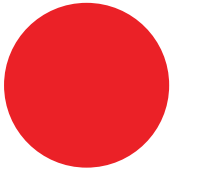




OPTIMIZING STS BACKREACH OPERATIONS WITH PEOPLE TRACKING

AGENDA



1. Mi-Jack Europe GmbH



2. Mi-Star Solution – Eurogate, Hamburg



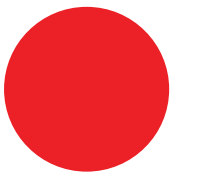
3. Questions & Answers



4. Open Discussion



ALLOW ALL WORKERS TO COME HOME SAFELY AND MAXIMIZE YARD PERFORMANCE!



Real Time Locating System (RTLS)
based on innovative **GNSS and**
Radio solutions



Safety and efficiency
in container
terminals worldwide



Consultative and
solution-oriented
since Sep 2017

WITH WHOM DID WE WORK BEFORE?



REFERENCES AND ACTIVE SYSTEMS

GCT Deltaport
(Vancouver,
CAN; 2017-18)

CSX Intermodal
(Winter Haven,
USA; 2018)

CSX Intermodal
(Fairburn, USA;
2019)

CSX Intermodal
(Rocky Mount,
USA; 2021)

PROJECT OUTLOOK

UP Railroad
(Joliet, USA;
2021)

DP World
(Vancouver,
CAN; 2022)

Long Beach
Container
Terminal, (USA;
2023)

Eurogate,
Hamburg
(Germany;
2024)

SUCCESS STORY





THE PROJECT



Mediterranean Ports & Logistics 2024

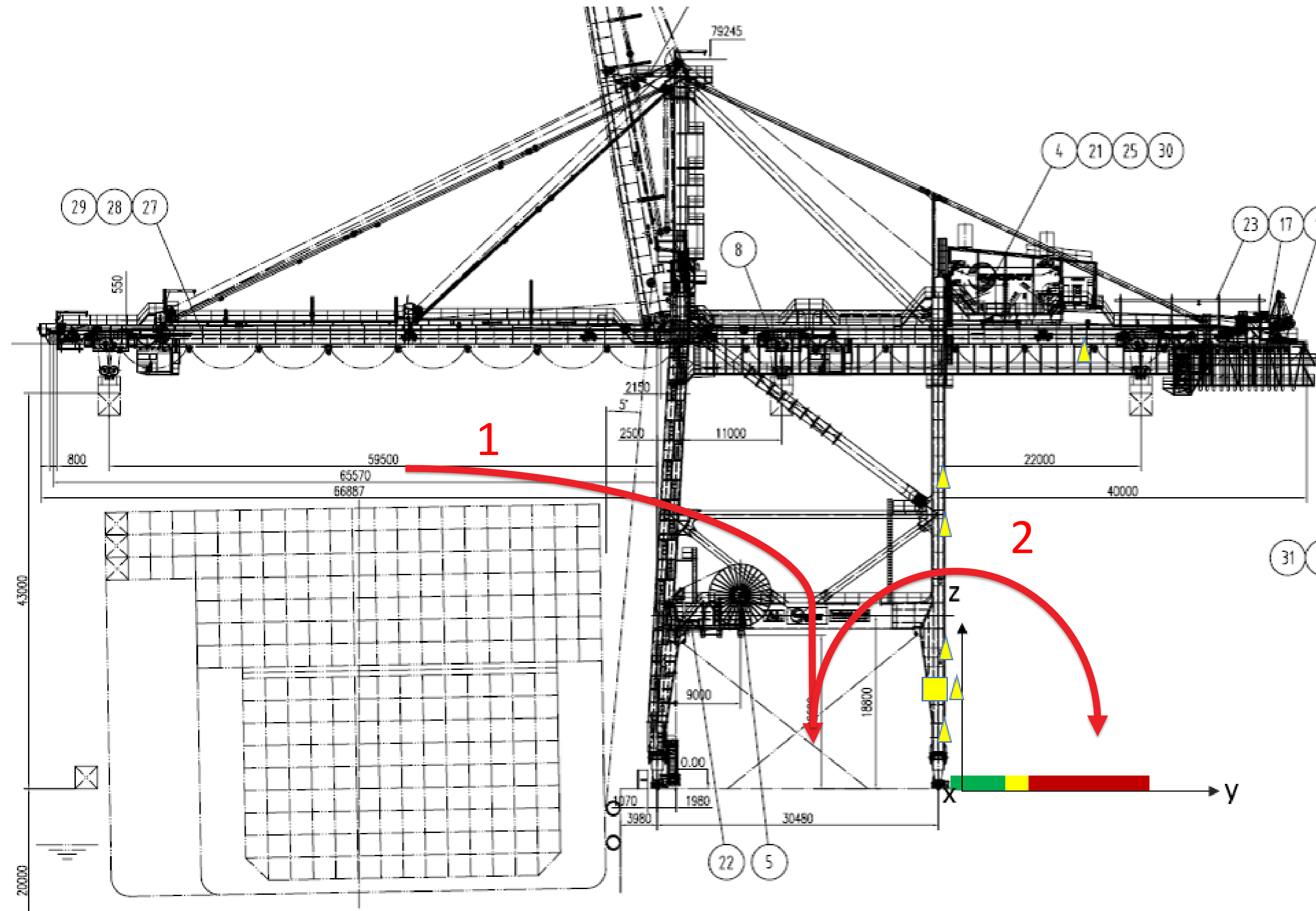
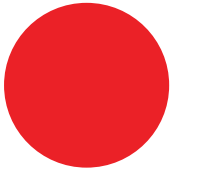


