

Biometric verified authentication of Automatic Teller Machine (ATM)

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Abstract. Biometric authentication has become an essential part of modern-day security systems, especially in financial institutions like banks. A face recognition-based ATM is a biometric authentication system, that uses facial recognition technology to verify the identity of bank account holders during ATM transactions. This technology offers a secure and convenient alternative to traditional ATM transactions that rely on PIN numbers for verification. The proposed system captures users' pictures and compares it with the stored image in the bank's database to authenticate the transaction. The technology also offers additional benefits such as reducing the risk of fraud and theft, as well as speeding up the transaction process. However, privacy and data security concerns remain, and it is important for the banking sector to instrument solid security actions to protect customers' personal information. The proposed system consists of two stages: the first stage captures the user's facial image using a camera and performs pre-processing, including face detection and alignment. In the second stage, machine learning algorithms compare the pre-processed image with the stored image in the database. The results demonstrate the feasibility and effectiveness of using face recognition for ATM authentication, which can enhance the security of ATMs and reduce the risk of fraud.

Keywords: Automated Teller Machine (ATM); biometric verified authentication; facial recognition technology

1. Introduction

The introduction of biometric authentication systems in the banking sector has significantly transformed the way customers interact with their bank accounts. Among the various biometric technologies available, face recognition-based ATM is gaining popularity due to its ease of use and enhanced security features.

The use of face recognition technology has increased significantly in recent years. Its applications range from security and surveillance to personal device authentication and mobile payments. The technology offers several benefits over traditional authentication methods like passwords or PINs, including convenience, accuracy, and resistance to fraud. However, it also raises concerns about privacy and security, especially in the collection and use of personal data. Similarly, fingerprint recognition, being a biometric technology, also poses privacy and security concerns related to its collection and storage.

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