

Chapter 21

Communicating With Citizens on the Ground: A Practical Study

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ABSTRACT

Availability and access to information is critical for a highly effective response to an ongoing event however, information reported by citizens is based on their context, bias and subjective interpretation, and the channel of communication may be too narrow to provide clear, accurate reporting. This can often lead to inadequate response to an emergency, which can in turn result in loss of property or even lives. Excessive response to an emergency can also result in a waste of highly resources. The authors' solution to address this problem is to make the citizen act as a camera for the control room by exploiting the user's mobile camera. The system is designed to provide a live view of the citizen's immediate surroundings, while control room personnel can provide instructions. In this paper, the authors introduce their approach and share initial insights from a focus group validation session and then four evaluations with users within a separate but closely related domain. They discuss their observations, evaluation results and provide a set of recommendations for the Emergency Response domain.

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INTRODUCTION

Emergencies are often highly pressurised and stressful events, which are challenging and demanding for both the citizens and emergency responders involved. This can impact on the accuracy and timeliness of communication channels; how information from citizens and observers is relayed to decision makers and emergency responders. In turn this can lead to the possibility of significant misunderstanding of the salient facts about the situation in question, thereby generate an inaccurate response (Quarantelli, 1975). Effective communication during emergencies is crucial to the management and mitigation of emergencies (Comfort & Haase, 2006). Any situation-specific information that can communicate how someone comprehends a situation is essential in crisis responder's sensemaking processes (Bergstrand & Landgren, 2009)^{1,2}. Citizens and observers will use subjective interpretation and generic terminology to report events, which Emergency Responders must translate into the appropriate object assessment and specific terminology. Citizens, for example may interpret surface water as severe flooding, which can be discounted by knowledgeable responders. Also citizens may not have the expertise to provide critical information, such as their exact location or access restrictions for emergency vehicles, particularly if they are unfamiliar with the area. Furthermore, several limits are introduced in verbal communication that can contribute to an inaccurate representation in communication of a disaster (Bergstrand & Landgren, 2011). However local residents may possess useful local knowledge, e.g. concerning local geography and regular or recent events, which are not available to those unfamiliar with the locality. For example, a visitor unaware of the regular depth of a river may not realise the presence of an impending danger and hence may not report to authorities. Hence, certain situations need decision makers to observe for themselves to formulate a better understanding of an evolving situation, thereby resulting in the most appropriate response. In light of this need of situation-specific information, videos are an excellent means to provide a clearer picture of the situation, avoiding some of the biases involved in purely verbal communication (Bergstrand & Landgren, 2009).

We present a real-time live platform 'Eyes on the Ground', that aims at providing a flexible way for operators and decision makers to view an area and communicate with citizens. Communication is initiated either by citizens or control room operators using several approaches such as clicking on URLs sent via texts and emails or dedicated mobile applications. The mobile application can be extended to provide a geolocation-based capability that can alert the user when he/she arrives at a particular location³ (Szczytowski, 2015; Mazumdar et al., 2015). The alert can then trigger a call to the control room, which can then initiate a live video feed. This system was developed in the WeSenseIt⁴ project, originally aimed at understanding how citizens and authorities can communicate during emergencies to help improve situation awareness, deriving requirements from user studies, evaluations and discussions as we discuss in Ciravegna et al. (2016). In this paper, we first describe our approach and then initially validate it with a focus group involving Occupational Therapists in Sheffield Northern General Hospital⁵. Following the focus group validation and a subsequent iteration of re-design and improvements, we conducted a user evaluation within the Occupational Therapy domain in a variety of settings. We believe our findings are highly significant and can inform a variety of aspects that solution developers need to consider while creating solutions for the Emergency Response (ER) domain. We conclude our paper with a set of high-level points that are critical to the ER domain, based on lessons learned, evaluation results and discussions with users.

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