THE CHALLENGE

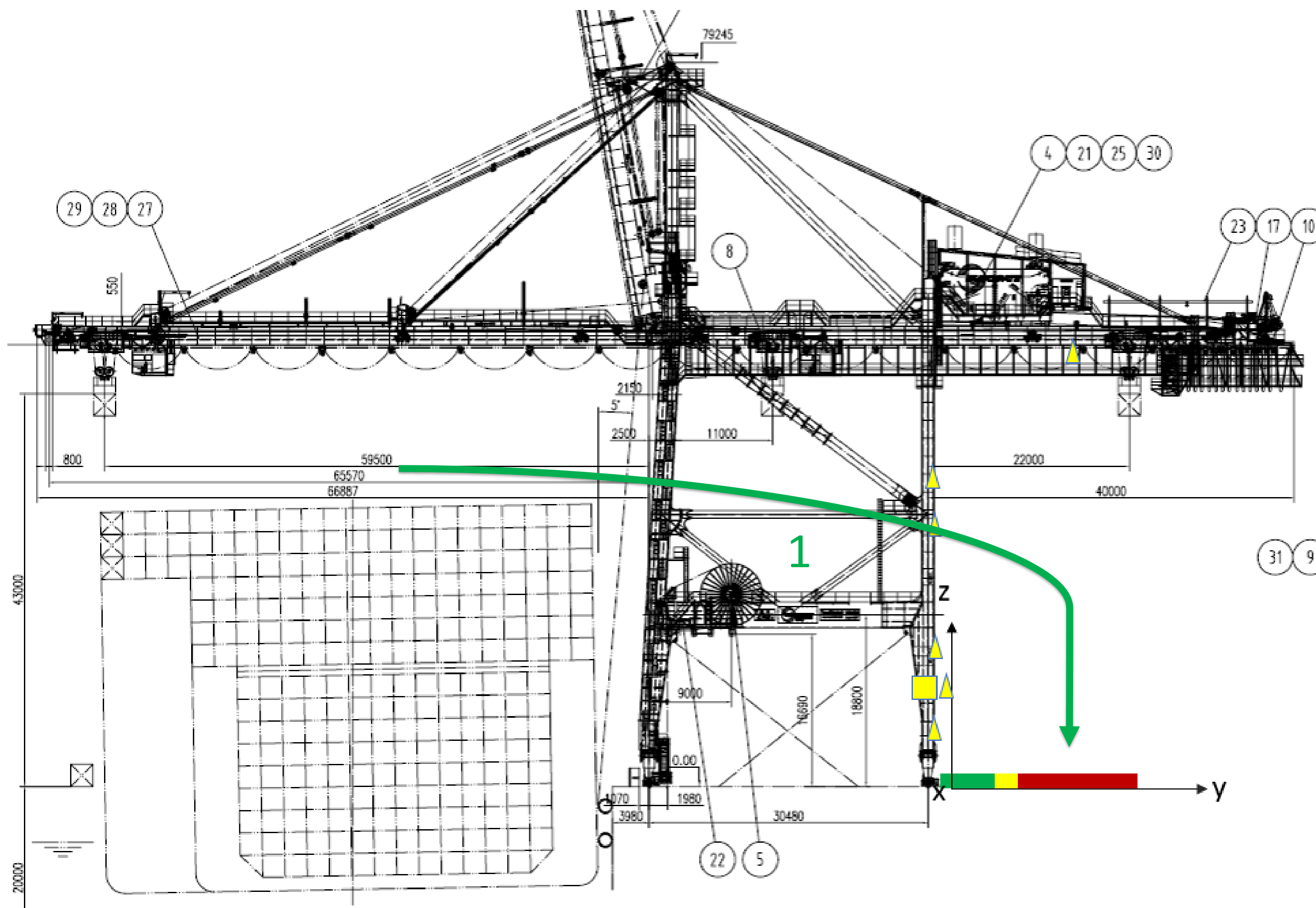
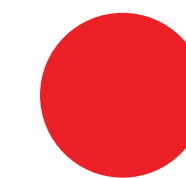
5

- Eurogate needs 2 moves from ship to straddle.
- In the backreach area, parallel operation of personnel and straddle carriers is not possible due to safety concerns.
- General interest in greater protection of staff and increased efficiency.

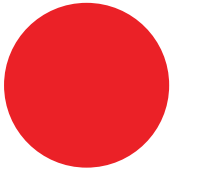
THE CHALLENGE



THE EXPECTATION



GOALS



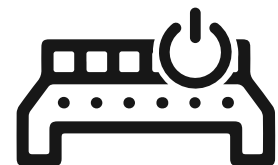
1. Increasing Safety

The primary goal is to increase the safety of employees in the backreach of the STS crane.



2. Determination of Positions

The system should determine the position of equipped persons and provide the option of activating warnings when a hazardous zone is entered.



3. Minimisation of work interruptions

The system should ensure that the productivity of the container terminal is minimized.

