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Dataset for authentication and authorization using physical layer properties in indoor environment
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Abstract

The proliferation landscape of the Internet of Things (IoT) has accentuated the critical role of Authentication and Authorization (AA) mechanisms in securing interconnected devices. There is a lack of relevant datasets that can aid in building appropriate machine learning enabled security solutions focusing on authentication and authorization using physical layer characteristics. In this context, our research presents a novel dataset derived from real-world scenarios, utilizing Zigbee Zolertia Z1 nodes to capture physical layer properties in indoor environments. The dataset encompasses crucial parameters such as Received Signal Strength Indicator (RSSI), Link Quality Indicator (LQI), Device Internal Temperature, Device Battery Level, and more, providing a comprehensive foundation for advancing Machine learning enabled AA in IoT ecosystems. © 2024

Author Keywords

Authentication; Authorization; Internet of things.; LQI; Machine learning; Physical layer; RSSI; Security

Index Keywords

Authentication, Authorization, Machine learning, Network layers; Authentication and authorization, In-buildings, Indoor environment, Internet of thing., Link quality indicators, Machine-learning, Physical layer properties, Physical layers, Received signal strength indicators, Security; Internet of things

References

- Moradbeikie, A., Zare, M., Keshavarz, A., Lopes, S.I.
RSSI-based LoRaWAN dataset collected in a dynamic and harsh industrial environment with high humidity
(2024) *Data Br.*, 53.
- Faris, M., Mahmud, M.N., Salleh, M.F.M., Alnoor, A.
Wireless sensor network security: a recent review based on state-of-the-art works
(2023) *Int. J. Eng. Bus Manag.*, 15, pp. 1-29.
- Janssen, T., Koppert, A., Berkvens, R., Weyn, M.
A Survey on IoT positioning leveraging LPWAN, GNSS, and LEO-PNT
(2023) *IEEE Internet Things J.*, 10, pp. 11135-11159.
- Almomani, I., Al-Kasasbeh, B., Al-Akhras, M.
WSN-DS: a dataset for intrusion detection systems in wireless sensor networks
(2016) *J. Sens.*, 2016.
- Istiaque Ahmed, K., Tahir, M., Hadi Habaebi, M., Lun Lau, S., Ahad, A.
Machine learning for authentication and authorization in iot: taxonomy, challenges

and future research direction

(2021) *Sensors*, 21, pp. 1-34.

- Moradbeikie, A., Keshavarz, A., Rostami, H., Paiva, S., Lopes, S.I.
Improving LoRaWAN RSSI-based localization in harsh environments: the harbor use case
(2023) *11st World Conference on Information Systems and Technologies*, p. 2023.
- Spachos, P.
RSSI dataset for indoor localization fingerprinting 2020.

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