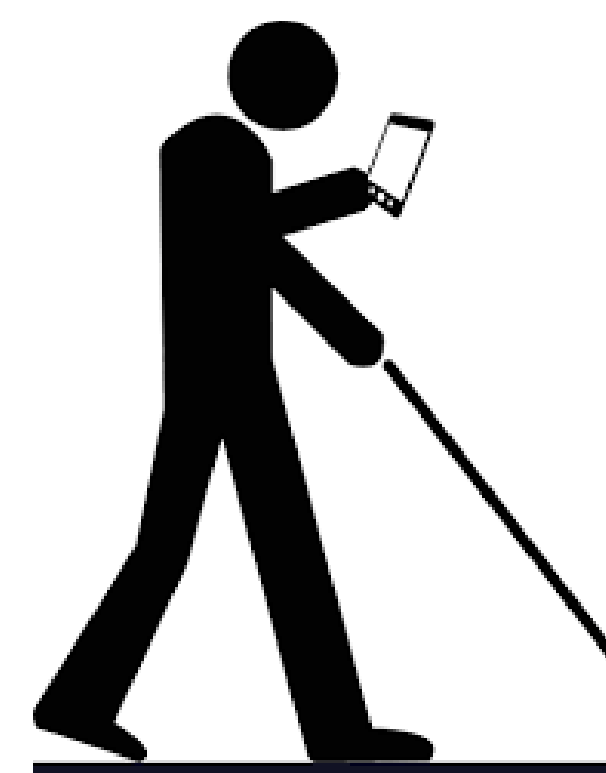
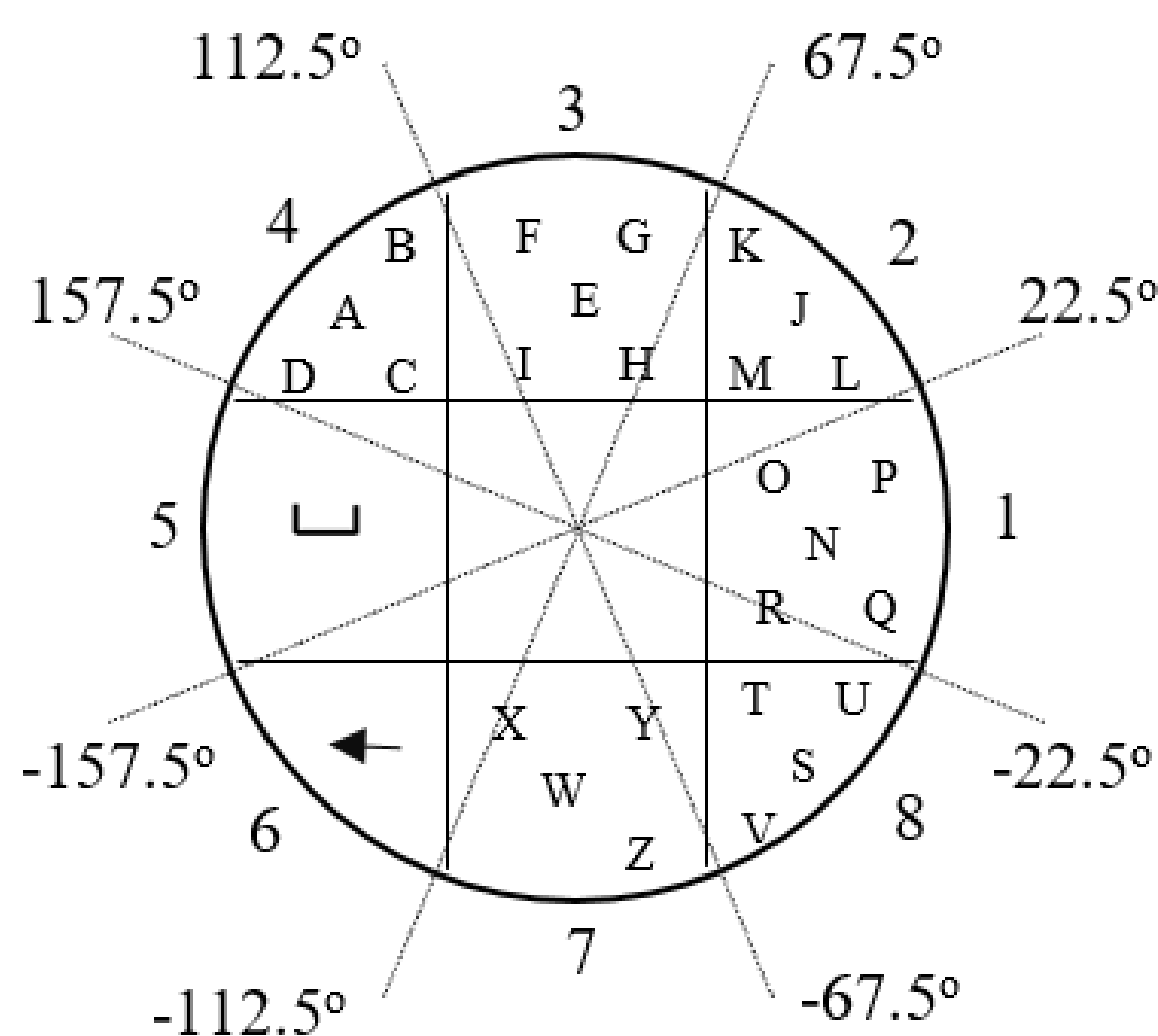


Implicit One-handed Mobile User Authentication by Induced Thumb Biometrics on Touch-screen Handheld Devices



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- Mobile users often interact with devices with one hand, even when both hands are available.
- One-handed MUA faces the challenges of limited thumb mobility and occultation.
- Mobile user authentication (MUA) methods in general face a security-usability tradeoff.
- Traditional password-based MUA methods are subject to shoulder-surfing attacks.
- The process of MUA distracts the user's attention.
- Provide new design principles for improving one-handed interaction with a mobile device.
- Improve the accessibility and usability of MUA by providing sight-free and keypress-less interactions.
- Propose a framework for one-handed MUA that coherently supports both point-of-entry and continuous MUA.
- Provide mobile users with safeguarding mechanism against multiple security threats.
- Address the security-usability tradeoff by enabling implicit one-handed MUA on touch screen mobile devices.
- Induce thumb biometrics that provides harmonized supports to both one-handed point-of-entry and continuous MUA.
- Enable sight-free MUA through the design of a keypress-less text entry method.
- Introduce touch gesture based behavioral biometrics that effectively guards users against shoulder-surfing attacks.
- Improve the accessibility of MUA for users with hand or vision impairments.
- The interdisciplinary nature of this work will promote training and education in mobile security and privacy, human-computer interaction, behavioral science, machine learning, and mobile accessibility.
- This project improves the participation and increases awareness of MUA among diversified groups of users, including two participants with visual impairments, 13 participants who received secondary education only as well as participants of various age groups.

