SmartObjects: Second Workshop on Interacting with Smart Objects

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ABSTRACT
Smart objects are everyday objects that have computing capabilities and give rise to new ways of interaction with our environment. The increasing number of smart objects in our life shapes how we interact *beyond* the desktop. In this workshop we explore various aspects of the design, development and deployment of smart objects including how one can interact with smart objects.

Author Keywords
User Experience Design / Experience Design; Context-Aware Computing; Input and Interaction Technologies; Home; Interaction Design; Usability Testing and Evaluation; User Studies; User Interface Design; Multi-modal interfaces

ACM Classification Keywords
H.5.2. [User Interfaces]: Miscellaneous

INTRODUCTION

Objects that we use in our everyday life are expanding their restricted interaction capabilities and provide functionalities that go far beyond their original functionality. They feature computing capabilities and are thus able to capture information, process and store it and interact with their environments, turning them into *smart objects* [4]. Nochta [10] distinguishes these functionalities as

- Identification and Information Storage
- Sensors to capture environmental data
- Actuator to perform actions
- Information processing to make decisions
- Communication and Networking

These different functionalities have been applied to a wide range of smart objects ranging from smart kitchen appliances (smart coffee machines, smart knifes and cuttings boards) [7–9], smart (tangible) objects [5, 6], up to smart meeting rooms [3] and even city-wide infrastructures [1].

While other venues have focused on the many technical challenges to turn real world objects into smart objects, i.e. how to implement smart objects, less research has been done on how the intelligence situated in these smart objects can be applied to improve their interaction with users. This field poses unique challenges and opportunities for designing smart interaction. Smart objects typically have only very limited interaction capabilities. Yet, their behavior exhibits an amazing amount of intelligence. For example, several digital cameras are able to recognize faces in a scene automatically and adjust the focus accordingly.

WORKSHOP CONTENT

This workshop is a follow-up to a workshop held at IUI 2011 [2]. The aim is to leverage the discussion on the interaction design of smart objects. We bring together researchers from related fields including intelligent user interfaces, human-computer interaction, ubiquitous computing and psychology. The workshop focuses on how intelligent interaction techniques can be combined with specific characteristics of smart objects, covering e.g.: novel interaction concepts, self-explanatory smart objects, multimodal and adapted interaction, context-awareness, embodied and tangible interaction, enabling technologies for smart objects such as smart displays or projections,

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intelligibility of smart objects, models for interaction with smart objects, situation models and reasoning, user studies and evaluation techniques.

The results of the workshop, as well as the papers of the workshop are available on the workshop's website http://www.smart-objects.org.

ORGANIZERS AND PROGRAMM COMMITTEE

Most of the organizers were already members of the first workshop on interacting with smart objects, held in conjunction with IUI 2011.

- **Dirk Schnelle-Walka** leads the "Talk&Touch" group at the Telecooperation Lab at TU Darmstadt. His main research interest is on multimodal interaction in mobile and pervasive environments.
- **Jochen Huber** heads the "Tangible Interaction" group at the Telecooperation Lab at TU Darmstadt, focusing on mobile interaction design for projection-based smart objects.
- **Roman Lissermann** is a PhD student at the Telecooperation Lab at TU Darmstadt. In his dissertation work, he focusses on interaction with multiple interconnected and flexible displays.
- **Oliver Brdiczka** is the area manager of Contextual Intelligence at Palo Alto Research Center (PARC). His group focuses on constructing models for human activity and intent from various sensors–ranging from PC desktop events to physical activity sensors–by employing machine learning methods.
- **Kris Luyten** is associate professor at the Expertise Centre for Digital Media - iMinds, Hasselt University. His research focuses on engineering interactive systems, ubicomp, multitouch interfaces and HCI in general.
- **Max Mühhlhäuser** is full professor and heads the Telecooperation Lab at TU Darmstadt. He has over 300 publications on ubicomp, HCI, IUI, e-learning and multimedia.

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