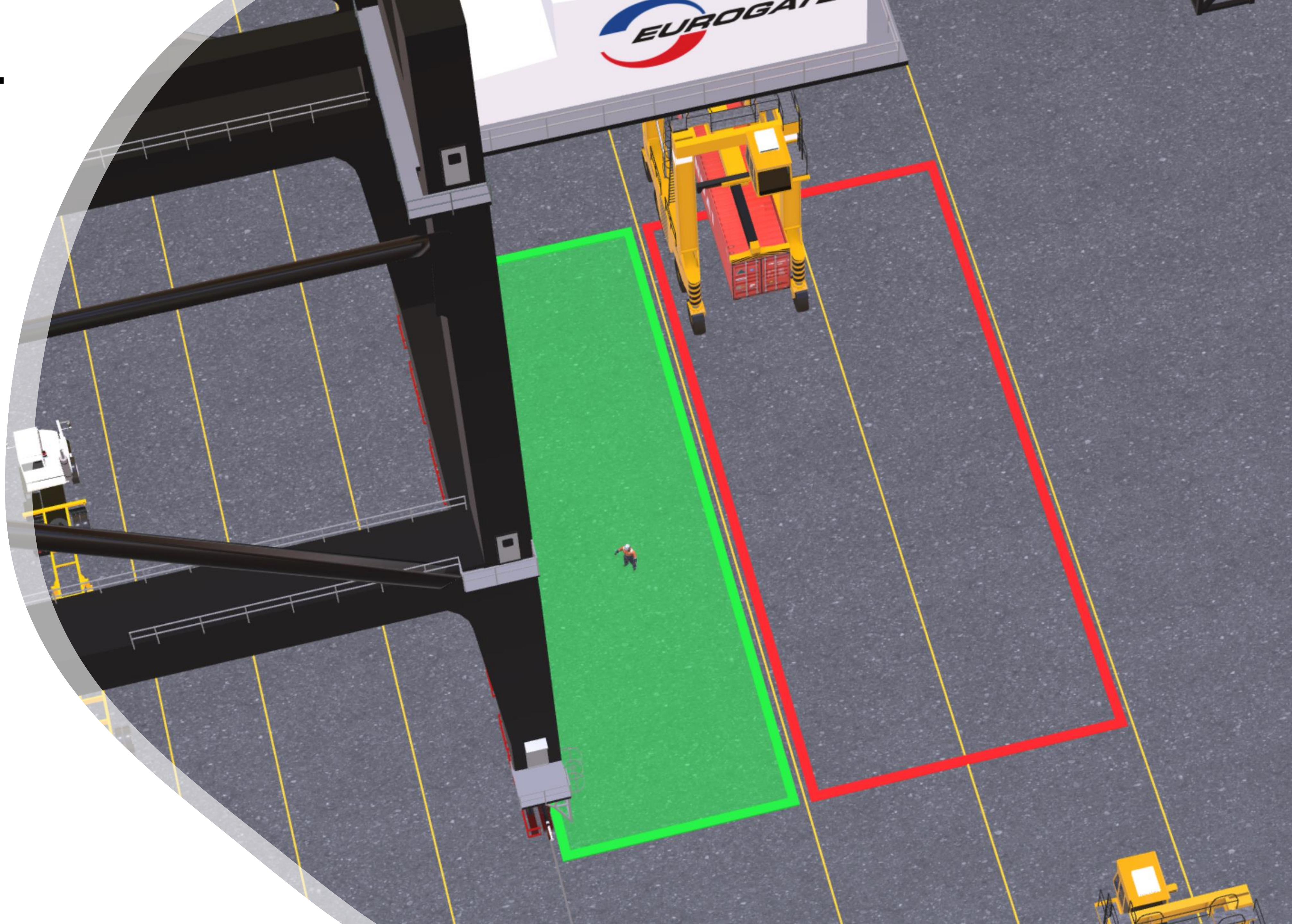


4. Scalability

The system should be scalable so that it can be extended to other areas of the terminal in the future.

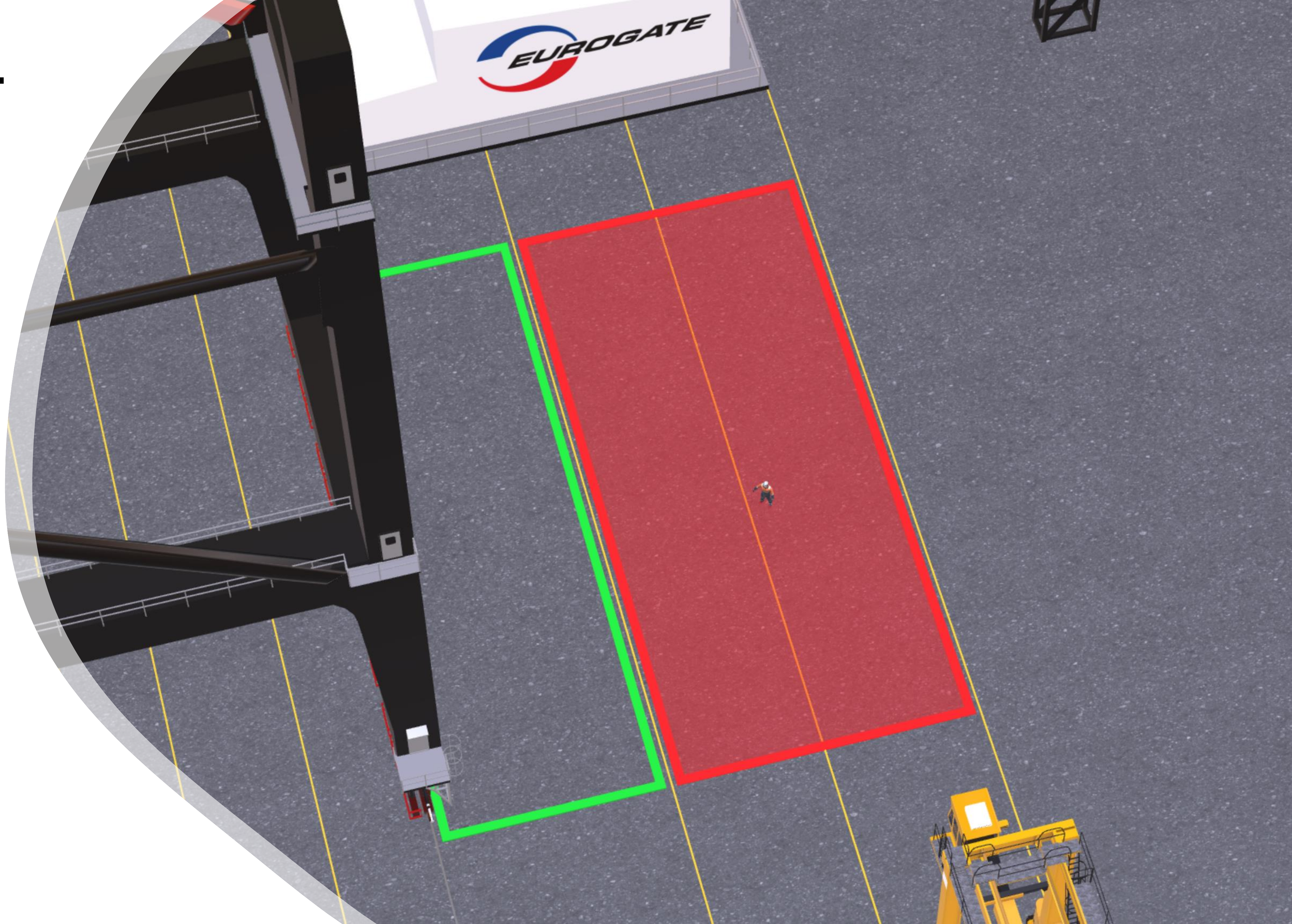
CONCEPT

- System recognises tag position in the "safe zone"
- System gives feedback through filled, green zone
- Straddle carriers can pass



