I2 - Real-Time Cargo Volume Recognition

# Summary of the innovation

# Transport and logistics faces fluctuations in cargo volume that statistically can only be captured with a large error. Observing such dynamic volume fluctuations more effectively and providing the data about volume fluctuations in real-time promises many benefits for better management of transport processes, such as reducing unused transport capacity and ensuring timely delivery of cargo. We combine a mobile App with internet-connected (IoT) sensors to deliver up-to-date, timely, and precise information about parcel volumes inside containers. In particular, we introduce a novel approach for employing internet-connected low-cost, off-the-shelf 3D scanners (Microsoft kinect) for capturing and analysing actual cargo volumes. Accuracy of volume recognition as been evaluated in controlled experiments indicating that cargo volume can be measured with high accuracy. In addition, a survey study with domain experts revealed its high potential for practical use.

# Key features / capabilities

* Mobile App for uniquely identifying parcel containers
* Volume recognition algorithm to compute cargo volume from 3D sensor data (Microsoft kinect)

# Maturity level (TRL - Technology Readiness Level)

* TRL 4 – technology validated in lab

# Availability

* Research paper
  + F. Föcker, A. Neubauer, A. Metzger, G. Gröner, and K. Pohl, “Real-time cargo volume recognition using internet-connected 3D scanners,” in 10th Int’l Conference on Evaluation of Novel Approaches to Software Engineering (ENASE), Barcelona, Spain, April 29-30, J. Filipe and L. Maciaszek, Eds., 2015.

# Licensing

* Public domain (algorithms described in research papers; experimental data set)

# FIspace partner(s) that own innovation & contact points

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