Lecture Notes in Computer Science 4458

Commenced Publication in 1973
Founding and Former Series Editors:
Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Jobst Löffler Markus Klann (Eds.)

Mobile Response

First International Workshop on Mobile Information Technology for Emergency Response, Mobile Response 2007
Sankt Augustin, Germany, February 22-23, 2007
Revised Selected Papers

Springer

Volume Editors

Jobst Löffler
Fraunhofer-Institut für Intelligente Analyse- und Informationssysteme IAIS
Schloss Birlinghoven
53754 Sankt Augustin, Germany
E-mail: jobst.loeffler@iais.fraunhofer.de

Markus Klann
Fraunhofer-Institut für Angewandte Informationstechnik FIT
Schloss Birlinghoven
53754 Sankt Augustin, Germany
E-mail: markus.klann@fit.fraunhofer.de

Library of Congress Control Number: 2007939451

CR Subject Classification (1998): H.5.2, H.5.3, H.2.8, H.3-5, C.2, J.1

LNCS Sublibrary: SL 5 – Computer Communication Networks and Telecommunications

ISSN 0302-9743
ISBN-10 3-540-75667-1 Springer Berlin Heidelberg New York
ISBN-13 978-3-540-75667-5 Springer Berlin Heidelberg New York

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper SPIN: 12172498 06/3180 5 4 3 2 1 0

Preface

The interest in mobile information technology for emergency response (ER) comes from the simple fact that an important part of this work is done in the field. With little or no infrastructure to rely on, ER operatives have to make do with the tools they bring along. Of course, ER organizations build, invest in and do rely on infrastructure for their operations and this includes sophisticated stationary information technology. The systems used for dispatching ER units are a good example for this. While such systems are very important to support strategic planning and decision making, the effects of emergency response work eventually have to be created on site. And this includes both obtaining the information required for taking informed decisions as well as implementing decisions through targeted actions in the field. All of this is of course not new. The trade-off between responding quickly with the available resources to the situation at hand and responding with more deliberation to strategic goals and constraints is not inherent to the use of information technology but to responding to emergencies in general. What is new is that current and foreseeable innovations in mobile information technology have the potential to offer substantially better support for emergency response field work, resulting in better solutions for this trade-off. By providing better gathering, communication and processing of relevant information between all actors involved, we believe that mobile information technology can be a valuable tool in the hands of ER professionals to increase the speed, precision, efficiency and effectiveness of their operations.

But we are also aware that new technologies not only solve problems but frequently create new ones. Examples in this case are reliability, dependency, and the need for adapted operational procedures, to name but a few. So it is because of this double characteristic, the great potential benefit that usable mobile IT could yield in the domain of emergency response and the specific design challenges for such technologies in this particularly unforgiving domain, that we decided to create a new venue for researchers and practitioners from different disciplines and backgrounds; a venue for a focussed exchange on how mobile information technology can be effectively used to the benefit of ER.

The call for papers for the first Mobile Response workshop attracted over 30 submissions from 13 different countries, including international submissions from Australia, Brazil, Japan, Korea and Russia. An international Program Committee with experts on mobile information technology, ER, and ER equipment selected 16 submissions for presentation during the workshop, which was held February 22–23 at Schloss Birlinghoven in Sankt Augustin, Germany. These presentations offered not only an interesting overview of how different disciplines address the design of mobile IT, but also provided insights into the perspectives from different countries as well as the different perspectives of scientists, industrial representatives and practitioners.

The workshop was concluded by a panel discussion on some of the points that had been raised during the presentations, three of which we would like to briefly present here. Firstly, the relation between standardization and innovation was discussed. It was pointed out that standardization might help in building solutions from well-proven technologies and that it would also foster interoperability which is of particular importance for international cooperation as well as for creating bigger markets. On the other hand, it was stressed that standardization can become a severe obstacle to innovation. Especially for a quickly developing field like mobile IT it is important to maintain sufficient space for innovation. Secondly, the question of how all the information that might be obtained from mobile information technology could be made accessible and usable in something like a joint operational picture was discussed. It was stressed that not all the information is needed by everybody, but that specific actors need information that is relevant for their current task, corresponding more to a common relevant operational picture. It was pointed out that the concept of situational awareness is likely to be helpful in understanding what information is actually needed. Thirdly, the importance of understanding and designing for the actual work of emergency response professionals was stressed. This includes considering everyday problems and informal processes that might not be visible at first glance. Jokingly, one ER professional remarked that it is insufficient to paint some system red to turn it into a solution for fire services. On a more serious note it was stressed that empirical studies to understand the actual work and needs of ER professionals is one of the weak points of current research and development that needs to be extended.

We would like to thank the members of the Program Committee who were very helpful in attracting attention to the event and reviewing the submissions. We would like to thank everybody who was involved in the preparation of the event, particularly our colleagues from Fraunhofer IAIS and Fraunhofer FIT. Most importantly we would like to thank everybody who submitted papers to Mobile Response 2007, all the presenters and all the participants who contributed to a lively and intriguing exchange during the event. Special thanks go to our keynote presenter Kees Nieuwenhuis, who not only gave a most interesting talk, but was also kind enough to promote our event in the ISCRAM community. Finally, we would like to thank the European Commission for their support to the EU projects Share and wearIT@work and for providing us with the context to organize this event. We plan to continue with Mobile Response in 2008 and would like to invite everybody interested to check www.mobile-response.de for announcements on this event.

March 2007

Jobst Löffler
Markus Klann

Organization

Mobile Response 2007 was organized by the Fraunhofer Institute for Intelligent Analysis and Information Systems IAIS and the Fraunhofer Institute for Applied Information Technology FIT.

Organizational Committee

Workshop Co-chair	Jobst Löffler (Fraunhofer IAIS, Germany)
Workshop Co-chair	Markus Klann (Fraunhofer FIT, Germany)

Referees

B. Andersson
E. Auriol
S. Boll
A. Bonfiglio
M. Borges
T. Christaller
J. Gallet
P. Gómez-Bello
G. Großberger
O. Herzog
R. Iannella
F. James
M. Jarke
R. Koch
J. Köhler
M. Larson
M. Lawo
P. Lukowicz
A. Meissner
C.H.M. Nieuwenhuis
B. Pavard
I. Pitas
E. Raybourn
G. Rigoll
S. Rosenbeiger
L.M. A. Santos
D. Siewiorek
B. Van de Walle
S. Wrobel
V. Wulf

Table of Contents

Keynote Presentation

Medical Services

Team Support

Geospatial Information

Wearable Computing

Communication Technology