Airport and Aviation Security

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Terrorist targets on Airports

Introduction

Airports are vulnerable terror targets unless security reacts in seconds

Before the September 11 attacks in the United States, Aviation Security experts believe aircraft was the most attractive target for the terrorists and the act of Terrorism, but after the event, statistics from around the world showed not only the aircrafts but also other infrastructures of the aviation industry such as towers, gates, terminals, parking, toilets & showers etc, can be their intended targets.

"To create security obstacles and reduce security threat level, it should be taken a continuous threat assessment and update of information". Experts say.

Airports and aircrafts

Attractive targets for the terrorists

First view, to have a large number of victims in an attack means high efficiency of operations, why? Because it will be highly reflected in the media and every one will talk about it.

Second View, Victims are completely obedient to the commandments.

Returning back to the first view, terrorists are constantly seeking to increase news coverage of their own acts; in fact they need to advance their goals by the means of the media. Recent history, specifically the past decade, has provided plenty of examples of the mutually beneficial relationship between terrorist organizations and the media, as some remarkable terrorist attacks in history indicate, whether it is in the United States (US), Europe, or the Middle East, it is by and large the case that the architects of terrorism exploit the media for the benefit of their operational efficiency, information gathering, recruitment, fund raising, and propaganda schemes. Media, in return, receives the attention of the public that is vital for its existence and benefits from record sales and huge audiences. To put it briefly, just as terrorism has to be communicated to have effect, the media has to cover the incidents in such a way to benefit from the public's eagerness to obtain information about terrorist attacks. It is; therefore, fair to argue that there is a mutually beneficial relationship between terrorism and today's media.

As the meaning of the word "Terror" refers to horror and panic, the main objective of the terrorists is to create Horror in a wide range.

After the September 11 attacks, the struggle against the security threats took on a new form in aviation industry and all countries decided to think about adding layers of defense and threat assessment to prevent the illegal and interfering actions, these assessments includes adaptation of new methods to the screening of passengers, their baggage, cargo, catering etc.

Methods such as new material detectors, X-ray screening systems that impose restrictions on the transportation of lasers liquids, aerosols, gels, known as LAGs, - powders etc.

In addition to the above which play important roles in deterrence of security threats, Security training classes and workshops have a significant impact on Airport Security. Some other key factors are increasing the communication between the passenger and cargo transportation companies, aviation security entities preparedness, increasing the security of access points in airports and creating the Access Controls or Access control entry and exit.

In accordance with the requirements of ICAO Annex 9, in many countries, the airline companies are obliged to provide the list of passenger's names and required details (PNR) to the security authorities; however, this has been opposed by human rights groups. According to the ICAO security requirements, Avsec-experts propose to increase the speed and reliability of the security issues, for the access to the different security areas, the use of biometric data can be very advantageous.

Another threat which is considered as one of the most serious threat for the terrorist attack or the so-called shoulder-fired missiles is MANPAD which can suddenly in a group or individually, threaten and attack to a part of the airport, airport security buildings, However, the most major airports have considered some measures such as anti-missile systems and warning systems to deal with such threats.

The next terrorist threat is the use of small flying objects such as Quadcopters which are indistinguishable drones by radar; of course most of the airports are using the metal fence over the airport walls or use the magnetic waves to diffuse the waves to prevent this kind of the attacks.

BRP: **Biometric *Residence Permit***

Today, BRP (**Biometric *Residence Permit***) is a modern and effective method that can be applied to improve the aviation Security. In this method, according to the guidelines of Psychology and Kinesiology, people who wish to carry out sabotage or terrorist attacks, involuntary perform Nervous movements or sometimes they are too comfortable, in the mean time holding educational training courses for the inspectors can be very effective and dissuasive. In countries where this method has been applied, incredible results have been

recorded. According to the Security officials, this is a valuable layer of security with low costs and high efficiency of deterrent performance.

❖ **Backscatter- X- Rays**

Backscatter-x-Rays is an advanced X-ray imaging technology. Traditional X-ray machines detect hard and soft materials by the variation in transmission through the target. In contrast, backscatter X-ray detects the radiation that reflects from the target. It has potential applications where less-destructive examination is required, and can operate even if only one side of the target is available for examination.

The technology is one of two types of whole-body imaging technologies that have been used to perform full-body scans of airline passengers to detect hidden weapons, tools, liquids, narcotics, currency, and other contraband.

Backscatter technology is based on the X-ray Compton scattering effect of X-rays, a form of ionizing radiation. Unlike a traditional X-ray machine, which relies on the transmission of X-rays through the object, backscatter X-ray detects the radiation that reflects from the object and forms an image. The backscatter pattern is dependent on the material property and is good for imaging organic material.

❖ **Trace Detection Puffers**

An **explosives trace-detection portal machine**, also known as a **trace portal machine** and commonly known as a **puffer machine**, is a security device that seeks to detect explosives and illegal drugs at airports and other sensitive facilities as a part of airport security screening. The machines are intended as a secondary screening device, used as a complement to, rather than a substitute for, traditional X-ray machines.

The term "trace-detection" refers to the machine's ability to detect extremely small "traces" of these compounds. The exact sensitivities of these machines are not available information, but a mass spectrometer detects compounds on a molecular level and would only be limited by the efficiency of the collection from the air puffed to obtain a sample for analysis. The machines also have a low false alarm rate that can be [*vague*] less than 1%.

❖ **Quadrupole Responsible Scanning**

The **quadrupole mass analyzer** (**QMS**) is one type of mass analyzer used in mass spectrometry. It is also known as a **transmission quadrupole mass spectrometer**, **quadrupole mass filter**, or **quadrupole mass spectrometer**. As the name implies, it consists of four cylindrical rods, set parallel to each other.[1] In a quadrupole mass spectrometer the quadrupole is the component of the instrument responsible for filtering

sample ions, based on their mass-to-charge ratio (m/z). Ions are separated in a quadrupole based on the stability of their trajectories in the oscillating electric fields that are applied to the rods.

❖ **Polygraphs**

A polygraph, popularly referred to as a **lie detector**, measures and records several physiological indices such as blood pressure, pulse, respiration, and skin conductivity while the subject is asked and answers a series of questions. The belief underpinning the use of the polygraph is that deceptive answers will produce physiological responses that can be differentiated from those associated with non-deceptive answers; the polygraph is one of several devices used for lie detection.

The polygraph was invented in 1921 by John Augustus Larson, a medical student at the University of California, Berkeley and a police officer of the Berkeley Police Department in Berkeley, California. It has been applied for the first time, for the passengers in the US Airports. In this method, a suspected passenger enter to a kiosk and put one hand on the sensor device and answers the questions that sees on the monitor screen. This device has the ability to check the exact blood pressure, heart rate, sweat, body heat and perspiration analysis of chemicals and hormones. As a result, the accuracy and the truth of one's speech and its evaluation are displayed on the screen.