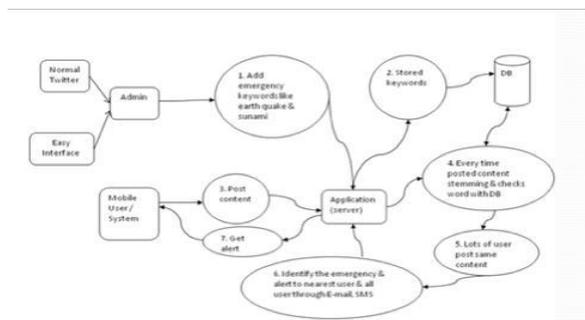


Fig. 1. Data Flow Diagram

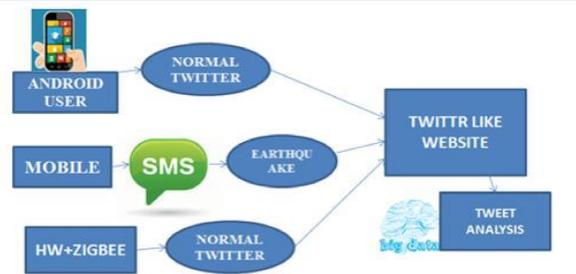


Fig. 2. Architecture Diagram

VI. METHODOLOGY

For creating an Application, Advanced Java Concepts like JSP and Servlets is used. While creating the application, well assigned fields like User name, Password, Phone and other information. Once created the user is allowed to enter the data. Also the server will store the data and allow the user to enter 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 will analyze the contents user. So that the server will extract the Keywords. Also the Server will be retrieving the user information like Access time and location which is used to find the Users location and provide the necessary help.

The Server will analyze the Tweets between the Users and the extract the Keywords using Particle Filter. The Particle Filter will the extracts the Keywords and filter the other words using the Stemming Algorithm. Unwanted words in the chat can be filtered using stemming algorithm to calculate the extracted words counts. Keyword extraction will take place until maximum peak and then SMS alerts will be sent to the rescue teams. To generate an SMS alert will include the Java Archive file called JSMS. Email Alerts will be generated using Email Coding and it will be sent to the Rescue Team via Internet. For sending an SMS will connect the Nokia PC suite configured mobile via Data cable with Server. This Nokia PC suite configured mobile will transmit the SMS to the rescue team. The Zigbee Alliance is a group of companies working together to define a free global standard for making low-power wireless networks. The main goal of Zigbee Alliance is to create a specific defining about building different networks with security features and interoperable application profiles. Zigbee supports Mesh Star Topology.

VII. IMPLEMENTATION

A. Application Creation

For creating an Application, Advanced Java Concepts like JSP and Servlets will be used. While creating the application, well assigned design fields like User name, Password, Phone and other information. Once the created the user is allowed to enter the data. Also the server will store the data and allow the user to enter in to the chat application. The

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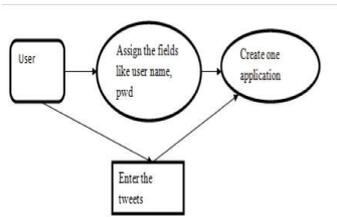


Fig. 3. Application Creation Diagram

B. Server

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

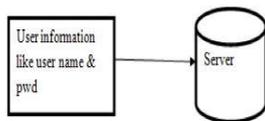


Fig. 4. Server Diagram

C. Extracting The Keyword Using Particle Filter

The Server will analyze the Tweets between the Users and the extract the Keywords using Particle Filter. The Particle Filter will the extracts the Keywords and filter the other words using the Stemming Algorithm. By using the Stemming algorithm we can filter the unwanted words in the chat so that we can calculate the extracted words counts.

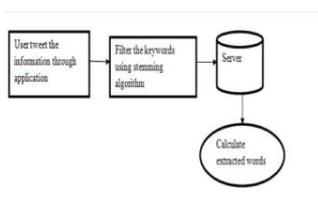


Fig. 5. Keyword Extraction Diagram

D. Automatic Alert To Rescue Team

In this module SMS alert and Email are sent to the rescue team once the Maximum Peak of the extracted Keyword is reached. To generate an SMS alert will include the Java Archive file called JSMS and will get the Rescue teams information in via Coding. For Email Alert generation via Email Coding will be sent to the Rescue Team via Internet. For sending an SMS will connect the Nokia PC suite

configured mobile via Data cable with Server. This Nokia PC suite configured mobile will transmit the SMS to the rescue team.

E. Application Creation

The Zig Bee Alliance is a group of companies working together to define a free global standard for making low-power wireless networks. The main goal of Zig Bee Alliance is to create a specific defining about building different networks with security features and interoperable application profiles. Zig bee supports Mesh Star Topology.

VIII. CONCLUSION

Interactive crowd sourcing has been shown to be an improvement over traditional crowd sourcing in terms of aggregation of relevant, precise, hyper local information. Social medias increasing ubiquity has rendered itself as a vital tool during crisis. The framework suggested for the automated interactive crowd sourcing for information aims at removing human errors by organising and structuring crowd sourced data and presenting to the affected population, rescuers and relief providers for the clear understanding of current situation during disaster and enable informed, calculative decision on the fly. The prototype mentioned in this paper serves as a proof of concept to establish the advantage of interactive crowd sourcing and thereby provide the motivation for subsequent enhancement and scaling of the model. Personal interaction leads to better engagement of the crowd. Therefore, the focus is on building a stable NLP model to converse better with the user and provide a richer experience. Further, the system would in the long run be equipped with an analytical engine which would not only let the information consumer view data collected, but the system would also report results of preliminary statistical tests and analysis on the data. Thus, the system would establish interactive crowd sourcing using mainstream communication channels and be a decision support system for disaster management.

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