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| **Title:** | Enhancing Electoral Integrity: A Multi-layered Approach to Electronic Voting Security Using Arduino and Biometric Authentication | | |
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| **Published Journal Name:** | Proceedings of the 2024 5th International Conference on Data Analytics and Management (ICDAM) | | |
| **Type of Publication:** | Conference Proceedings | | |
| **Volume:** | 3 | Issue | - |
| **Publisher:** | Springer | | |
| **Publication Date:** | 13 April 2025. | | |
| **ISSN:** | Series ISSN: 2367-3370; Softcover ISBN: 978-981-96-3357-9 | | |
| **DOI:** | https://doi.org/10.1007/978-981-96-3358-6\_47 | | |
| **URL:** | https://link.springer.com/chapter/10.1007/978-981-96-3358-6\_47 | | |
| **Other Related Info.:** | Proceedings URL: <https://link.springer.com/book/10.1007/978-981-96-3358-6>  Conference Link: <https://icdam-conf.com/>  Place: London Metropolitan University, London, UK, pp. 643–654, Conference Date: 14-15 June 2024. | | |

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| **Abstract:** |
| Abstract— Today’s electronic voting machines are involved in a range of problems related to the increased complexity of procedures, efficient hackers, and misuse of data. In these conditions, the trustworthiness and openness of elections may not be ensured, and the introduction of a secure approach to utilizing electronic voting will be relevant. The paper discusses the Multi-Layered Approach to Electronic Voting Security, which combines biological, cryptographic, and physical elements to enhance reliability and transparency. It emphasizes the importance of biometric and RFID verification, machine learning algorithms, and SHA-256 for voter data privacy and integrity. The proposed method aims to address the challenges of fraud avoidance and maintaining vote integrity and provides a stronger foundation for administering credible and honest elections in future. The study aims to demonstrate the effectiveness of the multi-layered approach in fraud avoidance and maintaining vote integrity, as well as create, plan, and assess the method. In this way, the present issue can be tackled with the proposed method, which would address the present issue by providing a stronger foundation for credible and honest elections. The study demonstrates the effectiveness of the multi-layered approach in fraud avoidance and maintaining vote integrity and includes the creation, planning, and assessment of the method. |