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Life in the Pocket:
The Ambient Life Project Life-Like Movements in Tactile Ambient Displays in Mobile Phones

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ABSTRACT

The work reported in this article is concerned with the relationship of the user to his mobile phone, especially with the habit of checking the mobile phone for missed events. We present two qualitative studies that have been conducted with mobile phones, symbolizing their status through life-like movements - breath and pulse. It was to be determined whether a continuous, rythmic and life-like signal would be eligible to ambiently express the phone's state. The results of the studies were mixed, as some users were simply annoyed by the permanent actuation, while others appreciated the functionality. The response times to occured events seem to be appropriate for an ambient display. The studies raised further questions, regarding the psychological and physiological consequences of such technology. [Article copies are available for purchase from InfoSci-on-Demand.com]

Keywords: Ambient Displays; Breath; Heartbeat Mobile Phone; Life-Like Actuation; Rhythm

INTRODUCTION

Nowadays, mobile phones are seamlessly integrated into our everyday lives. Being of high relevance for both social and individual needs, this form of telecommunication has brought along a series of implications for our daily routines, one of them is the need to *check* our phone occasionally (see Figure 1). Currently, in mobile phones, the state of *silence* is ambiguous: It does tell its user that 'nobody is calling right now', but it does not make a distinction between 'no missed events' and '2 missed calls and 1

Figure 1. Life in the pocket

missed text message'. As this information is often only shown on the phone's display, the phone needs to be visually checked. Certainly, the phone may ring and vibrate when an event is occurring, but most users are likely to miss one of these occasionally – a circumstance that often leads them into the habit of repeatedly checking their phones.

This draws an interesting parallel to the 1990s, when mobile phones were less widespread, and *Tamagotchi*™ digital pets resided in the pockets of their caretaking owners. Simulating pet-like needs (e.g. eating, being cleaned or playing), they also required to be checked at least occasionally. Nowadays, some mobile phones seem to receive even more care and attention than their egg-shaped predecessors: They are given names, adorably customized and placed into custom-made mobile phone chairs. They also often rest next to their owners' sleeping places – just in case. But where is the turning point between information and annoyance? Notification systems and status displays are an active research field of rapid development and high potential, especially with regard to these major issues of the information age: distraction and interruption. Projects in this area are concerned with the ideal timing for an interruption, (Adamczyk & Bailey, 2004) its effects on performance and anxiety (Bailey, Konstan, & Carlis, 2001) and context-specific notification styles (McCrickard & Chewar, 2003).

Various other projects have investigated the field of non-intrusive, ambient information in mobile contexts so far, including surface- and shape-based devices like the Tactophone (Horev, 2006) and the Dynamic Knobs phone (Hemmert, Joost, Knörig, & Wettach, 2008) and excitatory displays like Shoogle (Williamson, Smith, & Hughes, 2007). Mobile phones recently launched, such as the NEC Mobile FOMA 904i, feature a button for a 'tactile echo' of the phone: When the button is pressed, the phone will vibrate in a certain pattern, depending on its state (short vibration = nothing happened, two short vibrations = text message, one long vibration = missed call, etc.). While the principle itself is very efficient, as the phone can be checked through the pocket, the cognitive effort to 'decode' the vibration pattern is still considerably high. Other devices, such as some phones from the Motorola RAZR product range, offer periodical beeping after a missed event. Recently, novel psychosomatic syndromes have been reported, describing the erroneous perception of incoming calls: 'phantom vibration' and 'ringxiety'. The Ambient Life project is concerned with the creation of an ambient display for the mobile phone's status, in order to investigate possible solutions for