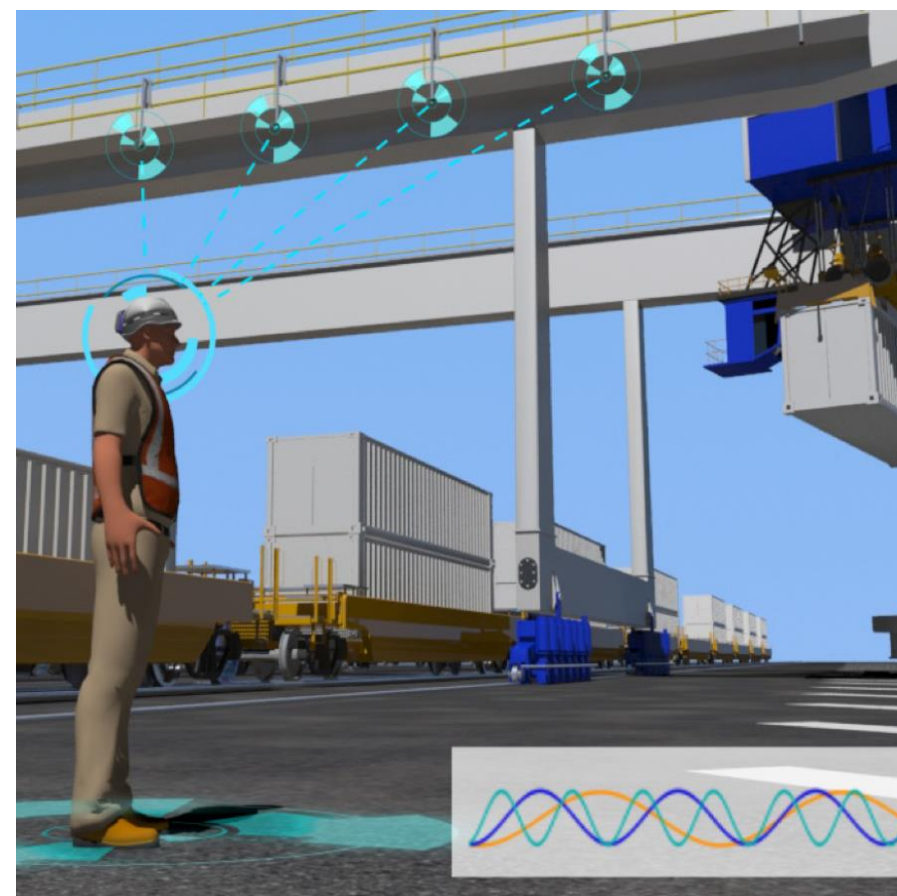
CONCEPT

- System recognises tag position in the "unsafe zone"
- System gives feedback by filling in the red zone
- Straddle carriers must stop

