

# SCOUTER: Content-based Multiple-instance Object Retrieval System

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## Abstract

- Are presented main functionalities and outcomes of the SCOUTER project, which is developed by UTI GRUP in partnership with the "Politehnica" University of Bucharest and co-funded by the Romanian R&D National Framework.
- SCOUTER is built as an offline processing application module for coping with multiple instance objects retrieval task from video surveillance footage (e.g., searching of a general class, a particular object, or patterns).
- Such functionalities are user-driven as the challenges are derived from the practice of police forensics teams on dealing with analysis of large video datasets.
- Findings and outputs are contributed to the understanding of the constraints and issues that are particular to real-world video surveillance datasets and processing systems and further to alleviate analysis efforts of police investigations.

## System Functions

- SCOUTER system architecture processing engine is composed basically of two layers (query generation and video processing) each powered by a number of specialized functions.
- General class search* - find and retrieve a general object class (e.g., a person) on the entire video surveillance footage while proving as input some predefined attributes (e.g., thief's shirt and pants color).
- Particular object search* - retrieve multiple instances of a distinctive object (a person) starting from few samples available and presented to the system.
- Patterns search* - search of distinctive regions of interest. Such patterns may include luggage, logos, color regions or any other distinctive features that appear of a given sample image and are denoting sufficient discriminative power.

## Results & Conclusion

Task	Patterns Retrieval	
Method	SIFT	PHOW
F-Score	20.2%	36.4%



- Are presented main functionalities achieved as an outcome of SCOUTER R&D project.
- Preliminary results obtained during experiments on the task of patterns retrieving. Compared with normal SIFT (20.15%), the PHOW descriptor is denoting superior performance (36.42%).
- This happens as the number of key-points extracted by PHOW (ca. 1500 on our example) is consistent much higher than the number of key-points extracted by normal SIFT (ca. 25).
- The output of this task is the retrieval of an image from which clear face identification is obtain.
- Fully indexed SCOUTER database (free for download):  
<http://uti.eu.com/pncd-scouter/rezultate-en.html>

