Secure Distance Bounding Protocol on Ultra-WideBand Based Mapping Code

Authors : Jamel Miri, Bechir Nsiri, Ridha Bouallegue

Abstract : Ultra WidBand-IR physical layer technology has seen a great development during the last decade which makes it a promising candidate for short range wireless communications, as they bring considerable benefits in terms of connectivity and mobility. However, like all wireless communication they suffer from vulnerabilities in terms of security because of the open nature of the radio channel. To face these attacks, distance bounding protocols are the most popular counter measures. In this paper, we presented a protocol based on distance bounding to thread the most popular attacks: Distance Fraud, Mafia Fraud and Terrorist fraud. In our work, we study the way to adapt the best secure distance bounding protocols to mapping code of ultra-wideband (TH-UWB) radios. Indeed, to ameliorate the performances of the protocol in terms of security communication in TH-UWB, we combine the modified protocol to ultra-wideband impulse radio technology (IR-UWB). The security and the different merits of the protocols are analyzed.

Keywords : distance bounding, mapping code ultrawideband, terrorist fraud, physical layer technology

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