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A Review of Ultralightweight Mutual Authentication Protocols

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Abstract : Radio Frequency Identification (RFID) is one of the most commonly used technologies in IoTs and Wireless Sensor Networks which makes the devices identification and tracking extremely easy to manage. Since RFID uses wireless channel for communication, which is open for all types of adversaries, researchers have proposed many Ultralightweight Mutual Authentication Protocols (UMAPs) to ensure security and privacy in a cost-effective manner. These UMAPs involve simple bitwise logical operators such as XOR, AND, OR & Rot, etc., to design the protocol messages. However, most of these UMAPs were later reported to be vulnerable against many malicious attacks. In this paper, we have presented a detailed overview of some eminent UMAPs and also discussed the many security attacks on them. Finally, some recommendations and suggestions have been discussed, which can improve the design of the UMAPs.

Keywords : RFID, Ultralightweight, UMAP, SASI
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