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**Crafting the Wearable Computer:
Design Process and User Experience**

Abstract

The purpose of the research described in this thesis was to develop a design methodology for Wearable Computing concepts that could potentially embody authenticity. The Wearables community, still firmly rooted in the disciplines of engineering and ergonomics, had made clear its aspirations to the mainstream market (DeVaul et al 2001). However, at this point, there was a distinct lack of qualitative studies on user perceptions of Wearable products. A review of the market research literature revealed significant consumer demand for authenticity in goods and services, and it was this need that drove the program of research.

The researcher's experience as a contemporary jeweller led her to question the positivist design processes of Wearable Computers. The 'borg'-like aesthetics that had come to characterise these products reflected their origins in the laboratory, and implicit configurations of the user appeared to be acting as a barrier to wider adoption. The research

therefore looked to Craft as a creative process with a fundamentally different working philosophy to begin building a new methodology for Wearables.

Literature reviews of authenticity and Craft were conducted to provide the theoretical framework necessary for a practice-led enquiry into the design process. Further empirical work was undertaken in the form of the comfortBlanket, a concept design project, and a small survey of makers to provide a set of protocols for craft informed design processes. Following this, a suite of wirelessly networked jewellery was designed for a friendship group of five retirement aged women, and built in collaboration with the Speckled Computing Consortium, Scotland.

The user centred methodology is informed by Actor Network Theory to account for the agency of the researcher and the event of task based analyses, and includes lifeworld analysis techniques drawn from a range of disciplines such as psychology and experimental Interaction Design. Three data sets collected over the course of two years were analysed using Grounded Theory, and a novel visualisation tool was developed to illustrate potential commitment to the novel concept designs. The methodology revealed a story of *what* the women made of the jewellery, *how* they enacted these understandings, and *where* this process took place. It was found that evaluating concept designs for the everyday and for authenticity require different approaches, and that the design process does not end with the user, but with a reflexive analysis by the designer or researcher. In many respects the proposed methodology inverts standard design practices, presenting as many questions as it seeks to resolve.

The methodology is presented as a contribution to emerging communities of practice around Wearable Computing, and to those developers seeking to position their products in the everyday. It is a challenging process that embodies authenticity in its post-structural treatment of functionality, the user and evaluation. Finally, the implemented wireless jewellery network

represented the first application of Speckled Computing, and it is anticipated that the theoretical frameworks arrived at will also be of interest to Interaction Design and Contemporary Craft.