

# **Mobile computing in urban emergency situations: Improving the support to firefighters in the field**

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## **Abstract**

Communication support is a serious limitation for Latin American firefighters when they deal with emergency situations. The insufficient number of radio channels and the impossibility to deliver digital information force firemen to improvise during response processes, e.g., to make decisions using their experience and poor or null supporting information. These improvised actions affect the time required to take control of an emergency, and also affect the evolution of the crisis situation. Provided most of Latin American fire companies are volunteer organizations, communication solutions that could help to overcome these problems are usually expensive for them. This article presents a low-cost mobile collaborative application, which may be used in emergency situations to overcome most of the firefighters' communication problems. The application, named MobileMap, is the result of the research and development work conducted by the authors, supported by a Chilean fire company, during the last three years. MobileMap allows ad hoc communication, decisions support and collaboration among firefighters in the field using mobile devices. This solution complements the radio communication systems. Since the interactions supported by MobileMap are recorded, it is possible to analyze such information after the crisis and learn for future emergencies. The tool was evaluated in simulated and real scenarios, and the obtained results are highly encouraging.

## **Keywords**

Mobile collaborative application, Communication support, Emergency support, Decision support system, Mobile computing.