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Smart Voting System using Face Recognition and Fingerprint Biometrics with Dual Authentication

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Abstract: *The traditional voting system faces challenges such as impersonation, fake voting, and long queues, which compromise security and efficiency. To address these issues, this project proposes a Smart Voting System using advanced biometric authentication techniques, including face recognition and fingerprint verification, integrated into a user-friendly HTML, CSS-based GUI. The system leverages Deep Learning algorithms for accurate and real-time face detection and recognition using OpenCV and convolutional neural networks (CNNs). In parallel, fingerprint verification ensures an additional layer of security, making it a dual-authentication system to prevent fraudulent voting. The GUI, developed using HTML,CSS, allows for a seamless user experience—from identity verification to vote casting. This dual-biometric approach ensures that each voter is uniquely identified, thereby eliminating duplicate or unauthorized voting. The system is designed for scalability, allowing deployment at polling booths, institutions, or remote voting setups.*

Keywords: OpenCV Dlib, CNN, Flask

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