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|  **FP7-gen-RGB**Contract N°: 315723**ISOTRACK II**Title: ISO Shipping Container Tracking and Monitoring System Demonstration ProjectFP7 Priority Research for SME Associations Programme**Publishable Summary**Project Coordinator: Dougie Bryce (TTS Shipping Ltd)Project Start Date: 1st January 2013 Duration: 3 years Version 1 |
| **DISSEMINATION LEVEL** |
| **PU** | **Public** |  |

ISOTRACK II Publishable Summary

*https://www.youtube.com/watch?v=eoSY4MdZqmk*

ISOTRACK II follows on from ISOTRACK, our successful FP7 proof of concept project, which developed an innovative dielectric composite door, transparent to radiofrequency with an onboard satellite tracking navigation system and RF beacons allowing it to telemeter its position and cargo status to the operator or relevant authorities. The central objective of the ISOTRACK II project was to build and demonstrate a full size pre-commercial demonstration rig capable of being fitted to newly manufactured ISO shipping containers or retrofitted to existing containers.

During ISOTRACK II we were able to demonstrate how the doors and tracking system works during the full logistics cycle including legs both on land and at sea. The ‘smart’ composite container door replaces steel container doors, can also include a range of sensors including temperature and CO2. In combination, these can contribute to the detection of security issues including alerting controllers to the possible presence of explosives, human or animal intruders. Sensors can also assist in climate control and notification of potential issues with temperature in the transport of perishable goods. A wireless mesh networking infrastructure enables container connectivity whilst on board container liners or in port terminals. All electronics including antennas are integrated and encapsulated within the door making it robust and unobtrusive. The sensing and tracking electronics provides the following functionality:

* Accurate, real time position data of the container
* Detection of door opening
* Sensing presence of humans (theft and stowaways)
* Sensing of chemical explosives
* Detection of radioactivity (potential material for radiological dispersal devices)

The developments pushed the envelope of the state of the art through the following steps:

* Higher security reducing inventory theft
* Higher security levels to reduce/prevent human and other illicit traffic
* Less time checking containers at borders and ports
* Lower insurance costs for pre-classified hi-integrity/secure units
* More time/resources to spend on other identified less secure containers
* Less health and injury risk for everyone involved in the transport operation

The primary result of the ISOTRACK II project is a ready for production system, having undergone field scale demonstrations at sea which has attracted three bona fide bids for licences and enabling us to truly say that we have achieved our objective to commercialise our technology with support from EC FP7 grant funding.

**ISOTRACK II** ISO containers with on-board communications operate within the full operating range of the logistics environment to greatly improve container security and tracking;

* Universal design for door within most frequently used door sizes;

Widths between 2.28m to 2.343m and Heights between 2.28m and 2.585m

* The electronics module can be integrated to many sizes of door with each release of the product delivering further miniaturisation opening up ISOTRACK II functionality to even more doors.
* Electronics module capable of integration with CO2, temperature, and humidity sensors.
* Future sensors available will include radiation, VOCs, shock and acoustic disturbance sensors
* Certified as compliant to ISO 1496
* RF communication backed up by GSM and mobile networks
* Aligned with State of the Art communication networks - tracking at sea is as robust as on land
* No external antenna overcoming deliberate vandalism of external components
* All contained within a retrofit door
* No need to completely replace container inventory to deploy ISOTRACK II

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