**ABSTRACT**

**BIOMETRIC SECURITY**

**Enhancing the security and reliability of biometric authentication systems.**

Biometrics is one of the authentication methods which verifies identity by analyzing unique physiological and behavioral features such as fingerprints, facial recognition, iris scans, voice recognition, and handwritten signatures to authenticate individuals. This method is more convenient and secure than traditional authentication techniques. Biometric systems are incredibly difficult to hack due to the extreme complexity and randomness of biometric data. Nevertheless, improving the security and dependability of biometric systems is essential to achieving their full potential. This study examines methods for strengthening biometric systems, such as using liveness detection, multi-factor authentication (MFA) and advanced algorithms to increase accuracy and prevent fraud. To guarantee continued security and system integrity, focus on the importance of continuous authentication, adaptable performance in all kinds of environmental situations, and periodic system audits. This abstract provides an idea for creating biometric security solutions that are more safe, dependable, and easy to use to lessen the possibility of unwanted access and safeguard private information. The primary concern in Biometric usage is Privacy issues regarding the storage and use of sensitive biometric data, potential for inaccuracies depending on the technology and it could be expensive to implement, especially for smaller organizations or use cases where manual methods are sufficient.

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