

# SUBITO: Welcome Presentation

Genoa, 14<sup>th</sup> September 2010



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# SUBITO Project Team and Main Responsibilities



- **Coordinator;**  
Scenario Definition;  
Systems Architecture.



- Object Detection;  
Object Classification  
and Action  
Recognition.



- Integration and  
Demonstration.



- Robust and Long  
Term Tracking.



- Facial Recognition;  
Operator Support.



- People Flow  
Modelling.



- Use of other  
cameras; Image  
Analysis Algorithm  
Development.



- Distributed Targeting.



- Observe and Analyse  
Situations; Perform  
Threat Assessment.



- Embedded End User.

# OVERVIEW (2): Project Breakdowns

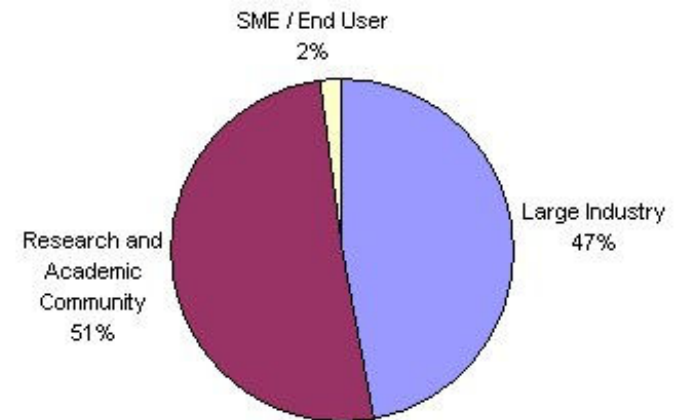
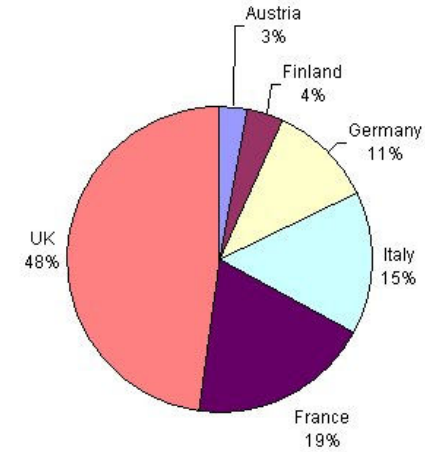
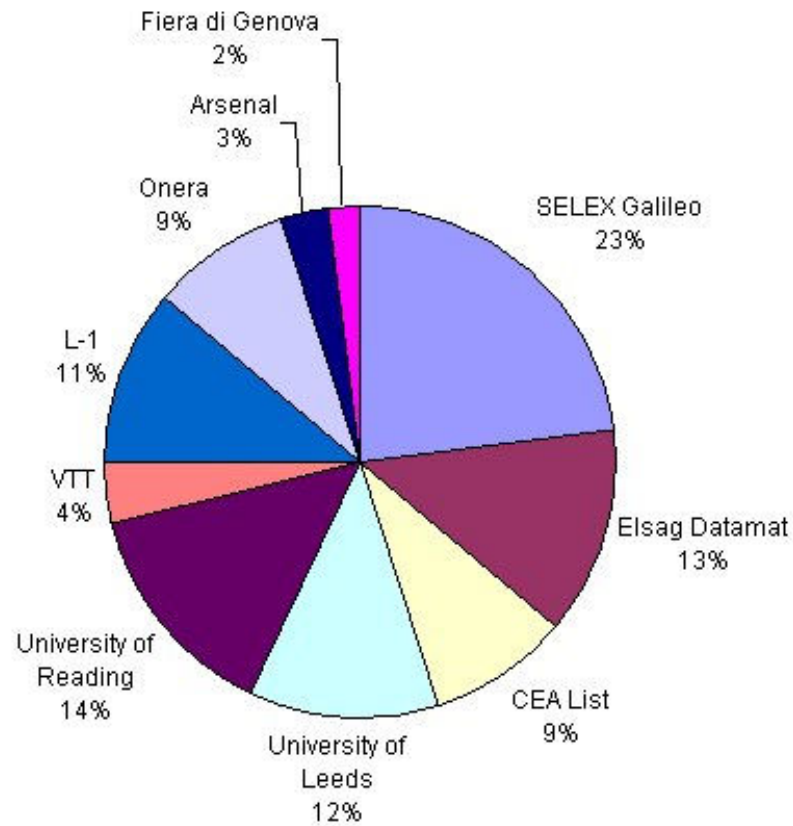


