# Article information:

Trust Management in Decentralized IoT Access Control System | IEEE Conference Publication | IEEE Xplore  
<https://ieeexplore.m7h.net/abstract/document/9169481>

# Article summary:

1. The article discusses the need for a lightweight, scalable, and trustworthy access control system for IoT environments that can protect against unauthorized access and detect compromised nodes.

2. The proposed solution is a blockchain-based Trust and Reputation System (TRS) that evaluates and calculates the trust and reputation score of each participating node to achieve a self-adaptive and trustworthy access control system.

3. The TRS incorporates trust and reputation in the attribute-based access control policy, resulting in dynamic access control policies, and is designed to be robust against manipulations of unauthorized or malicious entities.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article "Trust Management in Decentralized IoT Access Control System" proposes a blockchain-based Trust and Reputation System (TRS) for IoT access control to achieve a self-adaptive and trustworthy access control system. The proposed architecture incorporates trust and reputation in the attribute-based access control policy, allowing different nodes to be assigned different access right levels, resulting in dynamic access control policies. The authors implement their proposed architecture in a private Ethereum blockchain comprised of a Docker container network and benchmark their solution using various performance metrics.

Overall, the article provides a comprehensive overview of the proposed TRS for decentralized IoT access control. However, there are some potential biases and missing points of consideration that need to be addressed. Firstly, the article assumes that there is no privacy issue associated with the attributes stored on the blockchain, as they are assumed to be publicly available in the smart building specifications. However, this assumption may not hold true for all IoT scenarios where privacy concerns may arise.

Secondly, while the article highlights the advantages of incorporating trust management in decentralized access control systems, it does not explore potential counterarguments or limitations of such an approach. For instance, it is unclear how well the proposed TRS would perform in large-scale IoT deployments with millions of nodes.

Thirdly, while the authors claim that their proposed TRS is designed to be robust against manipulations of unauthorized or malicious entities by incorporating blockchain technology and signature-based detection, they do not provide evidence or examples to support this claim.

Finally, while the article presents a proof-of-concept implementation of their proposed framework in a private Ethereum network and benchmarks its performance using various metrics, it does not provide any information on possible risks associated with implementing such a system or how these risks can be mitigated.

In conclusion, while the article provides valuable insights into incorporating trust management in decentralized IoT access control systems using blockchain technology, there are potential biases and missing points of consideration that need to be addressed before implementing such systems at scale.

# Topics for further research:

* Privacy concerns in IoT access control systems
* Limitations of incorporating trust management in large-scale IoT deployments
* Security risks associated with blockchain-based access control systems
* Examples of unauthorized or malicious entity manipulations in access control systems
* Mitigating risks in blockchain-based access control systems
* Best practices for implementing blockchain-based access control systems in IoT environments

# Report location:

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