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Radio Tags Could Save Lives After Earthquakes

Radio frequency identification, RFID, could be used in the immediate aftermath of a major earthquake to save lives, according to new research published in the International Journal of Innovation and Sustainable Development.

Yen-Chun Jim Wu of the National Sun Yat-Sen University and Ching-Yuan Hung, of the National Kaohsiung First University of Science & Technology, in Taiwan, that there is a 'golden' rescue period following an earthquake, which lasts just 72 hours. During this time the efficiency of emergency response procedures is key to the rescue operation, especially given the possibility of aftershocks and continued risk caused by collapsing buildings, fires and gas explosions. Particularly challenging is knowing how many people are present in a building, a hospital or school, for instance.

"Continuously updated information on casualties and losses must be made available to disaster response managers in real time so that they can arrange and deploy relief supplies in an appropriate and timely manner," the researchers say. RFID could be applied to help provide such real-time information, allowing for quicker and more efficient dispatching of rescue personnel and more precisely organized search and rescue missions following an earthquake. They have used the Sichuan earthquake (magnitude 8.0) of May 2008. 100 magnitude 4.0 aftershocks hit the area following the disaster as a model for studying how RFID might be used in such a situation? However, the concepts would be equally applicable to other disasters.

They have devised a deployment of RFID that could potentially mitigate a wide array of post-disaster logistical challenges, such as allowing rescuers and the emergency

services to manage and monitor transferred evacuees and to control the flow of medical and other supplies.

Practically speaking, however, not every building can keep a pre-disaster record of its activity or install a security system that is suitable for coping with disasters, the team concedes. However, a practical count of the number of people trapped at certain public venues, offices, hospitals and schools that have already been equipped with RFID technology could be made possible. "Office workers would have their identity badges embedded in their RFID tags, while visitors would be given temporary RFID tags when they enter the lobby," they suggest. Similarly, identity tags for hospital staff and patients could embed RFID technology. There is an ethical and moral dimension to tagging schoolchildren and students or members of the public, of course.

Assuming that technological, logistic and ethical issues could be easily addressed, RFID readers installed at entry and exit points and around critical areas in a building would provide critical information about people's movements and whether or not they had escaped the building following a disaster. "Rescue personnel could gain a more precise read on the location of those trapped and helping to avoid inefficient search and rescue efforts," the team says.

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