**Total Cost:** € 3,895,730

**EU Contribution:** € 2,581,055

**Start date:** 01/01/09

**Duration:** 31 Months



## OVERVIEW (3): SUBITO Project Objectives

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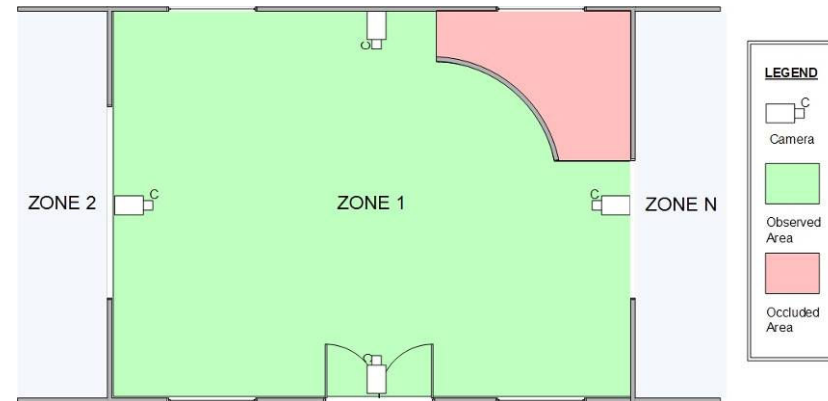
- **Objective 1: Find Abandoned Luggage and Identify and Track the Owner.**
- **Objective 2: Reduce the Number and Impact of False Alarms.**
- **Objective 3: Demonstration of Concept.**
- **Objective 4: Demonstrate a scalable route to implementation.**
- **Objective 5: Examine the use of Other Sensors.**
- **Objective 6: Examine the use of PTZ Cameras to Distinguish Between Threatening and Non-Threatening Goods.**
- **Objective 7: Improve Public Perception of this Technology and Its Implications.**

# Overview (4): SUBITO Concept and Capability Requirements



- **Surveillance Concept**

- Multiple networked 'surveillance zones or cells' covering infrastructure
  - 1 or more cameras per zone
- All zones observable from operator console
- Zone Types [examples]
  - Access points, Barriers, Doors
  - Corridors, Streets, Concourses
  - Open Areas, Town Squares, Lounges, Halls
- Operator-in-the-loop control and UB event assessment



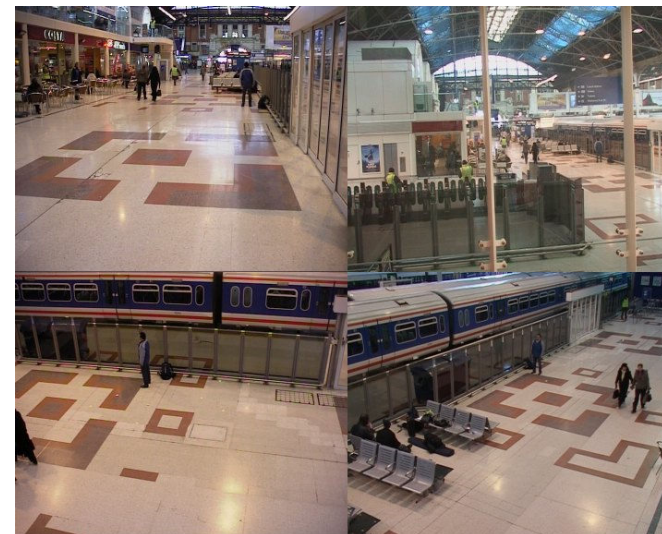
Surveillance Zone x4 Cameras

- **Operation**

- Full Sensor Network Coverage
- All day
- All conditions:
  - Day/Night, Indoor/Outdoor Sensors
- Full UB event detection and recording
- All suspicious UB event reporting and playback to system operator to aid assessment

