



The cyber-intelligence THIS project, promoted by Z&P and its European partners under the coordination of UNIMORE (University of Modena and Reggio Emilia), has been approved and funded by the European Commission.

THIS (Transport Hub Intelligent video System) is a cyber-intelligence project, funded by the DG JLS/HOME "Prevention, Preparedness and Consequence Management of Terrorism and Other Security-Related Risks" programme, which aims to develop innovative models and computer vision technologies for automatic abnormal human behaviour recognition, in order to detect potential risk situations before they arise.

Commercial video surveillance systems are normally passive, only providing capabilities such as video recording and displaying, or simple automatic motion detection. The usefulness of video surveillance for crime or terroristic attack prevention is limited since a continuous human control of monitor is neither feasible or cost affordable.

The added value is in the support for a posteriori video analysis and for forensic activities. A system able to perform human behavioural analysis, detaching what is usual from what is not, would provide a reactive, and hopefully proactive control task, to gather the attention of human inspector in monitored zones where unusual events or people activities arise. The proposal will address specific issues of detecting suspicious behaviours or possibly identifying people creating risk situations. The module will be able to detecting human repetitive action in transport hubs, that can be learned as frequently occurred, thus normal, or un-frequent and thus suspicious, according with the context and the specific scenario. For instance the same action (e.g., running, or bringing a luggage in a hurry manner) can be normal and tolerable in some places and situations (e.g., to catch the plane in time) but not always and anywhere. New computer vision technologies and software tools will be included in current available surveillance systems, equipped with Web interface to be friendly managed by public operators. The final objective is to test research and emerging industrial solutions in real contexts to give a concrete answer to the possibility to prevent crime or terroristic attacks in public places, focusing the attention of the operators on meaningful situations in real time.

THIS has the goal of developing new and concrete solutions for handling the human control and identification of people which could create risk situation in crowded scenario, by means of video analysis. THIS will propose software tools for people activities and behaviour recognition and surveillance modules, which can be integrated in existing platforms, and managed by inspector employers by means of Web interfaces.

THIS does not want solve the chimera of automatic understanding of human behaviours but want be precisely focused in recognizing unusual and thus potentially suspicious activities of people passing in transport hubs, which could be alarming for an inspector and thus that should send an alarm to gather the attention to specific monitors showing the scenes.

The final objective is to provide an automatic system to prevent risk situations and to identify people with a potentially risk behaviour during the normal day activities of transport hubs, such as the ones present in harbours, airports or railways.

To recognize means to own models to compare with; in our specific case, models of activity, action and interaction of people and passengers acquired in real scenario.

The most important investigation methodology will be based on attention-based video analysis, supervised and unsupervised classification, and space-temporal Bayesian inference. The project will exploit both standard and innovative tools for people detection and tracking also in crowded environment; then texture, shape and speed features will be combined with trajectory information in order to assess standard activities of people (waiting, walking, carrying a bag, sitting, running, chatting in group, etc.); then inference about the normality/abnormality of the behaviour according with the context will be carried out in order to recognize dangerous situations, for security and safety of individuals, to provide automatic alarms or to collect statistics on the activities.

For additional details visit THIS website: <http://thisproject.eu>

Zanasi & Partners (<http://www.zanasi-alessandro.eu>) is an Italian company specialised in research, training and advising on cyber-security and cyber-intelligence issues.

THIS Project Partners



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