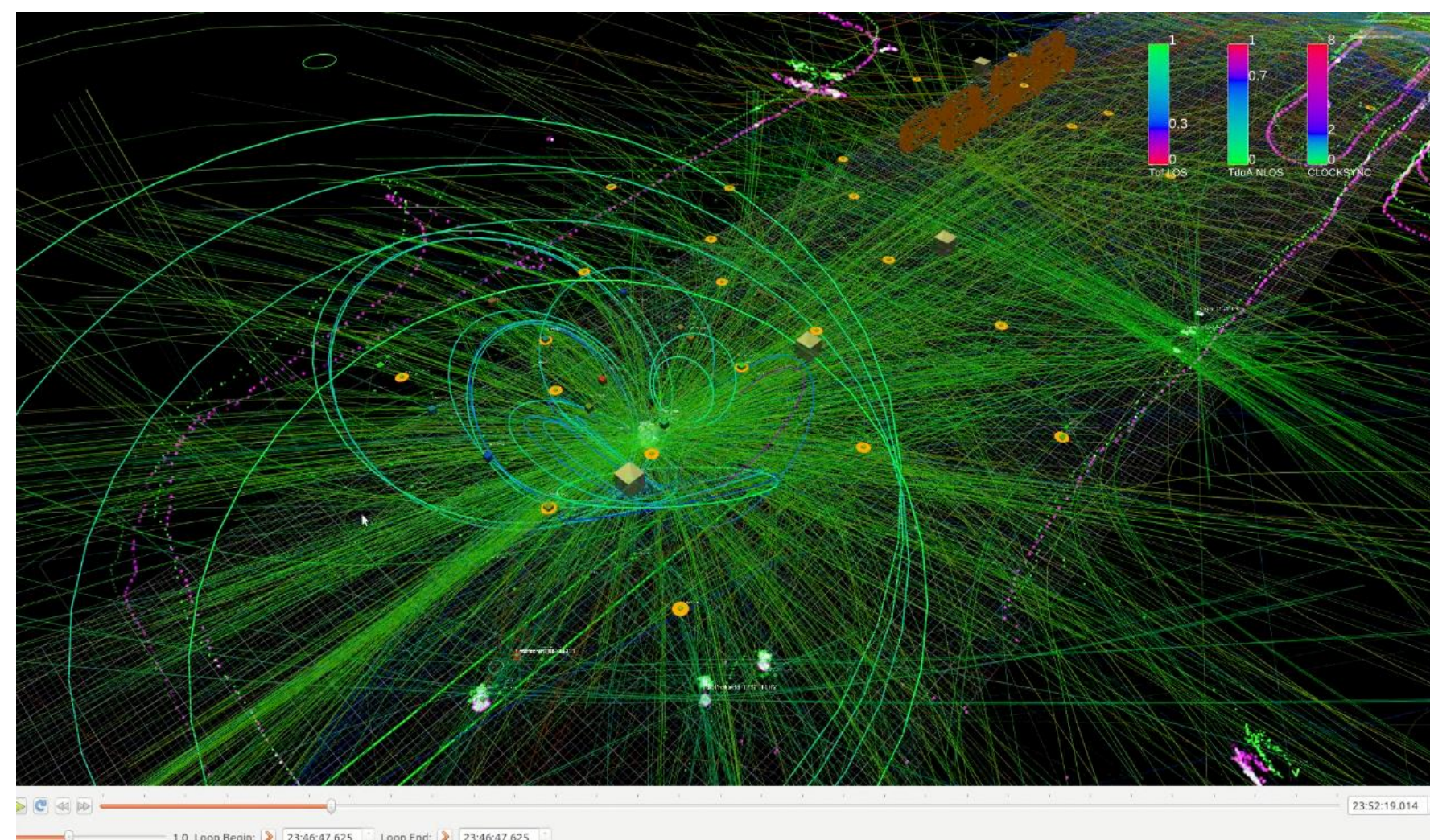


TECHNOLOGY OVERVIEW

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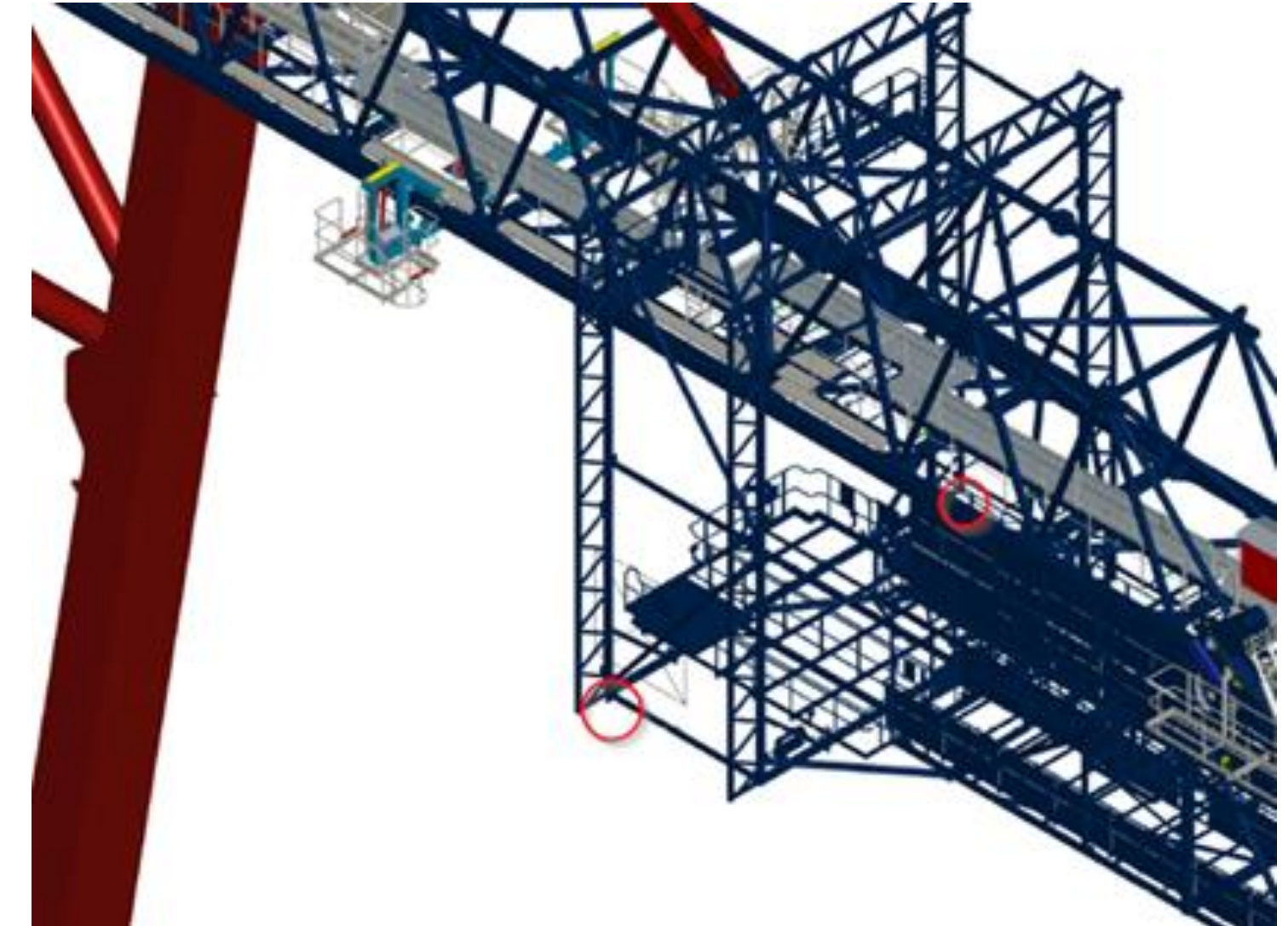
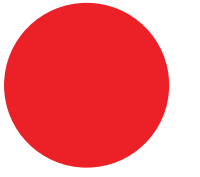


- Multilateration
- ToF & TDoA
- Sub 1 GHz (868 MHz), UWB (6,5 GHz)