- **Performance**

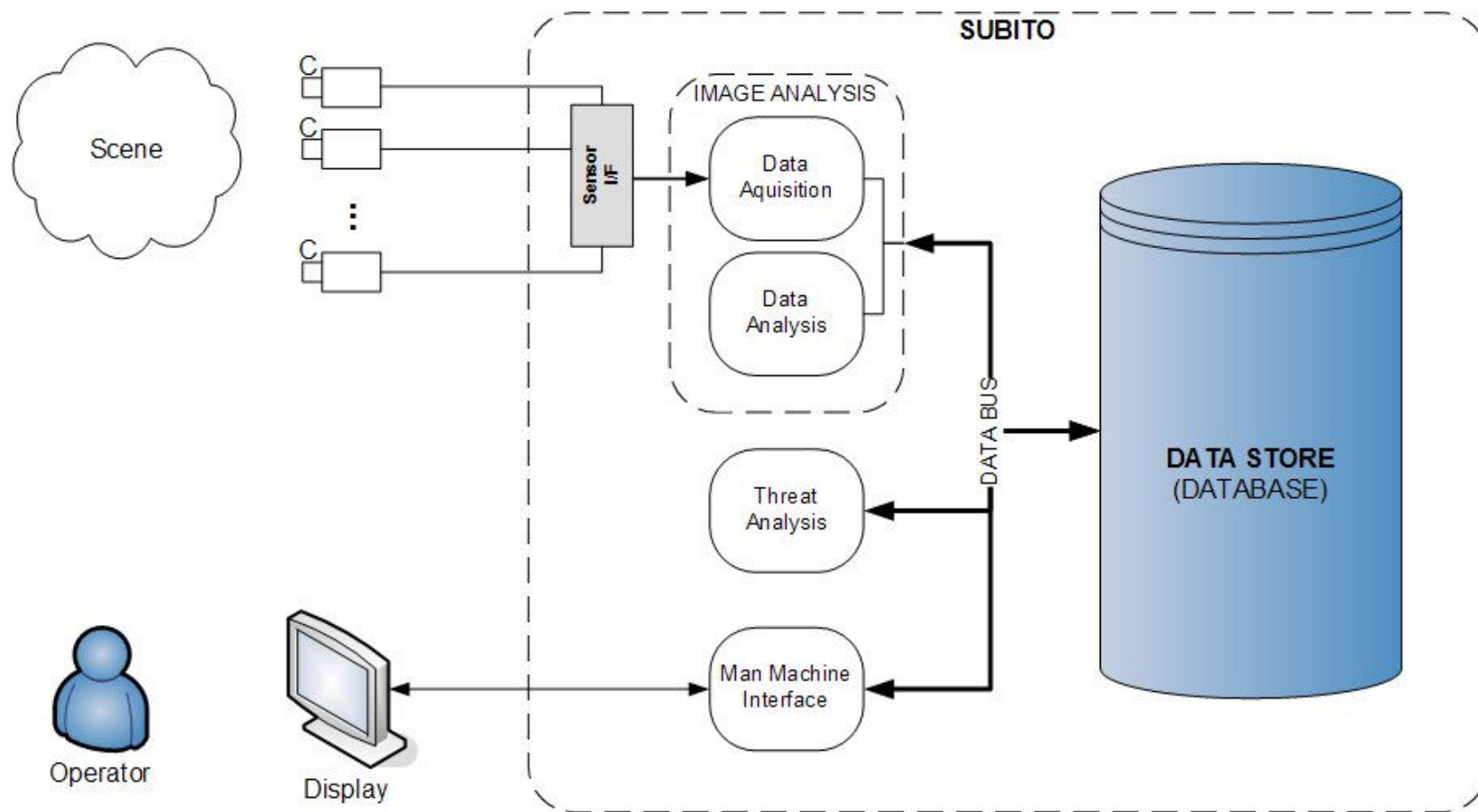
- 'Real-time' UB detection and reporting
- 'Fast' Owner Identification
- 'Fast' determination of Owner track and final location
- 'Low' False Alarm Rate
- 'High' UB Detection Rate: 100% desirable



