

The Paradox of Connection: Examining IoT-Enabled Solitude and User Autonomy in Smart Home Product Design

Chung Yin Yu

Technological and Higher Education Institute of Hong Kong

Abstract

The proliferation of IoT devices in smart homes promises enhanced convenience and connectivity, yet for individuals living alone, these technologies introduce complex social and ethical considerations, particularly concerning privacy, autonomy, and potential dependency. This paper delves into the paradoxical nature of IoT-enabled solitude, analyzing how student designs for air purifying products intended for solitary users navigate the balance between technological integration and human-centric values. Using student design solutions as case studies, we explore how designers conceptualize user control over data collection, personalize interaction without intrusive monitoring, and empower individuals through smart features rather than creating new forms of passive consumption. The research scrutinizes the proposed IoT functionalities (e.g., app-based controls, data analytics, integration with other smart home systems) through the lens of social science theories concerning privacy, digital well-being, and the ethics of technology. By dissecting the design choices, we aim to uncover best practices and potential pitfalls in crafting smart products that genuinely support the autonomy and privacy of solitary individuals, fostering a sense of secure and empowered living rather than digital surveillance.

Keywords: IoT; Solitude; User Autonomy; Smart Home Design; Privacy