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Overview

A system for automated intelligence gathering with unattended surveillance cameras

The system performs detections of specific threats, such as violation of a secured perimeter, left objects, and removed objects and identifies the target. A wide angle camera surveys the entire scene, detecting humans and vehicles and monitoring for threat events. Once a threat is detected, a PTZ camera is tasked to zoom in on this subject to try to obtain a suitable still image for face recognition. These stills are compared against a face recognition database, and the identity of the person committing the threat event is determined. The system also monitors crowd activities for potentially threatening events, such as the onset of a mob.

Crowd Monitoring

1

The user defines a ground plane grid on which crowd activity will be monitored.

2

Violations of user-defined crowd rules defined in terms of the specified grid are detected.

Face Recognition

1

Detection of violation of user-defined security rules triggers the system to follow the violator.

2

Wide angle leader camera (blue) tasks PTZ camera (red) to follow target

3

Best shot analysis selects optimal video still for face recognition

4

The most suitable image is compared against a database to identify the individual monitored.

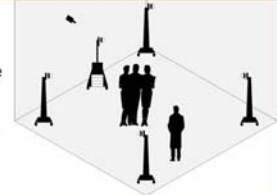
Validation

Face recognition: 83% correct identification rate at a 0.001% false identification rate (interior location).

Crowd estimation accuracy: Accurate up to maximum density tested (.72 people/m²)

Current Work

Expanding system to include multiple PTZ cameras assigned to a specific leader camera.



Event ID	Date/Time	Source	Rule Name	Status	Rating
1	11/19/09 9:15:00AM	Leader Camera	Proximity	ABIS Search Complete	★★★★★
2	11/19/09 9:16:00AM	Leader Camera	Synchronized Activity	ABIS Search Complete	★★★★★
3	11/19/09 9:16:00AM	Leader			★★★★★

Developing techniques to link people together, on the basis of proximity, synchronized activity, or observed interactions.



Will generate intelligence on the social identities of observed individual and the structure of groups to which they belong.

Next generation system incorporating these new capabilities expected to be complete by Summer, 2009.

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