Video Data © PETS/University of Reading

Surveillance Zone x4 Cameras: Station Example

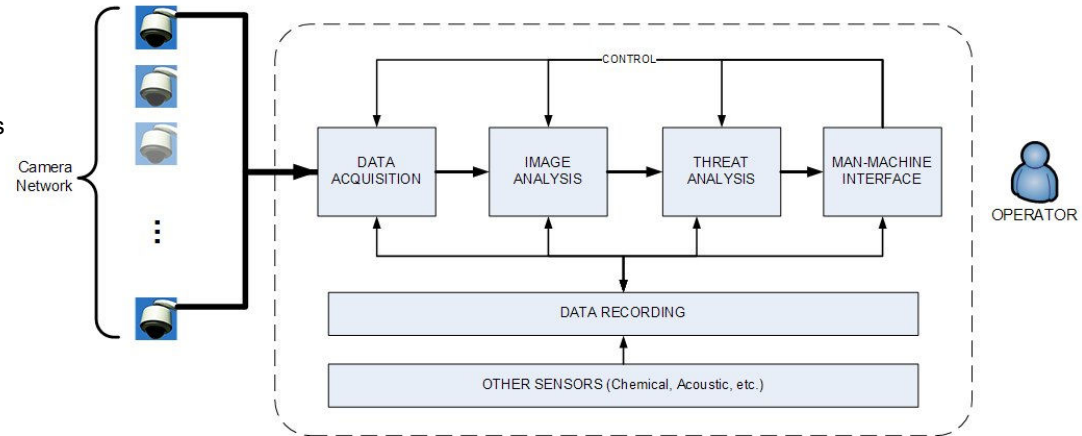
- Logical Architecture



# Overview (5): SUBITO System Functions, Features and Implementation

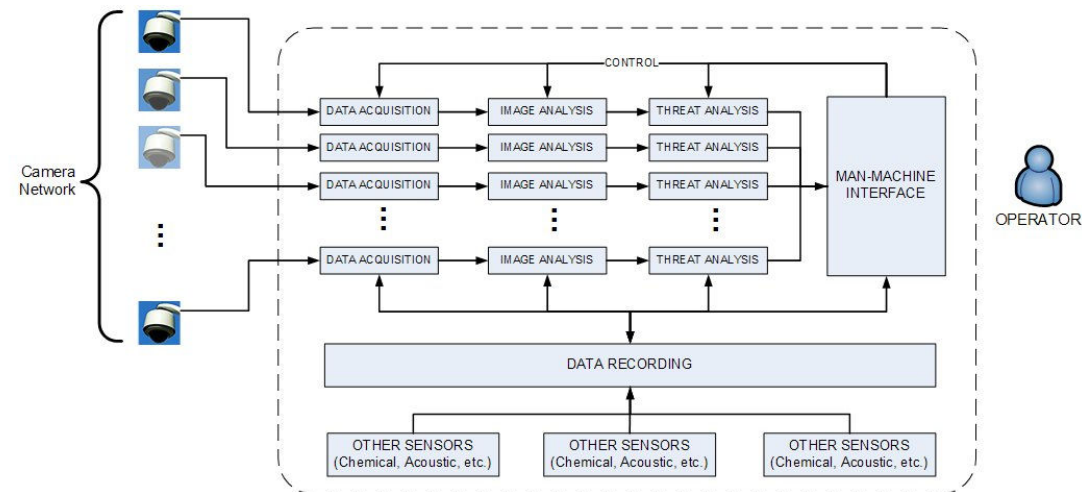


- **Key Functions**
  - Data Acquisition
    - Analogue / digital sensors
  - Image Analysis
    - UB Detect, Owner ID and Track, Scene Analysis
  - Threat Analysis
    - UB, Owner and Situation Analysis
  - Man-Machine Interface
    - UB event alerting and analysis
    - All sensor data display
  - Data Recording
    - UB pre and post event data recording



SUBITO: Architecture [Level 1] – Key Functions

- **Architecture Features**
  - Scalable
    - new sensor channels can be added to accommodate infrastructure needs
  - Modular
    - Common module build allowing extension, upgrade, replacement
  - Fault Tolerant
    - Independent channel processes enable system operation with sensor failures



