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ACEIoT

Position-independent and Section-based Source Location Privacy Protection in WSN

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Abstract:

Privacy of critical locations (or events) is essential when monitored by Wireless Sensor Networks. To mitigate such issues, in this paper a new privacy protection technique
named Position-independent and Section-based Source Location Privacy (PSSLP) is developed. A biased random walk and greedy walk using a three- or four-phase routing strategy is
employed here, where the number of phases depends on the network segment in which the source is situated. The biased random walk is intended to send packets away from the source
of information and make routing paths appear dynamic to the eavesdropper, whereas, the greedy routing ensures that the packets converge at the base station. The objective of the solution is to achieve a uniform amount of privacy irrespective of the position of the asset in the network without compromising the network lifetime. Performance evaluation is done using developed analytical models and simulation results reveal that PSSLP achieves 8247.06- and 33.0- folds improvement in terms safety period and NLT respectively compared to no source
location privacy (SLP) protection technique (i.e., shortest path routing (SPR) technique).
Index Terms— Source Location Privacy, WSN, Position independent, Section-based, Passive Attacker, Evaluation, IoT

Seminar date:

Friday, 15th July 2022

Time:

10:00-11:00 am

Mode:

Virtual