The Rise of Secure IoT: How Blockchain is Enhancing IoT Security

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Abstract: *The convergence of the Internet of Things (IoT) and blockchain technology is revolutionizing the field of security. IoT devices are becoming increasingly prevalent in our daily lives, from smart homes to wearable technology, but they also pose a significant risk to cybersecurity. Blockchain technology offers a decentralized, tamper-proof network that can enhance the security of IoT devices. By creating secure identities, communication channels, and transactions, blockchain can protect IoT devices from potential cyber-attacks. This paper explores the advantages of using blockchain to enhance IoT security and highlights the potential of this technology to create a safer and more secure IoT ecosystem.*

Keywords: Internet of Things(IoT), Blockchain, Security

REFERENCES

[1]. Zhang, Z., Jiang, X., Chen, H., & Chen, S. (2020). Blockchain-based secure and efficient data sharing for industrial internet of things. IEEE Transactions on Industrial Informatics, 16(3), 2138-2146.

[2]. Dorri, A., Kanhere, S. S., &Jurdak, R. (2017). Blockchain in internet of things: Challenges and solutions. In 2017 IEEE international conference on pervasive computing and communications workshops (PerCom Workshops) (pp. 618-623). IEEE.

[3]. Zheng, Z., Xie, S., Dai, H.-N., Chen, W., & Wang, H. (2018). An overview of blockchain technology: Architecture, consensus, and future trends. IEEE Transactions on Big Data, 5(3), 325-339.

[4]. Wang, S., Yang, Y., Zhang, Y., & Zhang, Y. (2019). Blockchain-based secure firmware update for internet of things devices. Future Generation Computer Systems, 95, 556-565.

[5]. Ouaddah, A., Abou Elkalam, A., & Ait Ouahman, A. (2019). Blockchain-based security and privacy for medical IoT. IEEE Access, 7, 102685-102695.

[6]. Mahalaxmi, G., and T. Aditya Sai Srinivas. "Data Analysis with Blockchain Technology: A Review." IUP Journal of Information Technology 18, no. 2 (2022): 7-23.

[7]. Li, X., Yang, Y., Zhang, Y., & Zhu, L. (2020). A lightweight blockchain-based protocol for secure IoT communications. IEEE Access, 8, 180337-180347.

[8]. Khan, M. F. A., Hussain, M., & Salah, K. (2021). Blockchain-based secure and privacy-preserving IoT data sharing: A survey. IEEE Internet of Things Journal, 8(5), 3627-3652.

[9]. Han, Y., Li, L., Chen, W., & Chen, X. (2021). Blockchain-enabled secure and decentralized energy trading for IoT-based microgrids. IEEE Internet of Things Journal, 8(4), 2043-2054.

[10]. Suresh, R., Ganapathy, S., & Varalakshmi, P. (2021). Secure blockchain-based energy management system for IoT enabled smart homes. In 2021 3rd international conference on innovative computing and communication (ICICC) (pp. 448-453). IEEE.

[11]. Al-Turjman, F., & Khalil, I. (2021). Towards blockchain-based secure and privacy-preserving smart healthcare system for IoT: A survey. Journal of Medical Systems, 45(2), 1-24.

[12]. Mahalaxmi, G., R. Varaprasad, and T. Aditya Sai Srinivas. "Blockchain Solutions for IoT Devices Against DDoS Attacks: A Review." IUP Journal of Information Technology 18, no. 4 (2022): 25-46.

[13]. Alzahrani, A. I., Alharbi, F. H., &Alzahrani, M. A. (2020). Blockchain technology for secure IoT communication: A comprehensive survey. IEEE Access, 8, 163648-163670.

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[14]. Dinh, T. T. A., Liu, D., Zhang, M., Li, G., & Chen, G. (2018). Untangling blockchain: A data processing view of blockchain systems. IEEE Transactions on Emerging Topics in Computing, 7(4), 556-568.

[15]. Tahir, M., & Mehmood, Z. (2021). Blockchain-enabled secure and private edge computing for the internet of things. IEEE Internet of Things Journal, 8(8), 6471-6484.

[16]. Srinivas, T. "Aditya Sai et MANIVANNAN, SS Prevention of hello flood attack in IoT using combination of deep learning with improved rider optimization algorithm." Computer Communications (2020).

[17]. Dubovitskaya, A., Xu, Z., Ryu, S., & Schumacher, M. (2019). Secure and trustable blockchain-based electronic health records sharing system. In Proceedings of the 2019 IEEE International Conference on Healthcare Informatics (ICHI) (pp. 1-9). IEEE.

[18]. Singh, R., & Han, K. (2020). Blockchain-based secure and efficient data sharing for IoT-enabled healthcare systems. Journal of Medical Systems, 44(6), 1-16.

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