Selected Papers of #AoIR2024:
The 25th Annual Conference of the
Association of Internet Researchers
Sheffield, UK / 30 Oct - 2 Nov 2024

MINDFUL AUTOMATION: TECHNOLOGY AND MEANING IN SMART HOMES

Naomi Jacobs
ImaginationLancaster, Lancaster University

Sejal Changede
ImaginationLancaster, Lancaster University

Adrian Gradinar
ImaginationLancaster, Lancaster University

Introduction

In 2011, William Webb imagined a ‘distant future’ home “perhaps 20 years or more away” (Webb, 2011) that included speculations such as personalised heating systems, news compilers, and automated grocery shopping. Less than 15 years later, these are somewhat recognisable features of our modern home life, though as Webb points out, such predictions are rarely entirely accurate. Nevertheless, our homes have long been the focus of automation through digital connectivity, which is likely to continue. Themes of efficiency and industry infuse narratives of the smart home, despite that homes are allegedly a respite from our working life. What is less examined are aspects of home life practice that seem to invite automation, but which have meaning beyond that of industry and productivity, feeding into our identity, spirituality, and mental wellbeing.

Takayama et al (2012) examined the meaning of automated technology in a home, referring to “Bruner’s sense of meaning-making as a culturally situated process that is often shared and communicated via narrative stories”. Rituals and embodied practice are a key form of meaning-making that we believe are under-considered when designing technologies for home automation. Cheshner (2019) describes interaction with smart speakers as ‘invocationary acts’, comparative to ritual invocation addressing a sublime non-human other. We might thus potentially describe a call of ‘Hey Siri’ as a new ritual directed by home-based technology. In this paper we interrogate what ritual might mean in such a technological context and suggest that we should further examine how existing ritual and meaning-making might be negatively – or positively – impacted

Suggested Citation (APA): Jacobs, N., Changede, S., Gradinar, A. (2024, October). *Mindful automation: technology and meaning in smart homes*. Paper presented at AoIR2024: The 25th Annual Conference of the Association of Internet Researchers. Sheffield, UK: AoIR. Retrieved from http://spir.aoir.org.

by automation and home-based connected digital technology. We also examine how new rituals and meaning-making might be 'automated in' using these technologies. We ask: *how is value and meaning in embodied ritual practice impacted by intervention with digital technologies in the home?*

Automated ritual and meaning

Automation of ritual and meaningful practice in the home context is not new and is often connected directly with religious practice. For example, Woodruff et al. (2007) describes the use of automation by Orthodox Jewish households to facilitate observation of the Sabbath by taking over functions that people are forbidden from doing themselves during this period. Such technological intervention by Orthodox Jews has been common for decades, with e.g. time switches being used to turn lights and ovens on and off at appropriate times. Woodruff et al. (ibid) report how users feel that this usage enhances the spiritual experience of the Sabbath by maintaining spiritual distance from the working week while also retaining modern conveniences. However, these systems replicate utilitarian functions of the home to make room for the spiritual, rather than replacing existing ritual practices.

Functionality is often a primary consideration in home automation; for example, Takayama et al.'s (2012) work is structured around functions including security, energy, lighting etc. Automation identifies an output (e.g. a clean floor) and considers how to achieve this without requiring input from the human actor, for example using a Roomba vacuum cleaner. However, many activities and practices, particularly those with ritual or religious significance, have meaning beyond the practical output. While tangible external outputs may exist, there may also be internal, intangible outcomes through which the action of embodied practice, carrying out the ritual itself, provides benefit to the actor. For example, the Lakshmi jhadu (grass broom) in rural Indian households is used each morning by the female householder to clean the courtyard and porch. This action removes the dirt, but also has ritual, spiritual significance, being associated with the feminine and the goddess of wealth and prosperity (Changede et. al. 2023). Instructing a Roomba negates the embodied physical action that is the expression of welcoming prosperity, and which can have its own health benefits.

Such embodied experience of going through physical actions cannot be shortcut. While purchasing a pre-made version of a particular beloved childhood foodstuff may evoke sense memories and provide sustenance, it lacks the experience of cooking it with a family member, which may take many hours and involve all the senses. Markum et al. (2024), in categorising intersections between technology design and religious and spiritual practice, emphasise "the importance of tangibility and embodiment in technology-mediated practices for [religious and spiritual] contexts." They note that such practices are often about making tangible the intangible and highlight this embodiment as a potential opportunity for HCI research. Similarly, Noble (1999) suggests that technology has historically been imbued with a sense of divine purpose, becoming a means of bridging the gap between the mundane and the sacred. We suggest this extends beyond religion to wider ritualistic practice. Complexity in the process itself and taking each step thoughtfully is often the basis of ritual action whether based on

religious practice or other sources of meaning-making. For example, consider the practice of making an audio ‘mix-tape’, a common practice during the 1980s and 1990s. a practice that involved considerate time and investment from the creator, also recognised and appreciated by the recipient. The Physical Playlist (Burnett et al. 2015) is an example of a project that aimed to recreate this embodied experience of making a mix-tape, to challenge the prevalence of digital (streaming) listening experiences, wherein the practice of making and curating a playlist requires significantly less time and effort. This project resurfaces the meaningful experience that embodied ritualistic practice brings (recording the tape), that had been lost through technological advancements.

Borrowing principles of ritual practice from religion for increasing meaning and value has also been suggested by Hammer (2020) who suggests that "as HCI researchers, this principle [Ma’alin b’kodesh] might help us design for sustainability. What if things became holier the more we used them? What if the value of used objects went up instead of down? What if we had better rituals to celebrate the end of an object’s life?". Our proposed project suggests Research through Design exploration and the creation of speculative smart home interventions in order to provoke questions of ritual and meaning.

Conclusion

We concur with Markum (2024) that HCI and internet research fields will benefit from further research into connected technology interacting with embodied experience and ritual in home practice. As design researchers, we contend that understanding how value and meaning interact with embodied practice and automation in smart homes should be Design-led. Here, we agree with Sudjic (2009) that Design Research helps make sense of a quickly evolving world by providing ways to investigate “complex social, environmental and cultural challenges” (Rogers et al., 2019). This complex area of study requires a methodological framework focused on finding and understanding the challenges rather than solving them (Malpass, 2017). We, therefore, propose a Research through Design methodology aimed at developing research through the action of the design process, incorporating speculative approaches; ritual is multi-sensory and embodied, and design fiction (Bleeker, 2009) allows an embodied and tangible interaction with technologies and experiences that do not yet exist. As Levy (2016) argues, mindful interaction with technology has the potential to deepen our engagement and sense of presence, much like religious and spiritual rituals.

Throughout this research programme, we will explore the connections between embodied ritual practices and meaningful home life, and the value which automation might bring beyond the functional, industry, and efficiency-focused framework of much current thinking in terms of smart homes.

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