

COSMIC – CBRNE Detection in Containers

The threat of CBRNE (Chemical, Biological, Radiological, Nuclear and Explosives) materials used by terrorists is a major concern for EU and worldwide security. Today a major challenge exists in efficiently inspecting containers for this group of threats at high throughput. The challenge of improving container border crossing and critical infrastructure entrance security checks is of great importance in fighting terrorist threats, theft and smuggling. A study by the EC “CBRN Case Study” published by CSES on January 2011 indicates the main CBRNE threats including biological weapons which could be used to attack people in city centers or infrastructure. It was also reported that in the US alone, there were more than 1,300 reported incidents of lost, stolen, or abandoned devices containing sealed radioactive sources. Report summarizes the “historical attacks using chemical or biological weapons” list 23 attacks, demonstrating the attempts and capability of terrorists to acquire CBRNE materials to prepare CBRNE bombs. COSMIC plans the gap for fast inspection of large number of containers in sea port and in crossing borders for CBRNE materials. COSMIC technology can be adapted also to air containers. COSMIC project includes the research, design and implementation of a three stage (primary, secondary, focused manual inspection) detection architecture using combination of innovative sensors.



COSMIC plans the introduction of new CBRNE Sensors for all three stages:

Chemical: New chemical sensors for primary and secondary stages.

Biological: New innovative sensors capable to analyze biological threats at field instead of lab.

- ❖ Bacteria detection in liquids and solids

- ❖ Virus detection based on physical tests.

Radiological and Nuclear: New approach in primary and secondary for detection of shielded nuclear and radioactive materials.

- ❖ New sensor based on Cosmic Rays Muons.

Explosives: New Explosives sensors for primary and secondary based on air sampling.

Management system including the data Collection and Analysis from all sensors.

Consortium:

The consortium includes 9 partners: 3 commercial companies ((Lingacom (SME), SEADM (SME) and ATOS), 3 research institutes (Technion, Ben-Gurion University and CSIC) and 3 end-users led by the Dutch Customs Administration, Israel National police and Guardia Civil that will host the field trials.

The project is coordinated by Lingacom, a technology SME, leader in radioactive and nuclear material detection. The project started at October 1, 2018, and runs for a period of 30 months.

The main benefits of the COSMIC project are the following:

- ❖ Fast and reliable detection of CBRNE threats in shipping containers.
- ❖ Concept is based on 3 stages: After each detection stage the non-suspected containers are released, and the CBRNE-suspect containers proceed to the next detection stage
- ❖ Introduction of new and innovative CBRNE sensors.
- ❖ Cost-benefit approach

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