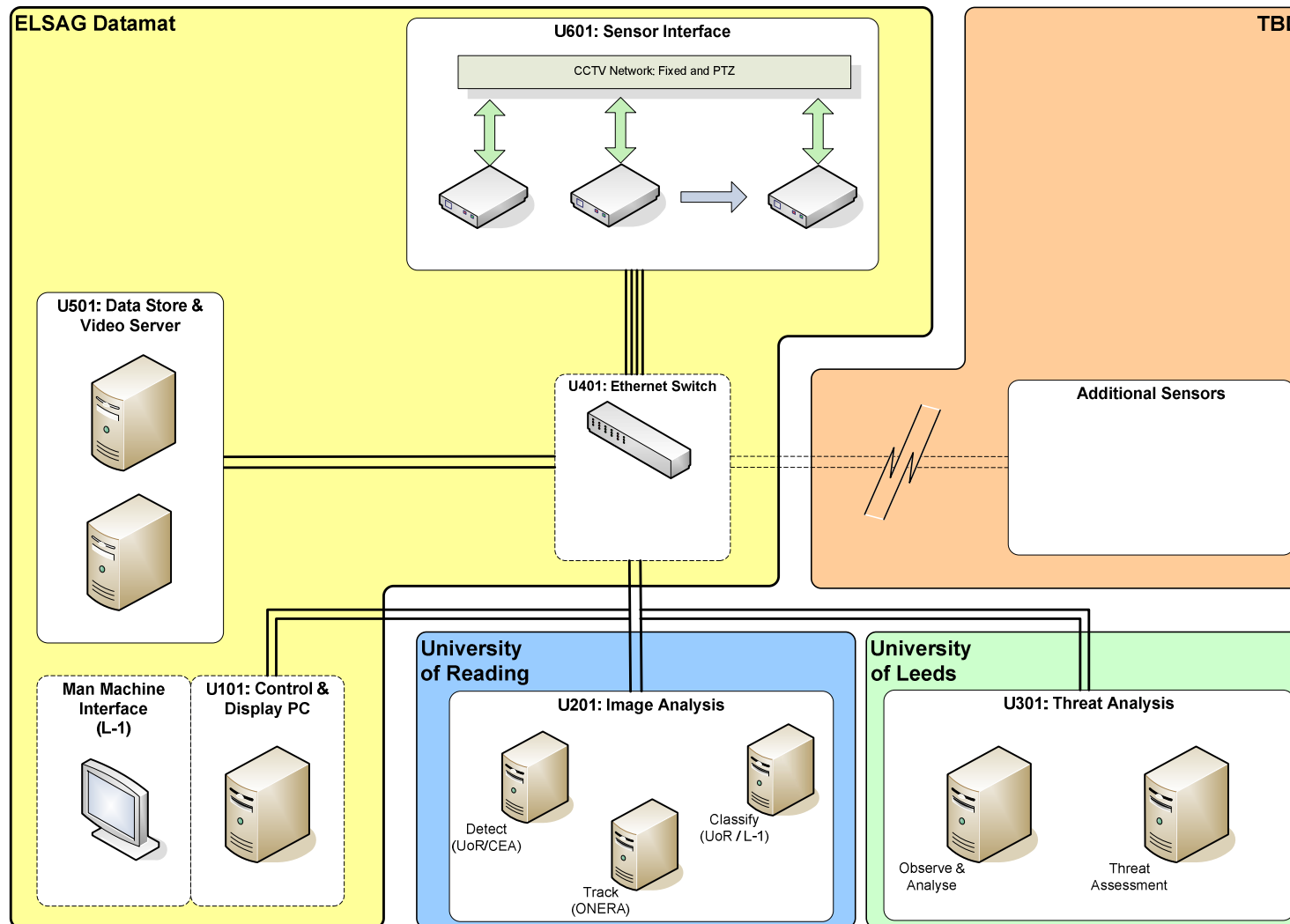
SUBITO: Architecture [Level 2] – Modular Sensor Channels

- **Performance Features**
  - Real-time Operation
    - At event rate
  - Interactive Operation
    - Man-in-the-loop
- **Implementation**
  - Based on existing technology
  - Interfaces compatible with existing infrastructure security systems : sensors and displays

