

# A Real-Time Disaster-Related Information Sharing System

† O. Uchida (o-uchida@tokai.ac.jp), \* M. Kosugi, † K. Utsu

† S. Tajima, † M. Tomita, † Y. Kajita, † Y. Yamamoto

† Tokai University, Japan \* Yahoo! Japan



## Background and Objective

- To minimize the damage during disasters, collecting and spreading accurate information quickly is crucial.
- Making use of Twitter at the time when a disaster occurs has been gaining attention recently.
- To effectively utilize Twitter during a disaster, it is desirable that tweets contain location information. However, it is well known that the number of Twitter users who permit to attach the geotag (the longitude and latitude information) is exceedingly small.
- We implemented a real-time disaster-related information sharing system called DITS (Disaster Information Tweeting System) & DIMS (Disaster Information Mapping System), that are utilizing Twitter in the previous study (Uchida et al. 2016).
- In this study, we implemented an improved version of DITS & DIMS.



Fig.1 The menu of the proposed system

## Disaster Information Reporting Function

- Tweets are posted from the user's own Twitter account.
- The user's current geo-location information are acquired by using location specification functions, such as the Global Positioning System (GPS). Based on the acquired location information, the street address of the user's current location, the hashtag of the form "#(municipality name)disaster," and the Military Grid Reference System (MGRS) code are automatically attached to the tweet.

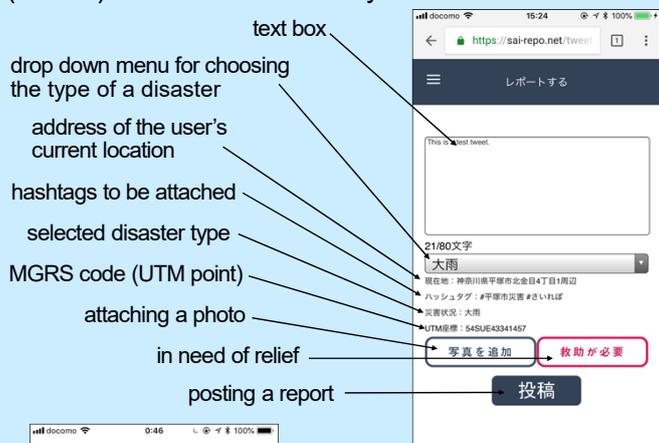


Fig.2 Disaster information posting screen



Fig.3 A tweet posted by the proposed system

- hashtag "#(municipality name) disaster"
- address of the user's current location
- MGRS code (UTM point)
- attached photo

## Disaster Information Displaying Function

- When the menu option to view the latest reports is selected, the last 100 reports (tweets) posted using the reporting function of this system are displayed in chronological order (Fig. 4)
- If view the nearby reports is selected in the menu, the reports posted within a range of 5 km from the current location (up to 100 reports) are plotted on the map (Fig. 5). The color of the pins changes, depending on the type of disaster.
- If the search reports option is selected from the menu, the reports posted through the reporting function of the system using keywords can be retrieved, and it is also possible to see high-frequency hashtags from the past week.



Fig.4 The latest 100 reports



Fig.5 Nearby reports

## Future work

- Tweet classification according to the contents of tweets (Uchida et al. 2015)
- Personalization of the tweet map according to the user attribute

## References

- Uchida et al. (2016) A Real-Time Information Sharing System to Support Self-, Mutual-, and Public-Help in the Aftermath of a Disaster Utilizing Twitter, IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences, E99-A, 8, 1551-1554.
- Uchida et al. (2015) Classification and Mapping of Disaster Relevant Tweets for Providing Useful Information for Victims During Disasters, IIEEJ Transactions on Image Electronics and Visual Computing, 3, 2, 224-232.

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