

# FUTURE SYSTEM FOR BEHAVIORAL ANALYSIS DURING THE SECURITY CHECKS AT AIRPORTS

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This article is about usage of modern technology to speed up the flow of passengers and increase efficiency in carrying out its own security control at airports and their requirements in terms of usability in the process of security control at airports and also the applicability of these technologies based on the principle of thermal imaging.

**K e y w o r d s:** Security control, Multilevel Security Control, Thermo vision

## 1 INTRODUCTION

Every person who wants to use for his trip air transportation is required to pass through security control because of the detection of items that could effected the security of air transportation. Nowadays we can find more and more cases which can't be detectable by the current technologies used at airports. For this reason it is necessary to do random personal checks. These checks are not done on regular basis. Much more effective would be the possibility to find out potential risky passenger due to his or her abnormal behaviour before the security check. To simplify procedures for recognising this abnormal behaviour we have to use modern technologies.

## 2 SECURITY CONTROL

Projects to modernize security checks at airports, taking into account how modern technology to carry out their own checks, as well as new scientific knowledge, especially in the field of human psychology.

Application of modern technologies in security checks of passengers and their baggage in particular provides a much greater efficiency in detecting prohibited items. To perform detects the handbag may not be used X-ray equipment but can be used for this purpose such technology in medicine which until then had been exclusively designed for the display of human body parts and human organs such as CT, MRI, etc. Due to these technologies is able to security agent checks and detect even small objects placed in laptops, cameras, or other shelters.

The application of scientific knowledge in the field of human psychology in turn allows you to perform a thorough and time-consuming security checks only for passengers who show signs of strange behaviour.

One of the most popular projects on modern concepts of security controls is a project of international organizations IATA (International Air Transport Association) called Checkpoints of the Future. This project is based on the concept of multilevel security controls which are primarily assume three levels named as "Known Traveller", "Normal", and "Enhanced". Each level represents a different intensity in the implementation of security procedures. In this project there are implement modern technologies to detect prohibited articles including for example the so-called "Body Scanner"

which is used to detect objects in deposit inside body cavities. In the case of applying the highest level for each passenger undergoing a security check by the time of the examinations at one passenger was in the order of a few minutes, and therefore the time the passenger at the airport would be absolutely unbearable and against all principles and trends in civil aviation. This is the reason also envisages introduction a new position called "Behaviour Analyst" based on certain inputs shall assign a specific level of security controls to concrete passenger. Basic inputs for the allocation level security checks are:

- The background and payments for the air transportation
- Biometric document
- Reports from investigate for person who suspected of committing a crime
- The frequency of travel
- Final destination
- One way or return ticket
- Answering the "Security Questions" during the passengers a baggage handling on check-in counter
- Behaviour analyst
- And other

Security staff on the position should therefore be trained to analyze the behaviour of each passenger which according to certain features of the behaviour of a particular passenger he is able to recognize its potential ulterior motives. Behaviour analysis is mostly based on observations of a particular person for a specified period, or by responding to questions. Deep analysis of each passenger would lead to a significant increase in the time required to perform security checks. To conduct the analysis is therefore currently trying to find a technology that would immediate detect of non-standard passenger behaviour and subsequent assignment thorough security checks for such passenger. Such technology would need to fulfil many basic requirements, which include:

- The ability to identify the behaviour of passengers based on the reaction of the organism to stress accompanying intending offense
- Identification of such a situation on the basis of extrasensory reaction of the human organism, which can not affect a person or somehow train their unnatural reaction
- The ability to identify passengers' behaviour based on past requests in a short period of a few seconds as passengers waiting in the queue for allocation level

security controls. It means fast and based on the response of the human organism manifested on the visible part of the human body clothed passenger

- Possibility of applying this technology to the space of security checkpoints
- Economic requirements - reasonable cost and low operating costs
- Operational requirements – reliability

### 3 MODERN SYSTEMS FOR BEHAVIOUR ANALYSIS

Nowadays on the market there are technologies to identify the behaviour of people. Mostly is a technology that can be used for the entry-level allocation of security checks at airports. One of the possible technologies that meet the above criteria is thermo vision technology. Thermo vision have been successfully installed at airports during the pre-pandemic bird flu virus when using this technology has been detected elevated body temperature of passengers, which was then allowed to board their flight and the flight itself, namely in order to avoid the spread of disease.

Infracamera however went with similar success used to analyze the behaviour. Some extra-sensory response of the human organism associated with stress produce different body temperatures in different parts of the human body and these changes can therefore use technology thermo vision easily detected. A person is stressed out further reaction of the organism increases as body temperature, sweating, heartbeat, blood pressure, etc. Monitoring these physical manifestations took too much time and would not meet the requirement for speed and easiness of monitoring. One of the possible physical symptoms the monitoring satisfies all the criteria

mentioned above is the temperature change of the face particularly in the T-zone. Stressed person in the T-zone temperature rises to the surface, which can be used to detect thermo vision and used as input for security agent "Behaviour Analyst", on the basis of these inputs remake demanding passenger during a security check.

### 4 CONCLUSION

Each airport terminal is built to effect passengers in positive way. Therefore these airport terminals are built to be airy and bright and also to present national architecture and something what is really typical for this country. The only place that is not designed in this way is just the security point where the security checks are done. The modern concept and aspects of security checks are intended not only to increase efficiency and speed of check in process but also to make airport security checks acceptable for passengers as much as possible.

### BIBLIOGRAPHY

- [1] Bína L., Žihla Z.: Bezpečnost v obchodní letecké dopravě, CERM 2011, ISBN: 978-80-7204-707-9
- [2] Žihla Z.: Provozování podniků letecké dopravy a letišť, CERM 2010, ISBN: 970-80-7204-677-5

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