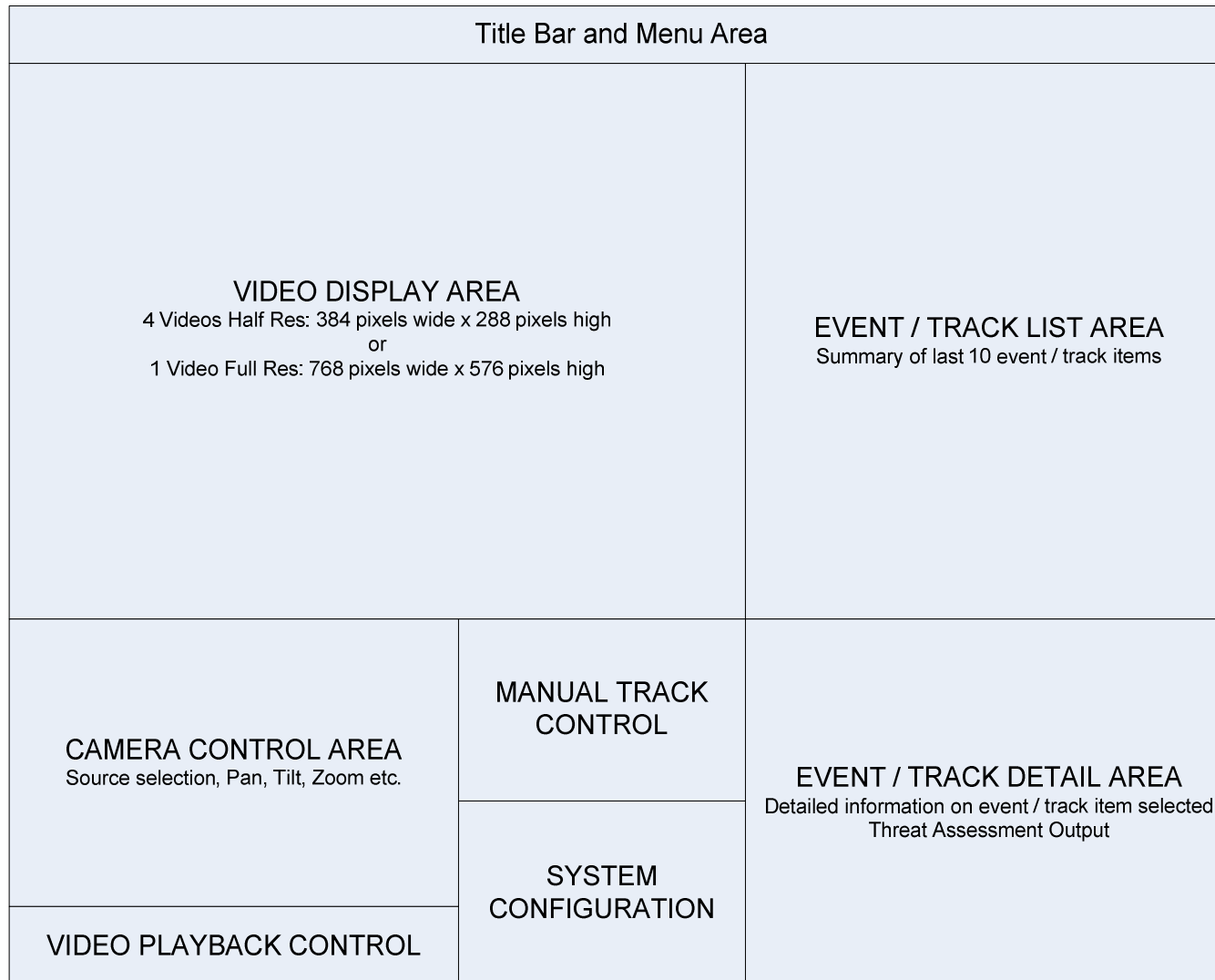
# Overview (6): WP220: System Architecture Design



