Mapping Security in Localisation: A New Taxonomy



In today's world, a growing number of applications depend on accurate location and proximity information to provide essential services such as asset tracking, geofencing, automated interactions between robots, user-friendly access control, and more. This rising demand has led to the development and adoption of various ranging techniques across multiple standards, including Ultra-wideband (UWB) protocols (IEEE 802.15.4z), Wi-Fi Fine Timing Measurement (FTM) protocols (IEEE 802.11mc/az/bk), 5G NR Positioning, and Bluetooth 6.0.

While the primary focus of these advancements has been on improving accuracy, the security of these localisation techniques remains a critical concern. This thesis aims to explore the landscape of security proposals within localisation technologies, creating a comprehensive taxonomy that categorises and analyses existing security approaches. This taxonomy will serve as a framework for understanding the current state of localisation security, identifying strengths, weaknesses, and potential areas for further research and innovation.

Basic knowledge of wireless communication and an understanding of localisation techniques are desirable. The outcome of this research should not only provide a clear taxonomy of the security challenges in localisation but also suggest future directions for developing more robust and secure localisation systems.

Practicalities

Promotor:	Bart Preneel
Daily supervisor:	Nikola Antonijević nikola.antonijevic@esat.kuleuven.be office B01.17
Nature of the work:	40% literature, 40% theoretical work, 20% software
Number of students:	1

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