MIMOS Self-Monitoring Analytics Reporting Technology (SMART) Lock-Up

Monitoring detainees such as in police lock-ups often rely on manual detection of events and results in post-event action. Such safety levels within lock-ups risk the well-being of detainees. MIMOS SMART Lock-up utilises video analytics to automatically detect and issue alerts. These are done on suspicious or violation activities in the lock-up cells and the perimeter of a lock-up building, in the absence of patrolling officers.
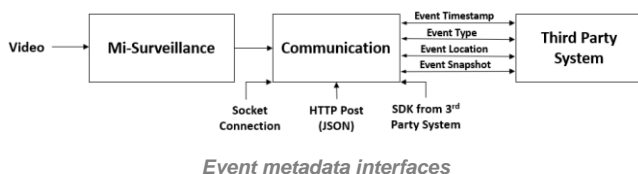
Overview

MIMOS SMART Lock-Up is a versatile video surveillance solution for lock-up environments. It includes intelligent elements of advanced video analytics in a flexible architecture. The solution is capable of detecting suspicious or violation activities based on the movement and behaviour of the object in the lock-up cell and perimeter of the lock-up during day and night.

Features

MIMOS SMART Lock-Up comprises intelligent video analytics and video analytics management server features:

- **Cell-Based Video Analytics**
  a. Climbing Detection – detects climbing activity in a cell.
  b. Loitering in Toilet Area Detection – detects object presence in a toilet for a fixed long duration.
  c. Aggressive Detection – detects fast movement or aggressive activity in a cell such as pushing and punching.
  d. Tampering Detection – detects any attempt to move or distort a camera's position or view.

- **Perimeter-Based Video Analytics**
  a. Restricted Region Detection – detects an object's presence at a location with limited access.
  b. In/Out Detection – detects ins and outs of an object's movement in any location of a lock-up.
  c. Entering/Leaving Detection – detects the entering and leaving of an object's movement in a monitoring area.
  d. Crowd Density Detection – detects the presence of high occupancy of people.
  e. Object Left Detection – detects objects left by people.
  f. Object Removed Detection – detects the removal of objects from a scene.
  g. Counting – counts the number of people in two directions.

- **Event Metadata Display and Management**
  Event metadata is displayed and managed by a Smart Client or by third party clients (event metadata is accessible through provided socket connection libraries and HTTP POST (JSON)).

Event metadata interfaces

- **Smart Client**
  Smart client comprises:
  a. Real-time camera view for live monitoring
  b. Real-time event alerts (video and audio)
  c. Real-time display camera view in high resolution with event alerts
  d. Event list management
  e. Location-based 3D event indicator
  f. Event video search and retrieval for forensic applications
  g. Dynamic masking for privacy preservation
  h. Comprehensive and integrated viewer

Technology Summary

MIMOS SMART Lock-Up

A versatile video surveillance solution for lock-up environments.
Industries: Enterprise, Government, Public Safety

Features
- Cell-based video analytics
- Perimeter-based video analytics
- Event metadata display and management
- Smart Client

Technology Benefits
- Real-time monitoring and alert of human behaviour
- Event-driven surveillance
- Increased operational efficiency
- Open innovation platform
- Patented algorithm/technology

Technology Benefits

The main impacts of MIMOS SMART Lock-Up are:

- **Real-time Monitoring and Alert of Human Behaviour**
  MIMOS SMART Lock-Up can be applied for both automated human behaviour monitoring and alert the security personnel in real-time.

- **Event-driven Surveillance**
  The surveillance events are detected based on specific events and can be categorised. Forensics can be conducted based on various search criteria.

- **Increased Operational Efficiency**
  Video monitoring and analysis potentially increases daily work efficiency by providing situational awareness to users through various event fusion and analysis.

- **Open Innovation Platform**
  The platform is camera agnostic and can be customised and integrated to a third party system, for example a video management system.

- **Patented Algorithm/Technology**
  MIMOS' in-house algorithms to provide high accuracy and low false alarm rate.
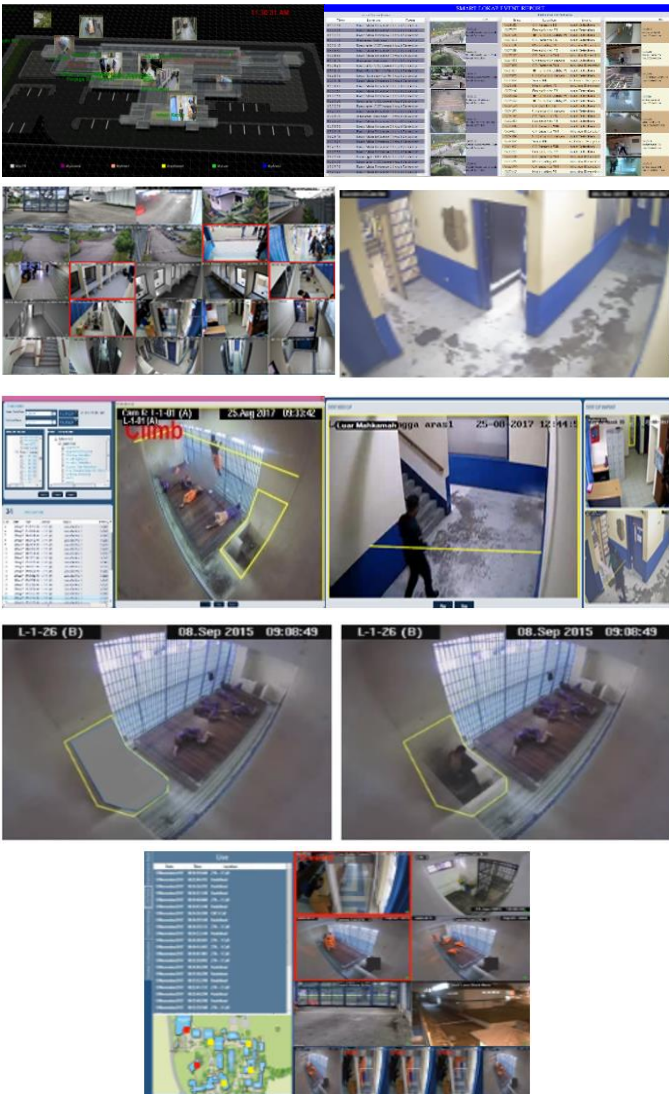

Cell-based video analytics

Perimeter-based video analytics

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Smart Client

System Requirements

MIMOS SMART Lock-Up		
Configuration Requirements		
Resolution	352 x 288 (CIF)	
Frame/Second	15fps	
Hardware Requirements		
Server Machine	Processor: Intel® Core i7-6700 CPU@ 3.40 GHz (4 cores) Memory: 8GB Disk Storage: 500 GB	Support up to 8-12 video analytics
	Processor: 2 x Intel® Xeon® CPU E5-2697 v4 @ 2.3GHz 2.3 GHz (18 cores) Memory: 64 GB Disk Storage: 8TB	Support up to 72-108 video analytics
Client Machine	Processor: Intel® Core i5-4250U CPU@ 1.3 GHz (2 cores) Memory: 4GB Disk Storage: 500GB Processor: Intel® CPU E3-1245 @ 3.3 GHz (4 cores) Memory: 16 GB Disk Storage: 500GB	Support each MIMOS Smart Client, separately. It is able to support 16-42 camera views display.
Network Bandwidth	2Mbps per camera	
Software Requirements		
Operating System	Windows® 10 or Windows® Server 2012	
Dot Net Framework	Microsoft® .NET 4.5 and above	
Database	Microsoft® SQL Server Express 2012	

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