Fire Detection and Localization using Surveillance Camera

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Abstract: *In this paper, we propose a system for Fire Detection and Localization using Surveillance Cameras, which leverages real-time video streams combined with the YOLOv8 deep learning model to accurately detect fire incidents. The system processes feeds from multiple surveillance cameras and automatically generates alerts upon fire detection. Notifications are sent via email and WhatsApp, including the location of the incident using live IP-based geolocation services. Unlike conventional fire monitoring systems that rely on physical sensors or manual observation, this approach offers automated, scalable, and efficient fire detection. The system is designed to avoid alert spamming and supports seamless integration into existing surveillance infrastructures. This paper outlines the architecture, implementation details, and key features of the system, and discusses its future potential for broader emergency response applications.*

Keywords: Fire Detection, YOLOv8, Real-Time Surveillance, Emergency Alerts, Location Sharing, Multi-Camera Monitoring