IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 6, Issue 3, February 2026
Impact Factor: 8.2

Real-Time Crowd Surveillance for Detecting Weapons and Locating Missing Individuals

Gargi Jayant Yawalkar, Sanket Vishnu Bankar, Nandini Sanjay Patil
Neha Bhika Wagh, Prof. Gaurav Vijay Barde, Dr. Bajirao Subhash Shirole
Department of Computer Engineering
Loknete Gopinathji Munde Institue of Engineering Education and Research Nashik, India
yawalkargargi@gmail.com, sanketbankar00@gmail.com, patilnandini3519@gmail.com
nehabpatil20@gmail.com, gauravbarde26@gmail.com, Bajirao.shirole@gmail.com

Abstract: *Public safety in densely populated areas such as railway stations, airports, and malls demands an intelligent and automated surveillance system capable of real-time threat detection. The proposed system employs Convolutional Neural Networks (CNNs) as the core deep learning architecture for both weapon detection and missing-person identification. Live video streams from IoT-enabled cameras are analyzed at the edge using a CNN-based detection model that identifies and classifies dangerous objects like guns or knives with high precision. The same CNN framework is utilized for facial detection and recognition, where face embeddings are generated and compared using a CNN-based similarity model to locate missing individuals across multiple camera views in real time.This fully CNN-driven system eliminates dependence on manual monitoring and enables faster, more reliable decision-making in critical situations. The integration of edge computing ensures low-latency processing, allowing instant alerts to be sent to security personnel upon detecting threats or missing persons. By combining object detection and face recognition within a unified CNN architecture, the proposed model enhances the accuracy, scalability, and efficiency of surveillance systems. Ultimately, this CNN-based framework represents a step toward building smart, secure, and responsive environments that strengthen public safety and trust in modern urban infrastructures.*

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

DOI: 10.48175/568