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Suspicious Activity Detection System

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Abstract: The Suspicious Activity Detection System is designed to enhance the intelligence and effectiveness of modern surveillance systems. This project introduces an automated method for identifying unusual human behavior in real-time video streams using deep learning. Its main goal is to boost safety and enable quick responses by detecting suspicious actions without needing constant human supervision. The system uses OpenCV to capture and process frames from a live video feed. These frames are then analyzed by a Convolutional Neural Network (CNN) model trained to recognize the difference between standard and potentially suspicious activities based on visual patterns observed in surveillance footage. When the system detects an unusual action, it saves the corresponding video frame locally and instantly sends an email alert to the appropriate authority. This prompt notification helps ensure timely intervention in critical situations. The entire system is built using Python, with key libraries such as Keras for deep learning, OpenCV for image processing, and SMTPLIB for sending email notifications. The model was trained using relevant surveillance datasets and tested on both internal and external video sources to evaluate its performance. Results showed that the system performs reliably across different environments. By combining artificial intelligence with real-time surveillance, this solution addresses the growing need for automated security in places like public spaces, workplaces, ATMs, and other highrisk areas. It not only expands the reach of surveillance but also reduces the chances of human oversight, making it easier to respond swiftly and accurately to possible threats.

Keywords: Suspicious Activity Detection, Convolutional Neural Networks (CNN), Deep Learning, Real-time Surveillance