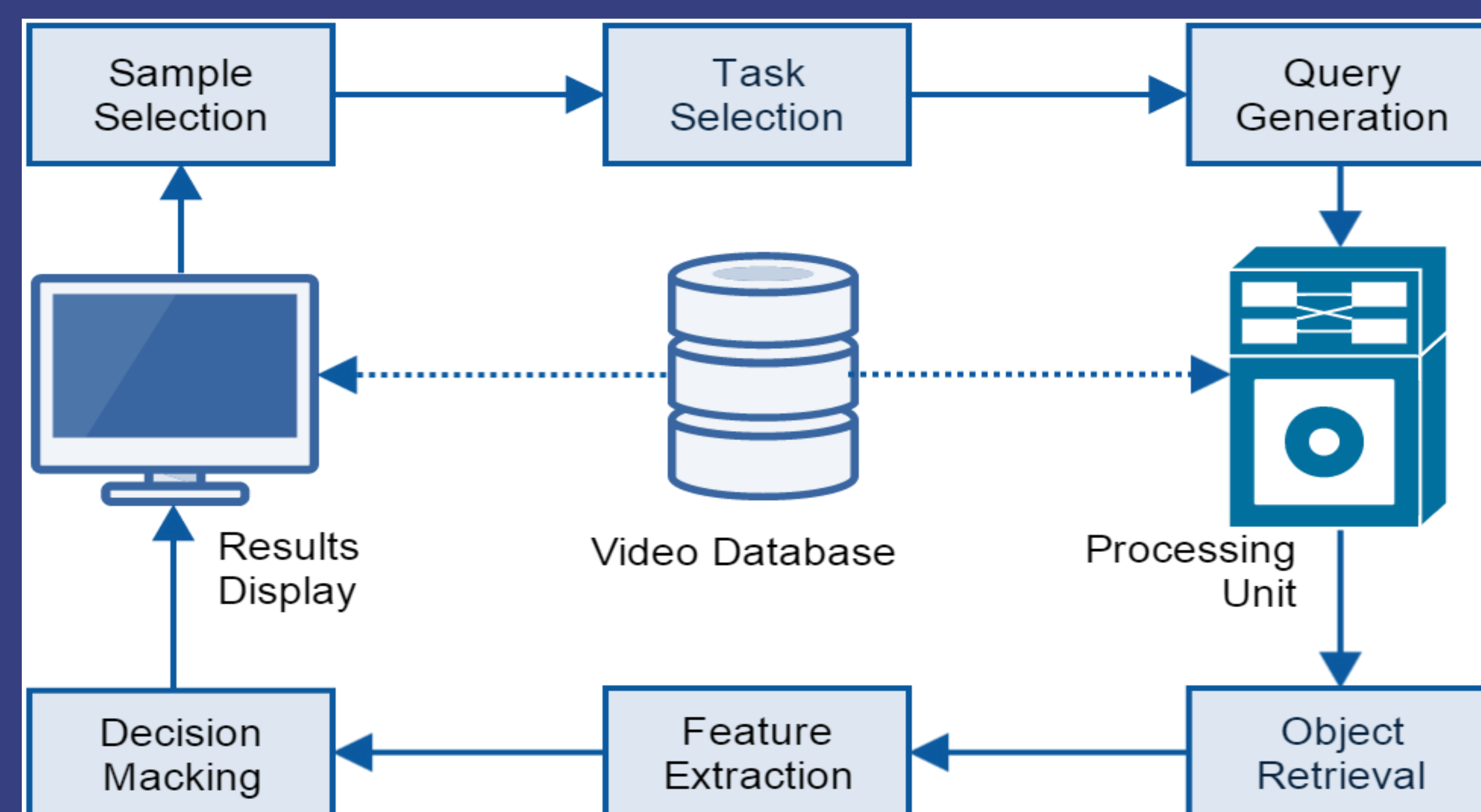
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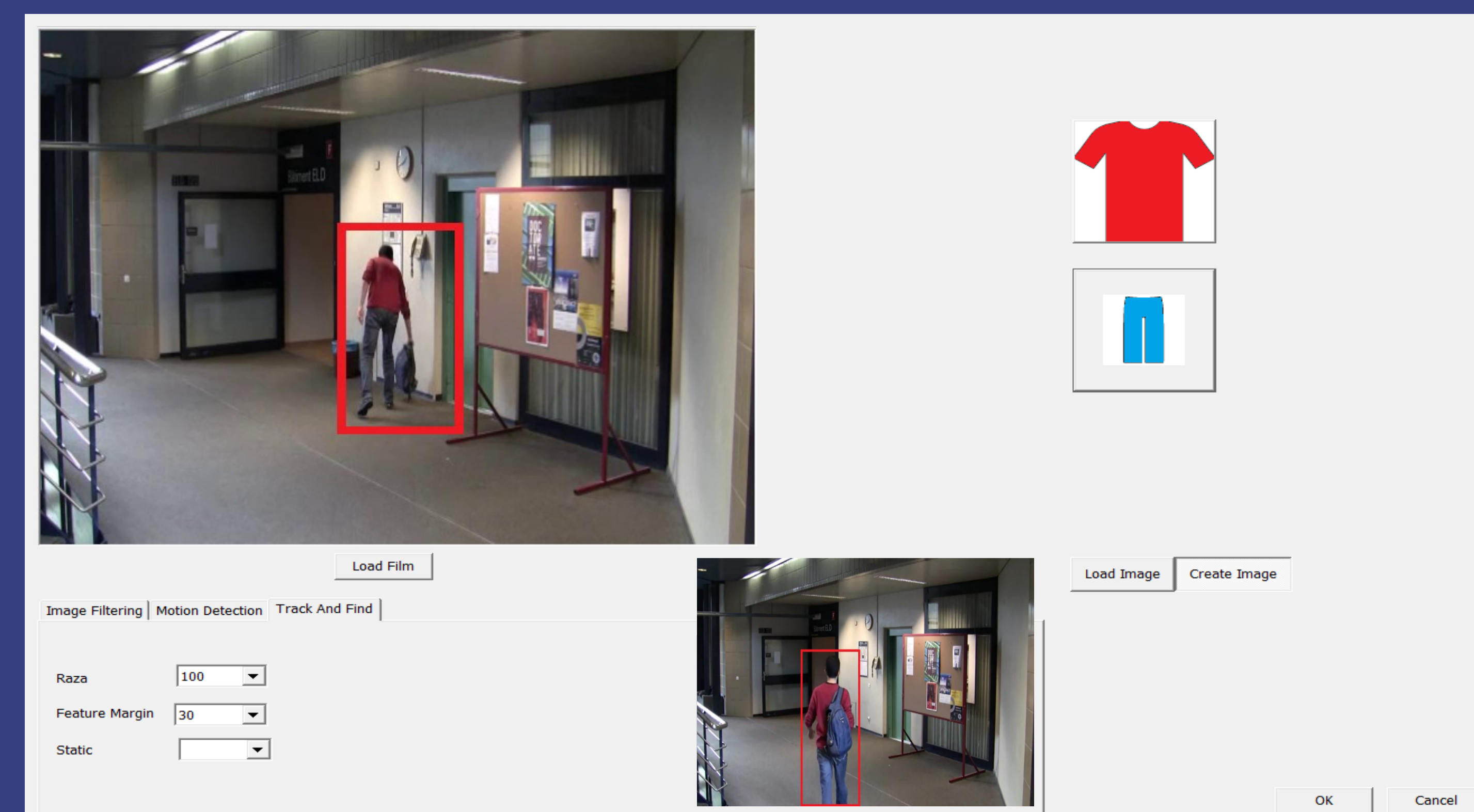


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## System Architecture



## Graphical Interface



## Integration Processing Platform (KIntelliVision)

