Interaction with the Internet of Tangible Things (IoTT)

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ABSTRACT
The aim of this workshop, held during the third European Tangible Interaction Studio (ETIS'17) in Luxembourg, is to individuate the benefits of tangible interaction applied to the Internet of Things. Indeed, the participants will individuate which tangible interaction properties can be exploiter to design richer interactions with IoT objects.

Author Keywords
Internet of Things (IoT); tangible interaction; Tangible User Interfaces (TUI); Internet of Tangible Things (IoTT).

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION
In the Internet of Things (IoT) era, more and more everyday objects are able to collect information and share it with other connected objects and people. Most IoT objects allow users to access this information through smartphone or web apps [1], providing full control on the object behavior just with the swipe of one finger. However, at the same time, most of these objects are losing localized tangible controls, obliging users to keep out their phone from their pocket even for the simplest actions, such as switching on a light. Interactions on smartphones often hinder collaboration and sharing with co-located people, enclosing users in digital bubbles. Within this context, tangible interaction could bring back to the physical world the interaction with IoT objects, providing a richer user experience compared to traditional interfaces. Inspired by the talk of Sarah Gallacher during the second edition of the ETIS [2], we call this research field Internet of Tangible Things (IoTT), aiming at a paradigm shift in the design of interactions with IoT. Therefore, the purpose of the workshop is to understand whether tangible interfaces can provide better representations and controls for IoT object parameters and functions, with a special focus on peculiarities of IoT, such as control and representation of activity status, connectivity, information acquisition and sharing. To this purpose, the workshop will discuss how tangible interaction properties can exploited for IoT object design, throughout different phases of idea generation, interaction sketching and rapid prototyping. During the last phase, the participants will materialize the conceived design with paper prototyping. All the activities will be carried out in small groups, in order to facilitate exchanges and idea generation.

WORKSHOP SCHEDULING
The workshop will be articulated in the following phases:

- Introduction to the workshop and problem statement (about 20 minutes)
- Group definition (ensure mixed background) and theme choice (10 minutes)
- First brainstorming and sketching of a storyboard (30 minutes)
- Storyboard presentations (15 minutes)
- Idea refinement and paper prototyping (40 minutes)
- Paper prototype presentation (15 minutes)

A second workshop, organized by Moll et al. [3] during the same event, will investigate how the proposed paper prototypes and tangible properties can be translated into functioning prototypes, implemented with an IoT platform.

REFERENCES
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3. Christian Moll, Johannes Hermen, Valérie Maquil, Henrique Rangel, John-Nathan Hill. 2017. Prototyping Connected Tangible Interactions with Kniwwelino. CEUR Workshop Proceedings of the Third European Tangible Interaction Studio (ETIS).