Living Interfaces: The Intimate Door Lock

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ABSTRACT
In this paper we introduce a new way to interact intimately with an automated system. The *Intimate Door Lock* investigates the psychological effects of intimate human-human interaction being applied to man-machine interfaces. The door lock, in our prototype, is installed at the inside of a domestic front door, and remains locked until given a kiss by its owner. In our prototype, the element to be kissed is a camera-augmented *mirror*, which we intended to use as a means of lowering the inhibition level.
This work is part of a larger series of experiments in the *Living Interfaces* project, exploring ways in which reduced life-like movements can be beneficial for Human-Machine Interaction.

Keywords
Human-Machine-Interaction, Interface Design, Intimate Interaction, Emotional Design, Kiss, Mirror

CONCEPT DESCRIPTION
In order to create more intuitive access to the increasingly complex technologies we regularly encounter, natural and emotional approaches of interactivity, which may simply resemble human-human interaction, seem to be fruitful ground. With the increasing importance of experience design [4] the idea of activating a user's emotions systematically [3] started to gain popularity. A notion of human-centred design arose that considered not only ergonomic handling and aesthetics, but also including human desires and values [7] within each object [13]. In this paper, we focus on one of these: Intimacy.

This may be divided into informational intimacy (as, for example, when sharing private details in a blog [15]) and bodily intimacy. With regard to the latter, it should be noted that a satisfying intrapersonal relationship needs balance [12] – as it is yet unexplored, investigating the transferability of this concept to man-machine interfaces might be a worthwhile objective of study. On condition for which Habermas coined the term of personal objects [6] and defined personified (such as personally named) objects that substitute a social partner – these may, in addition to offering a feeling of companionship, allow for opportunities of self-reflection.

Figure 1: Prototype; Door-mounted mirror with camera inside.

We were especially interested how the intimate act of kissing would emotionally affect the relationship of the user to the machine, and whether it would also change his perception of himself. Employing a mirror as the central interface, this particular experiment is focused on the latter.

> *„Whether technology helps us in attaining what we desire in our lives or not, there is no doubt it affects the ways in which we pursue our goals and aspirations, and the ways in which we see ourselves and others." [7]*

Our installation proposes a mirror as a door lock that needs to be kissed in order to open the door. This combines two aspects yet widely unexplored in Human-Computer Interaction: Kissing a Machine, and interacting with a mirror. Interestingly, they combine into kissing *oneself* as a means of interaction.

Kissing culture varies across different cultures [17]; it may range from a mother kissing her beloved child to the infamous kiss of a Mafia godfather. As an act of socializing, it is common in many cultures to represent close connectedness. Also in political affairs the kiss as a greeting is considered a symbol of friendship [5].

A survey of the Allianz Deutschland AG [2] about the German's kissing behaviour, conducted in June 2008, reveals the popularity of kissing. Most participants (87% of 508 participants) were convinced that kissing is good for psychological and physical health; which is why kissing might at some point of commercial interest for the health industry [9].

RELATED WORK

IDEO's 'Kiss Communicator' [4] is a small handheld-device to share intimate moments within physically separated couples. Users are able to send a 'kiss' by blowing into the device. The Kiss Communicator may also be squeezed to send a light glow to its counterpart. This style of interaction utilizes a intimate input, the breath, and metaphorically sends the kiss. However, the user is not kissing the device. The 'Kiss-Phone' [8], on the other hand, features this translation of action and meaning. It uses doll-lips and actual kisses as its input, detecting pressure, temperature, speed and sucking to simulate this kiss with the artificial lips on the partner's device, in order to measure and transmit *passion*. Yet, it is questionable if doll lips are the appropriate physical representation of a human partner. Alongside this project, the remarkable field of *Teledildonics* should be mentioned, sex toys that are (often remotely) controlled through a computer and actually sometimes with sensor input through the users body activities [11]. With learning more about ones own sexual preferences people gets more more confident with their bodies [16]. In contrast to the aforementioned projects the *Intimate Door Lock* is not a substitution; neither does it simulate a personality of its own. Rather than a solution, it poses a novel *situation* [18]. To kiss oneself before leaving home may improve one's mood and self-esteem. To test our assumptions in practice, we implemented a physical prototype.

PROTOTYPE AND USER STUDY

The initial *Intimate Door Lock* prototype consists of a box with a one-way mirrored front and a grid of three light barriers to detect a touching of the mirror (Fig. 1). It includes a video camera, taking a picture of each kiss. We substituted the door opening motor by manual control, using a 'Wizard of Oz' style simulation [10]. The prototype was built using the Arduino microcontroller board [1] and the Processing [14] development environment.

For an initial user test we installed the *Intimate Door Lock* box at the inner side of a domestic front door. Five users (four female, one male) aged 25-58, participated in this informal pilot study. The users were simply confronted with the situation, and asked to kiss the mirror to open the door. We observed that users who were unfamiliar with the concept were initially doubtful to kiss the mirror, and they kissed it more carefully. Later they reported, that they felt constraints because of the highly intimate interaction in a filmed and observed test situation and the ambiguity considering the door's or the mirror's reaction. All users left the flat smiling and in good mood (two of them basically because nothing harmful happened to them).

CONCLUSION

The pilot study indicates that it is possible to positively influence a user's mood with a system as the proposed – it is an enjoyable and delighting experience. Another thing we have learned from the user's comments was that intimate interaction requires an intimate atmosphere. People seem to have some constraints to kiss objects, even in a clearly non-sexual context, but it can easily be a fun style of interaction.

FUTURE WORK

To investigate the actual implications on self-reflection and establishment of relationships, a long term study is needed, possibly also examining intercultural differences. It would be especially worthwhile to compare self-kissing versus object-kissing, and other interaction styles incorporating a mirror. What is the limit of intimacy with technology? How does this limit change when the interface resembles oneself?

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