



TASS Report Summary

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Periodic Report Summary - TASS (Total airport security system)

Project context and objectives:

The threats against which an airport needs to be defended are diverse and include conventional, as well as non-conventional means consisting of acts of terrorism against airplanes, passengers, crew, and airport infrastructure. All these potential threats translate into a maze of security challenges. Total airport security system (TASS) was conceived and designed to answer such complexity.

Conceptually, TASS is a multi-segment and multi-level intelligence and surveillance system that aims to create an entire airport security monitoring solution while increasing the reliability and efficiency of the security screening process, respecting nonetheless airport passengers' privacy. TASS solution has to provide real-time accurate situational awareness of all airport facilities and its surroundings, as well as of its people, vehicles, cargo and airplanes. Accordingly, the TASS approach has to rely on complex integration, fusion and analysis processes of multi-sources data collected by existing airport security technologies as well as by innovative TASS technologies.

The TASS innovative system is composed of three main components. The front-end part is an adaptive system that can be designed according to the airport prerogatives and requirements. The solution can evolve easily upon new threat definitions, by adding to the front-end system new technologies or sensors more adapted to the new security alertness. The second component, the Data fusion and mediation system (DFMS), mediates between the data collection elements at the front-end. The result of such fusion analysis is being monitored through a centralised command and control portal where risks assessment and anomaly security alerts are implemented. TASS architecture has been designed to comport an innovative data analysis solution. The system first centralises and unifies the analysis of the multi-sources front-end data together with other sources in order to create a comprehensive airport security and intelligence awareness. The third component is comprised of the TASS portal and back-end applications. This portal is a key element in the TASS architecture for situational awareness and decision support. All relevant information is displayed to the security and transport authorities in an easy to interpret manner suitable for quick decision making. The user is prompted with relevant alerts and the pertinent information to respond correctly to these alerts. The decision process is therefore less time-consuming and this centralised approach reduces also significantly potential human mistakes during intricate situations by presenting all necessary information required for correct decision making.

The TASS system creates a comprehensive picture of the airport security status and enables effective and coordinated intervention actions in case of threats. Moreover, TASS provides a solution that clearly aims to diminish nuisance alarm occurrences to ensure minimal effect on the passenger flow while providing a high degree of security taking into consideration all potential threats.

By adopting an integrated approach to the problem, whilst satisfying the stakeholders' value hierarchy, TASS system will soon be considered as a novel alternative to airport security infrastructure.

In order to validate the TASS concept and its contribution to airport security, TASS system will be deployed in an international airport and challenged during complex large-scale simulated terrorist events.

Project results:

During the first year of the TASS project, the TASS consortium endeavoured to define and delineate the TASS concept, translate it into an implementable security system and start its deployment. A number of important objectives towards this aim have been achieved.

First, airport potential threats were mapped and classified and end-user (airports) requirements were identified accordingly allowing the prioritisation of the technologies to be deployed or developed. In addition, human, social and organisational aspect of current airport security systems and adjacent actors have been examined in order to ensure that all human - including privacy - and operational requirements are met during the design of TASS. Initial operational scenarios and process maps for Work package two (WP2) were developed based on data collected during fieldwork

activities. Each map represents one segment of the threat scenario and attempts to illustrate the sequence of actions and flow of information between actors in the course of the event. The maps are particularly intended to illustrate the human role in the process.

Coherent with these requirements, TASS design and architecture has been fully defined and characterised. The developed system architecture design and specification include a full identification and description of the system components, a system diagram with high level data flows aimed at scalability and flexibility, information output and performance requirements, detailed sub-systems solutions for scenario use cases, support systems design, such as Geographical information system (GIS), external data feeds and processing facilities, a communication technologies definition based on bandwidth and availability requirements, methodology for further expansion and configuration of the TASS.

The TASS plan consists of installing all TASS technologies at Heathrow international airport in view of a large scale Proof-of-concept (POC) event that will take place in August 2012. Subsequently, a detailed POC scenario was defined and issued by the end users. The development of the POC scenario has been based on the current security risk register for participating airports, and seeks to ensure that elements of the main threats are captured as part of the TASS POC.

The DFMS design definition also started during this first year of work and a first version will be available by June 2012. Definition and design phase of the portal, including the collection of requirements for the portal, and the establishment of an appropriate architecture for its components was also initiated. A first prototype has been presented to the consortium in March 2011.

The TASS project, dealing with sensitive and secure airport information, issued clear dissemination guidelines to ensure that restricted information is not unveiled. As part of dissemination effort, a public website has been set up. An internal website was also built to facilitate cooperation and coordination between consortium members.

Potential impact:

The TASS will enable an advanced integrated approach to airport security; creating an entire airport security intelligence solution providing real-time accurate situational awareness to airport authorities. The TASS concept is based on integrating and fusing different types of selected real-time sensors and sub-systems for data collection in a variety of modes, including fixed and mobile, all suitable for operation under any environmental conditions.

The TASS concept will offer real time synchronisation and information sharing between all the authorities which are involved in airport security. Correspondingly, the benefits will be realised in real time: TASS will disperse the most up-to-date information it has immediately, and so give more actionable information to decision makers to make a situational assessment and determine the best ways to neutralise a threat.

Project website: <http://www.tass-project.eu>

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