Submission Summary

Conference Name

International Conference on Artificial Intelligence and Sustainable Innovation - 2025

Track Name

Track 12: Session on Recent Advancements and challenges in Futuristic Technologies

Paper ID

1610

Paper Title

Web Enabled Fingerprint Based Electronic Voting Machine for Private Communities

Abstract

: With the beginning of the Internet age, secure and trustworthy elections are now
more important than ever before, especially in the case of private communities such as housing
estates, clubs, and schools. Traditional voting machines will sooner or later become victims of
impersonation, duplicate voting, and lack of transparency, giving rise to doubts in the minds of
the voters. To counteract all these maladies, this paper proposes the development and design
of a Web-Enabled Fingerprint-Based Electronic Voting Machine (EVM) specifically for private
communities.The fundamental idea of this system is the implementation of biometric
authentication, i.e., fingerprint authentication, to enhance the security and integrity of the voting
process.
Fingerprint-based, the system ensures the "one person, one vote" ideology and effectively
eliminates impersonation attacks, double voting, and unauthorised access. Since fingerprints
are unique
to an individual and can't be easily copied, they are a powerful solution to the majority of
vulnerabilities faced by current systems of voting.The architectural structure is divided into two
general
aspects: the hardware component and the web interface. The hardware component comprises a
fingerprint reader connected to a microcontroller, which takes the first capture and verification of
a voter's identity. Once the fingerprint of a voter has been verified, the system grants access to
the
electronic ballot through a secure online portal. This system not only makes the process of
voting
simple but also safely stores and keeps votes in a centralized database.The feature of this EVM
most advertised is that it is web-enabled.

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Authors

Rajat Kishor Varshney (Greater Noida Institute of Technology)
<rajatvarshney1207@gmail.com>

Renu kaushik (Greater Noida Institute of Technology) <Renu.gauri@gmail.com>

Brijesh Nishad (Greater Noida institute of technology) <bnlv1212@gmail.com>

Aayush Pandey (Greater Noida Institute of Technology) <vipulrai419@gmail.com>

Submission Files

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