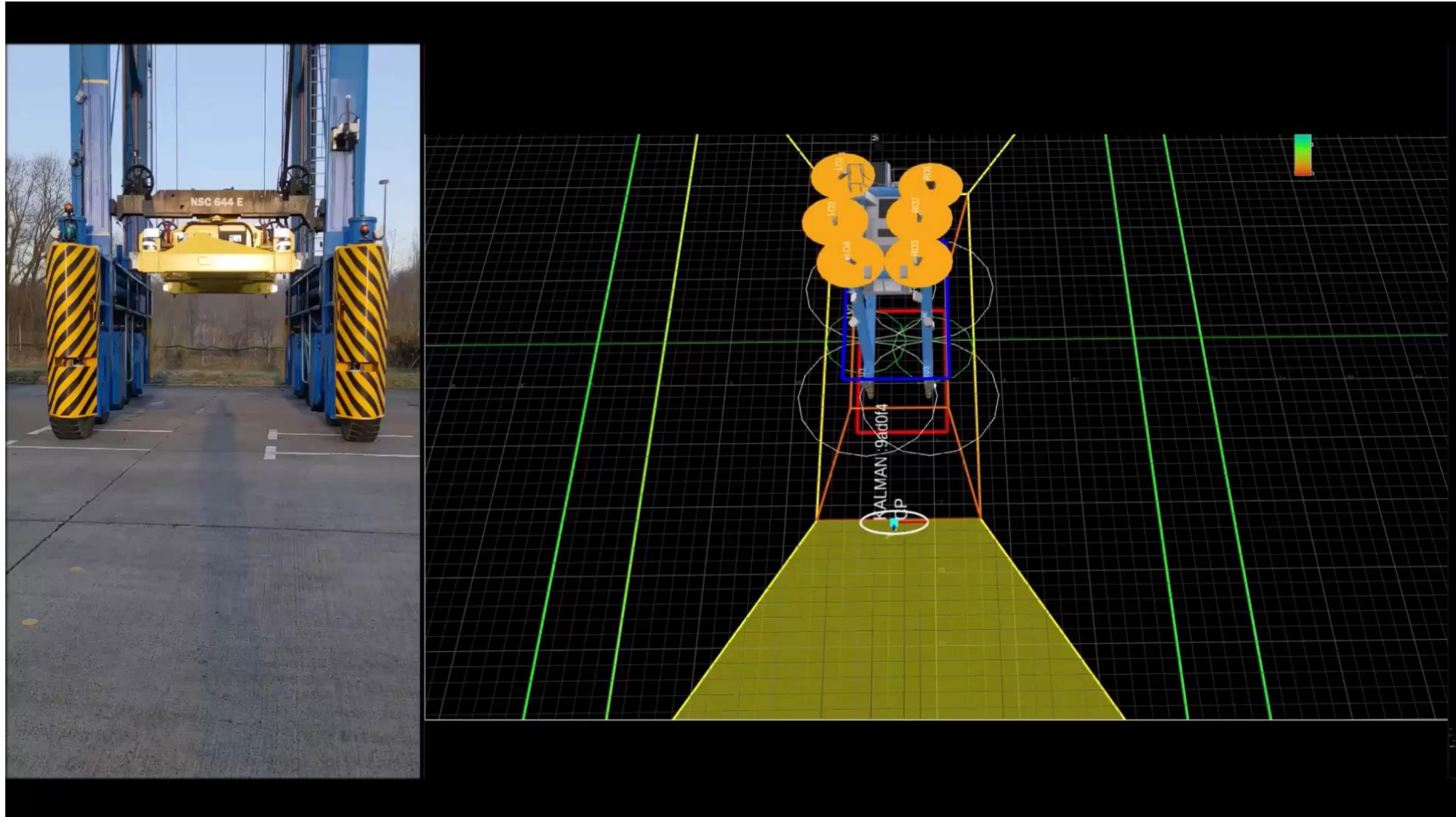
MI-JACK
EUROPE

