Prodevelop at a glance

SME company
> 25 years of expertise
More than 100 employees (incl. engineers, finance, etc.)
HQs located in Valencia (Spain)
Technological solutions for the maritime domain
Clients in Spain, UK, Africa and South America
Big data, AI/ML, Edge computing, CDM, JIT Port calls, etc.
Working in several R&D projects

"To make shipping container industry efficient, reliable and environmentally friendly"
Container Terminal business

Terminal business is to move boxes with heavy equipment (CHE) in the most possible efficient way.
ASSIST-IoT Port Automation Pilot

Malta Freeport Terminal, managed by

Technological development and integration performed by KONECRANES® and prodevelop

2 million containers / year → 5 – 6 million boxes moves per year

Available CHEs:
- Rubber Tyred Gantry Cranes (RTGs)
- Ship-to-Shore Cranes (STSs)
- Terminal Tractors (TTs)

...
ASSIST-IoT Port Automation Pilot

Will help on making better decisions to container terminal stakeholders by means of improving the availability of information over which the operators can interact with, as well as facilitating the automation of repeating workflows.

3 Business scenarios, with 7 use cases
19 functional/non-functional requirements
Motivation: operational efficiency can be improved by tracking/registering what and where are containers, and who makes the movements.

Issues:
- CHEs shall be digitally located and tracked, and their activities shall be registered/recorded.
- Containers cannot integrate positioning devices.
- External drivers do not know yard layout.

Role of ASSIST-IoT:
- Distributed Positioning Detecting System In the edge
- Security-by-design authorisation system for different type of involved actors
- Easy-to-use human-to-machine interface
Motivation: operational efficiency can be improved by reducing the time required for the alignment and loading containers processes.

Issues:
- Cooperation between CHEs is currently performed manually, reducing productive working time.
- CHEs must be aligned, but flexibility is very limited.
- Most advanced solutions are centralised (potential hacks).

Role of ASSIST-IoT:
- Secure multi-factor identification and authentication.
- Machine-to-machine communication, including LIDAR sensors and actuators.
**Motivation:** manual cranes idling time is ~60%. The **operational efficiency + workers’ safety** can be improved by moving the control of multiple cranes to more secure remote cabins.

**Issues:**
- High deployment costs (> 20 M€)
- Remote container crane operation required fully electric cranes
- Remote OS required fiber optics (for reliable control and large bandwidth)
- Lower environment knowledge than crane’s cabin

**Role of ASSIST-IoT:**
- Resilient multi-link wireless (guaranteed High bandwidth Ultra-Low latency QoS)
- Computer vision Interfaces over the Remote Operating System
Thank you!

Find more: https://assist-iot.eu