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Lost Person Identification using AI based Camera

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Abstract: *Public safety in crowded locations such as railway stations, airports, and shopping malls requires a smart surveillance solution capable of identifying threats instantly. The proposed system introduces an automated, real-time monitoring framework powered primarily by Convolutional Neural Networks (CNNs). Live video feeds collected through IoT-enabled cameras are processed at the edge, where a CNN-based model detects and classifies hazardous objects such as firearms or sharp weapons with high accuracy.*

In addition, the same deep learning architecture is applied to facial analysis, generating feature embeddings that are matched against stored records to identify missing individuals across multiple camera streams in real time.By relying entirely on CNN-driven analysis, the system minimizes human dependency and improves the speed and reliability of decision-making during emergency situations.

The use of edge computing reduces processing delays and ensures immediate alert generation when a threat or missing person is detected. Integrating weapon detection and face recognition within a unified deep learning framework enhances system performance, scalability, and operational efficiency. Overall, this approach contributes to the development of intelligent, secure, and responsive public spaces within modern smart city environments.

Keywords: CNN, Computer Vision, Deep Learning, Object Detection, Face Recognition, IoT Surveillance, Edge Computing, Public Safety, Real-Time Monitoring

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