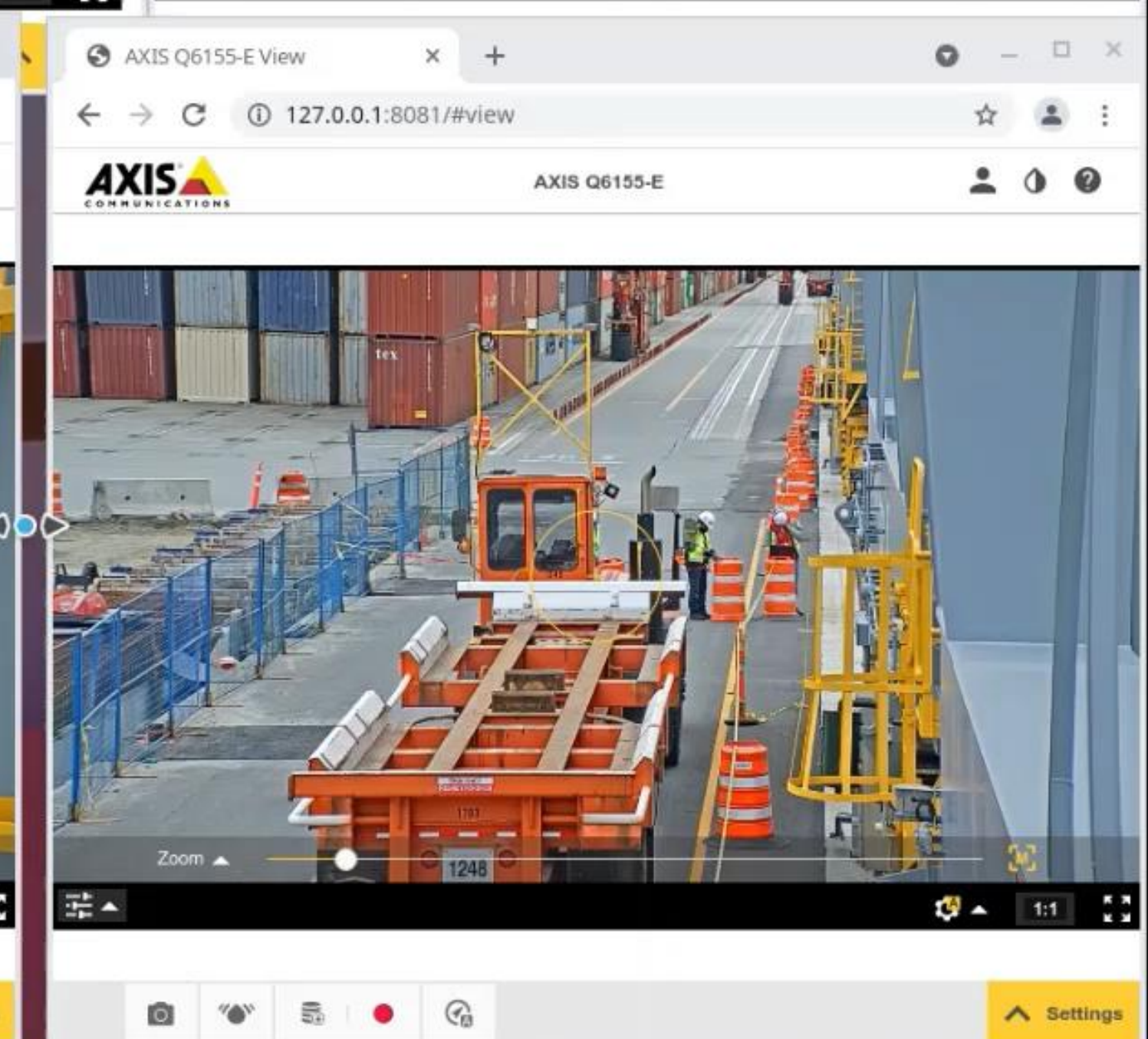
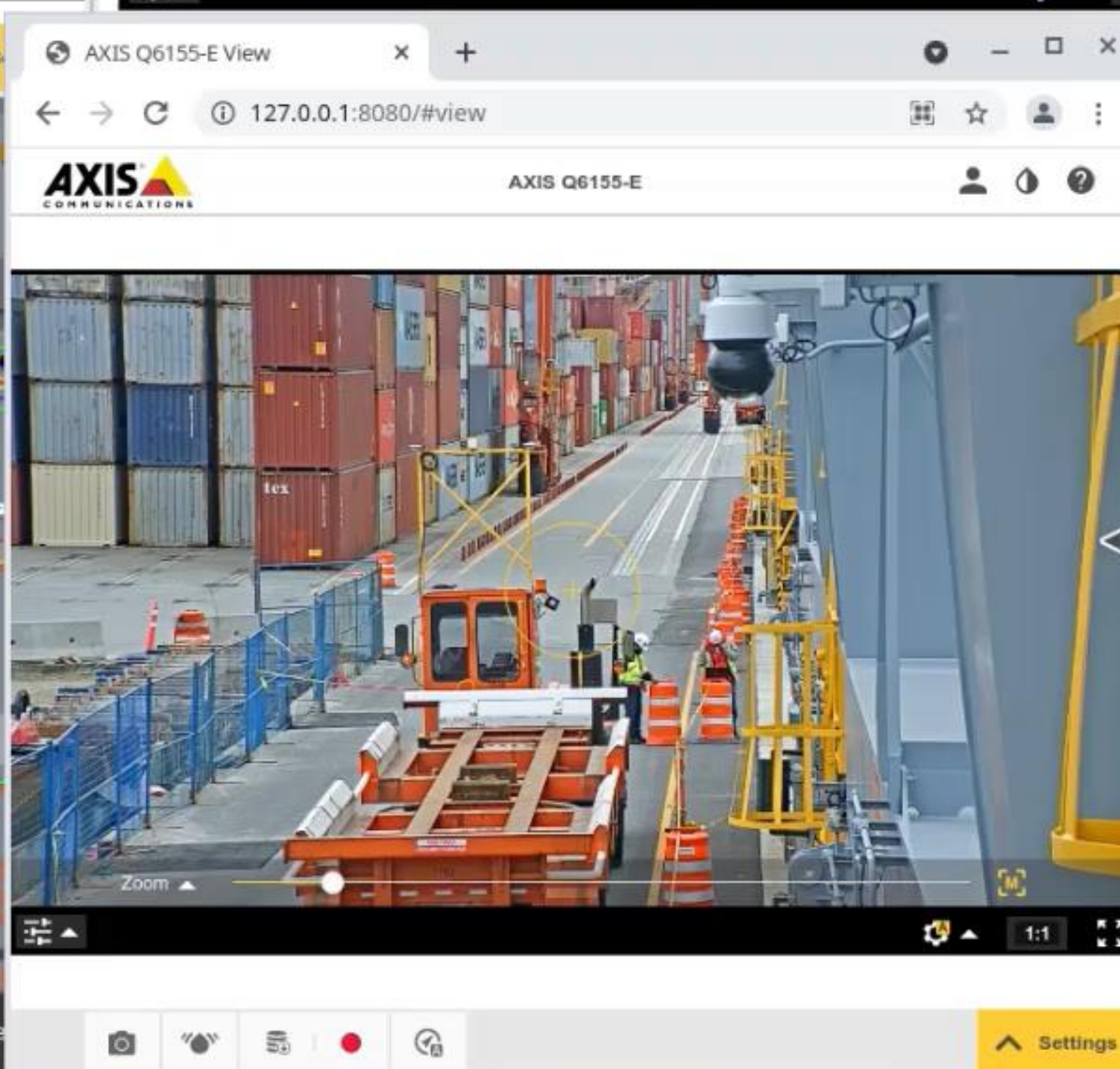
