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Border Surveillance System Using Dual Biometric Authentication

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Abstract: *Border security is a critical concern for national safety, requiring advanced technological solutions to prevent illegal infiltration, identity fraud, and unauthorized access. Traditional border surveillance systems largely depend on manual verification methods and physical monitoring, which are time-consuming, error-prone, and inefficient. To overcome these limitations, this research paper presents a Border Surveillance System based on biometric authentication, utilizing face recognition and fingerprint recognition techniques. The proposed system integrates biometric technologies to provide a secure, reliable, and automated identity verification mechanism at border checkpoints. Face recognition is employed for non- intrusive real-time identification, while fingerprint recognition ensures highly accurate personal authentication. The dual-biometric approach enhances security by reducing false acceptance and rejection rates. This system is designed to assist border authorities by enabling rapid identity verification, real-time monitoring, and secure data management.*

The proposed model demonstrates improved accuracy, scalability, and efficiency over conventional surveillance methods. This research highlights the implementation details, system architecture, working methodology, and future scope of biometric-based border surveillance systems.

Keywords: Border Surveillance, Biometrics, Face Recognition, Fingerprint Recognition, Authentication, Security Systems