1
The light bracelet consists of a curved RGB LED stripe and an elastic armlet with an Arduino microcontroller, a power supply, and a button.

1
A participant wearing the prototype. The light bracelet is worn on the wrist and the armlet with the electronics is attached to the upper arm.

ENTER

DEMO HOUR

NordiCHI´14 conference attendees got hands-on experience with a number of great new interactive systems. Among the accepted poster, video, and demo submissions, we selected the following four prototypes to illustrate the high-quality design research displayed during the conference, which was held in Helsinki, Finland, October 26–30, 2014.

Mikael Wiberg, Lily Diaz-Kommonen, and Anna Kolehmainen, NordiCHI´14 Poster, Video, and Demo Chairs

1. Presenting Information on Wrist-Worn Point-Light Displays

Wearable devices with small form factors create a need for simple displays that present information through single light spots. What should these displays look like and how should they present information in daily life? In this work we built a light bracelet to explore this question. It consists of an LED stripe, which is controlled by Arduino components sewn onto an elastic armlet. In a preliminary user study we investigated how participants experienced self-designed light patterns in their daily lives. From the results we derived implications for the design of light patterns on wrist-worn displays.

Fortmann, J., Müller, H., Heuten, W., and Boll, S. How to present information on wrist-worn point-light displays. *Proc. of the 8th Nordic Conference on Human-Computer Interaction.* ACM, New York, 2014.

Jutta Fortmann, University of Oldenburg,
→ jutta.fortmann@uni-oldenburg.de
Heiko Müller, OFFIS – Institute for Information Technology,
→ heiko.mueller@offis.de
Wilko Heuten, OFFIS – Institute for Information Technology,
→ wilko.heuten@offis.de
Susanne Boll, University of Oldenburg,
→ susanne.boll@uni-oldenburg.de

2
Gaze gestures performed on top of the simulated info table are followed by a gaze tracker in the bottom of the tablet computer.

2
Close-up of the haptic actuator attached to the temples of the glasses.

2. Haptic Gaze Interaction

Wearable computing devices such as smartwatches and smart glasses are becoming more widely available. These devices present new interaction challenges, as the devices are usually small and the context of use sets limitations on available interaction modalities. We are exploring the use of gaze as input and haptics as output for wearable devices. This demonstration allows users to experience the combination of gaze input and haptic output in the use of a bus schedule application. Links to such applications could be embedded in the environment, much like paper schedules have been used in the past.

http://www.uta.fi/sis/tauchi/projects/hagi.html

Kangas, J., Akkil, D., Rantala, J., Isokoski, P., Majaranta, P., and Raisamo, R. Gaze gestures and haptic feedback in mobile devices. *Proc. of the SIGCHI Conference on Human Factors in Computing Systems.* ACM, New York, 2014, 435–438.

Kangas, J., Akkil, D., Rantala, J., Isokoski, P., Majaranta, P., and Raisamo, R. Using gaze gestures with haptic feedback on glasses. *Proc. of NordiCHI EA 2014.* ACM, New York, 2014.

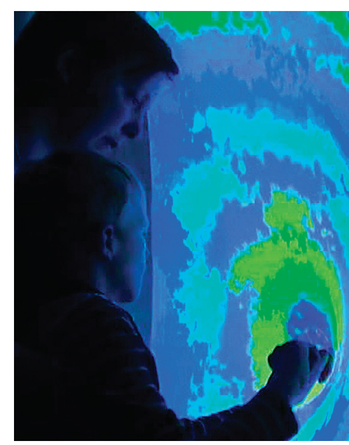
Jari Kangas, University of Tampere,
→ jari.kangas@uta.fi,
Deepak Akkil, University of Tampere,
→ deepak.akkil@uta.fi
Jussi Rantala, University of Tampere,
→ jussi.e.rantala@uta.fi
Poika Isokoski, University of Tampere,
→ poika.isokoski@uta.fi
Päivi Majaranta, University of Tampere,
→ paivi.majaranta@uta.fi
Roope Raisamo, University of Tampere,
→ roope.raisamo@uta.fi

3. Low-Cost Latency Measurement System for Eye-Mouse Software

One of the important characteristics of a window- and gaze-contingent tool is the speed of reaction to the pointer or eye movements and the update delay—the so-called latency—of the contingent response. Here we demonstrate a handy possibility for measuring the latency of gaze-contingent or mouse-based software. We present a low-cost latency-measurement system that can be useful for studies that include eye-movement tracking

3
A ball and a mirror are used to measure the delay between user input and screen update.

4
An interactive multisensory room helps awaken the senses of children.



tools. In our demonstration we use this system for measuring the latency of a gaze-contingent tool.

http://www.youtube.com/watch?v=eGKSeMrALcY&feature=youtu.be

Orlov, P. and Bednarik, R. Low-cost latency measurement system for eye-mouse software. *Proc. of the 8th Nordic Conference on Human-Computer Interaction.* ACM, New York, 2014, 1085–1088.

Pavel A. Orlov, University of Eastern Finland and St. Petersburg State Polytechnic University,
→ paul.a.orlov@gmail.com
Roman Bednarik, University of Eastern Finland,
→ roman.bednarik@uef.fi

4. SID—Sensuousness, Interaction, and Participation

The SID project is about Snoezelen, a method based on the use of a multisensory environment (room) designed to awaken children's interests. It offers them the opportunity to discover, explore, and experience at their own pace. It arouses curiosity and urges them to act, but it also offers a haven for relaxation. The purpose of the SID project is to further develop the Snoezelen concept, creating new opportunities for children with developmental disabilities to utilize today's interactive possibilities. For example, by adding microphones, speakers, subwoofers and a computer to a waterbed, any movement in the waterbed becomes a bodily dialogue with its inner "wavescape" of evolving sound layers, vibrations, and even infrasonic kicks in the water. SID aims to develop new possibilities for sensuousness, interaction, and participation through an interactive multisensory environment.

http://sid.desiign.org
http://vimeo.com/channels/193431

Larsen, H.S. and Hedvall, P-O. Ideation and ability: When actions speak louder than words. *Proc. of the 12th Participatory Design Conference: Exploratory Papers, Workshop Descriptions, Industry Cases.* 2012, 37–40.

Héctor A. Caltenco, Lund University,
→ hector.caltenco@certec.lth.se
Henrik Svarrer Larsen, Lund University,
→ henrik.svarrer.larsen@certec.lth.se
Per-Olof Hedvall, Lund University,
→ per-olof.hedvall@certec.lth.se

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