

Time-constrained access control for mobile devices

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ABSTRACT In this thesis, a novel concept to unlock smartphones was elaborated. It enables an alternative time-constrained session on the smartphone for short access. Before the concept was developed, existing research about smartphone usage, unlock behaviors and non-standard unlock methods was explored. The final concept was implemented as an installable Android application afterwards. The prototype application called SnapApp combines the two already known unlock methods PIN and slide-to-unlock in one lockscreen. The user can decide to either get full access by prompting PIN or to get constrained short access by using slide-to-unlock. A longitudinal field study was conducted by installing the prototype on the smartphones of 18 participants, who tested the new lockscreen for a duration of 30 days. Results revealed that SnapApp was able to reduce PIN prompts by 20% in total, which also saved valuable time. The security was not impaired, as the majority of the users has individually configured the maximum session lengths, the expirations of available short sessions and the blacklists, which contain apps protected of usage during short access. This was also confirmed by the feedback questionnaires of the study. SnapApp can be adapted to different user needs and was thereby equally accepted by PIN, pattern and swipe users. Besides, the prototype requires no further hardware or sensors and can thus be installed on any Android smartphone.

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