

This manuscript has recently been accepted for publication in the "ACM Transactions on Internet of Things (TIOT)." The official link will be made available soon.

- The current bibliographic citation:
Al Muhandar, B., Jason Wiese, Omer Rana, and Charith Perera. (2023). Interactive Privacy Management: Towards Enhancing Privacy Awareness and Control in Internet of Things , 1-34. (To appear)
- We have uploaded the manuscript at:
<https://iotgarage.net/publications/pdfs/BayanPaper01.pdf>

Abstract:

The balance between protecting user privacy while providing cost-effective devices that are functional and usable is a key challenge in the burgeoning Internet of Things (IoT). While in traditional desktop and mobile contexts, the primary user interface is a screen, in IoT devices, screens are rare or very small, invalidating many existing approaches to protecting user privacy. Privacy visualisations are a common approach for assisting users in understanding the privacy implications of web and mobile services. To gain a thorough understanding of IoT privacy, we examine existing web, mobile, and IoT visualisation approaches. Following that, we define five major privacy factors in the IoT context: (i) type, (ii) usage, (iii) storage, (iv) retention period, and (v) access. We then describe notification methods used in various contexts as reported in the literature. We aim to highlight key approaches that developers and researchers can use for creating effective IoT privacy notices that improve user privacy management (awareness and control). Using a toolkit, a use case scenario, and two examples from the literature, we demonstrate how privacy visualisation approaches can be supported in practice.