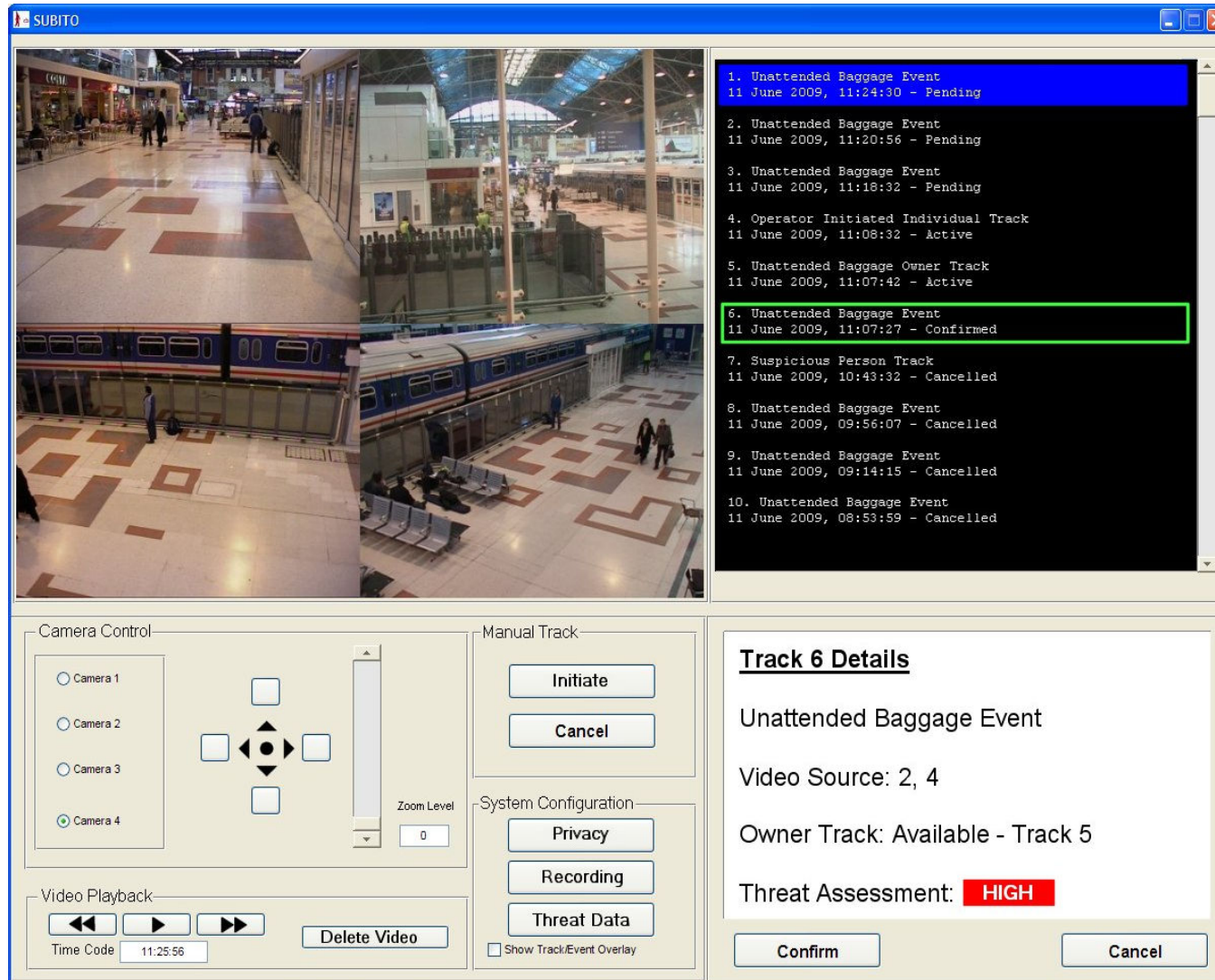
- Preliminary Physical Architecture



- **Concept MMI**



- Concept MMI



The screenshot displays the SUBITO Concept MMI interface, which is divided into several functional areas:

- Camera Feed:** A large window showing a high-angle view of a train station platform with a train and passengers.
- Event Log:** A list of ten events on the right side of the interface. The sixth event, "Unattended Baggage Event" (11 June 2009, 11:07:27 - Confirmed), is highlighted with a green border.
- Camera Control:** A panel on the bottom left with radio buttons for Camera 1, 2, 3, and 4 (Camera 4 is selected), a directional pad, and a Zoom Level slider.
- Manual Track:** A panel on the bottom right with "Initiate" and "Cancel" buttons.
- System Configuration:** A panel on the bottom right with "Privacy", "Recording", and "Threat Data" buttons, and a checkbox for "Show Track/Event Overlay".
- Video Playback:** A panel on the bottom left with playback controls (stop, play, fast forward) and a "Delete Video" button. The Time Code is 11:25:56.
- Track 6 Details:** A panel on the bottom right showing details for the selected event: "Unattended Baggage Event", "Video Source: 2, 4", "Owner Track: Available - Track 5", and "Threat Assessment: HIGH" (highlighted in red). It includes "Confirm" and "Cancel" buttons.