Designing Meaningful Privacy Choice Experiences for Users

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Carnegie Mellon University

"Notice and Choice"



Privacy choices are often difficult to find, overly simplified, and even manipulative.





Difficult to find on user interfaces

Overly simplified into binary choices

Manipulative using "dark patterns"

"Dark Patterns" in Privacy Choice Design

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\rightarrow choice pre-selection

Lack of Guidance for Practitioners













A technology review

A user-centered analysis







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Description

The Mobile Commerce Lab has a bluetooth beacon-based location tracking service for registered lab members. It can track if a lab member is in the lab room (TCS Hall 431) and share their location info with other lab members. Registered lab members can opt out of data collection or data sharing by this service.





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Type

- binary choice
- multiple choices
- contextualized choices
- privacy rights-based choices







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Functionality

- Presentation (of privacy choices)
- Enforcement (of privacy decisions)
- Feedback (of privacy choice status)







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Timing

- at setup
- just in time
- context-aware •
- periodic
- on-demand ullet
- personalized •



The first time \checkmark By selecting 'The first time' you will only be notified the first time data collection takes place Only notify me about On collection of personally identifiable data DATA COLLECTION CATEGORIES TO **NOTIFY ABOUT** $\widehat{\mathbf{0}}$ Ċ Health Biometri.. Audio Presence 9 Æ Unique ID Environ... Other Location Select All

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Channel

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• Primary

- Secondary (an app)
- Public (*QR codes*)

Discover and control IoT data collected about you

IoT Privacy Assistant







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Use Case: Designing a *privacy choice platform* for deployed Internet of Things (IoT) - the **IoT Assistant** app

Free

Modality

- Visual
- Auditory
- Haptic and other sensory
- Machine-readable
- Combined



VoiceOver & TalkBack





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Summary of Contributions

- A conceptual framework and a taxonomy for meaningful privacy choices
- A comprehensive guide to design meaningful privacy choices experiences for users





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