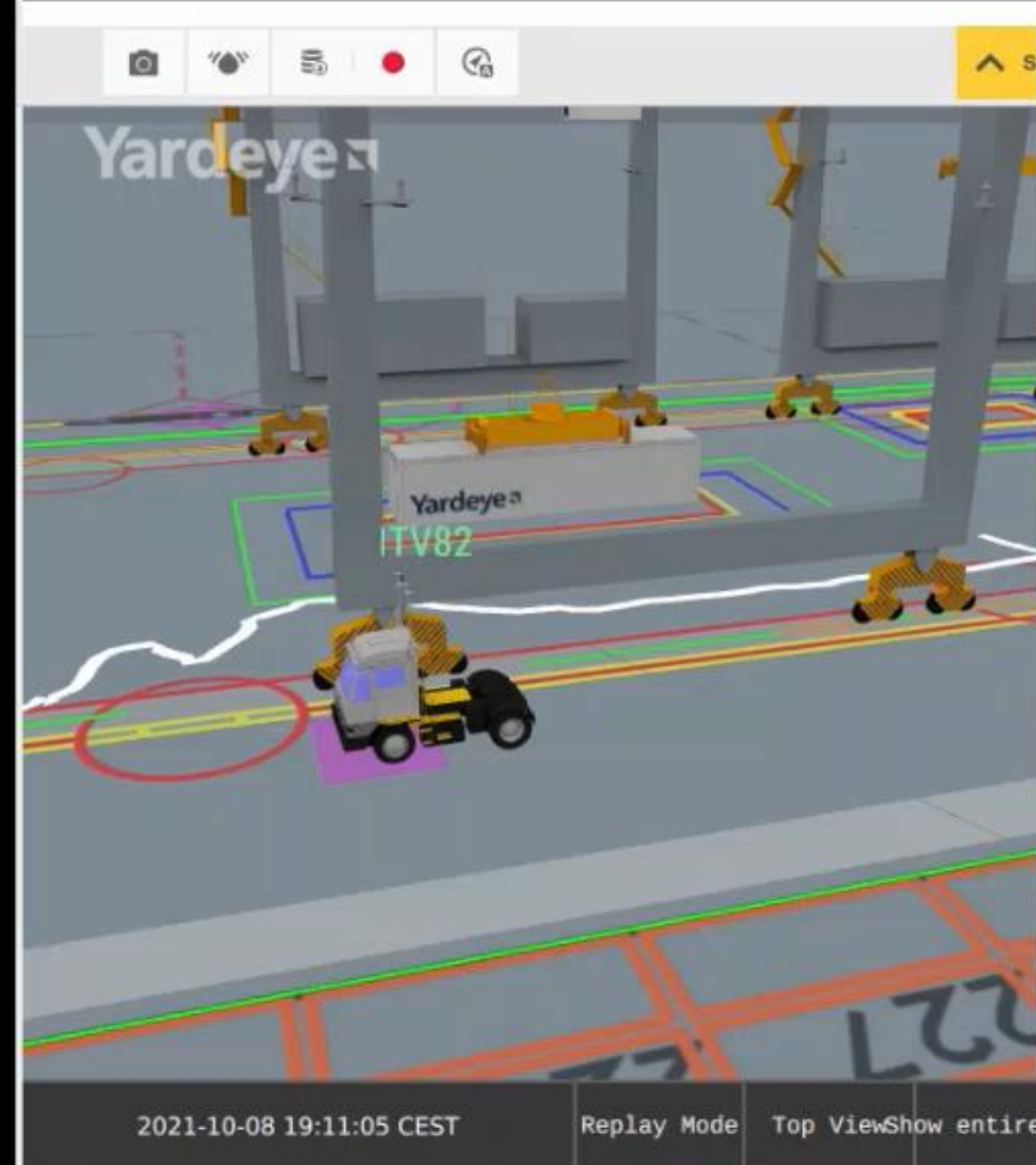
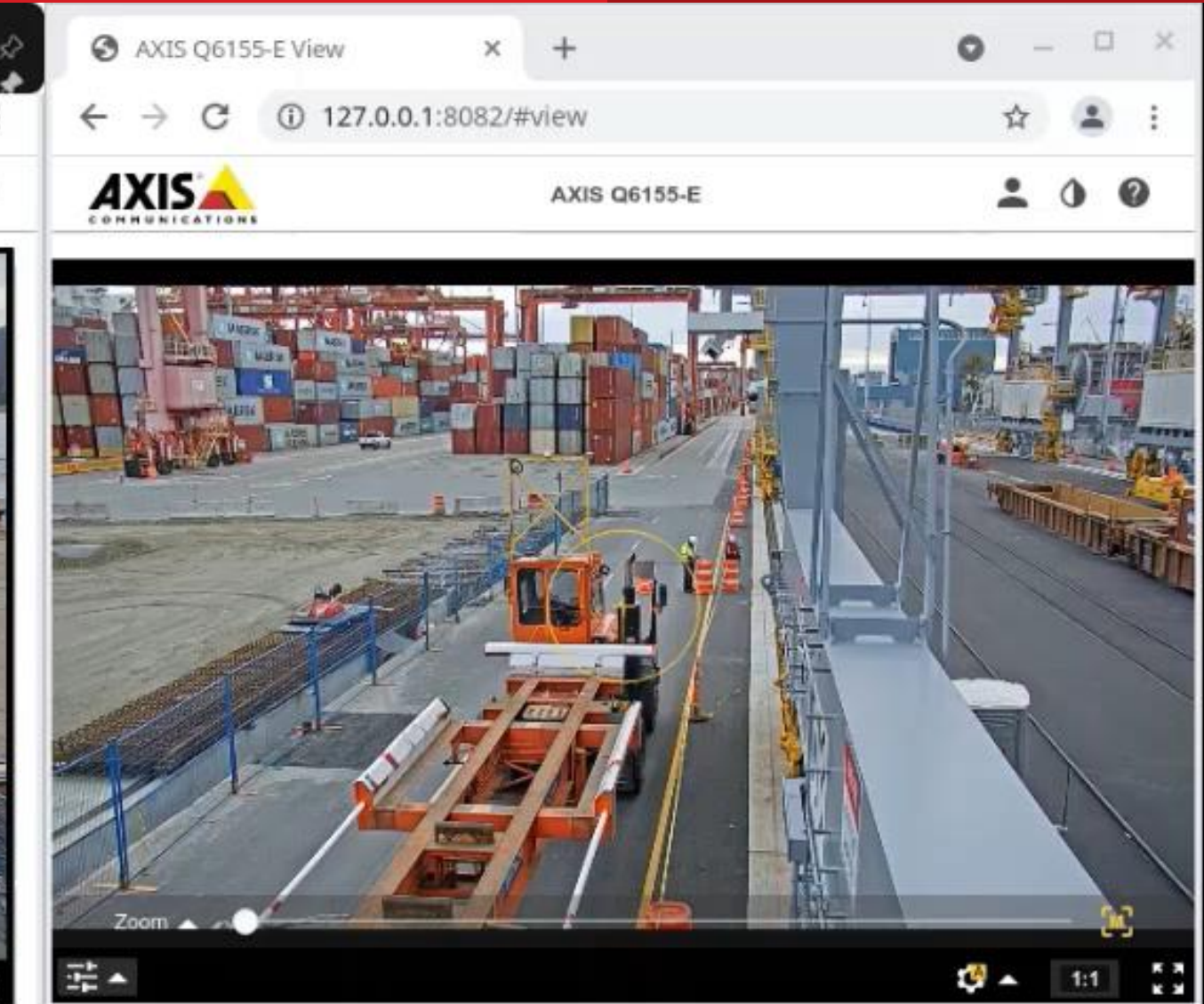
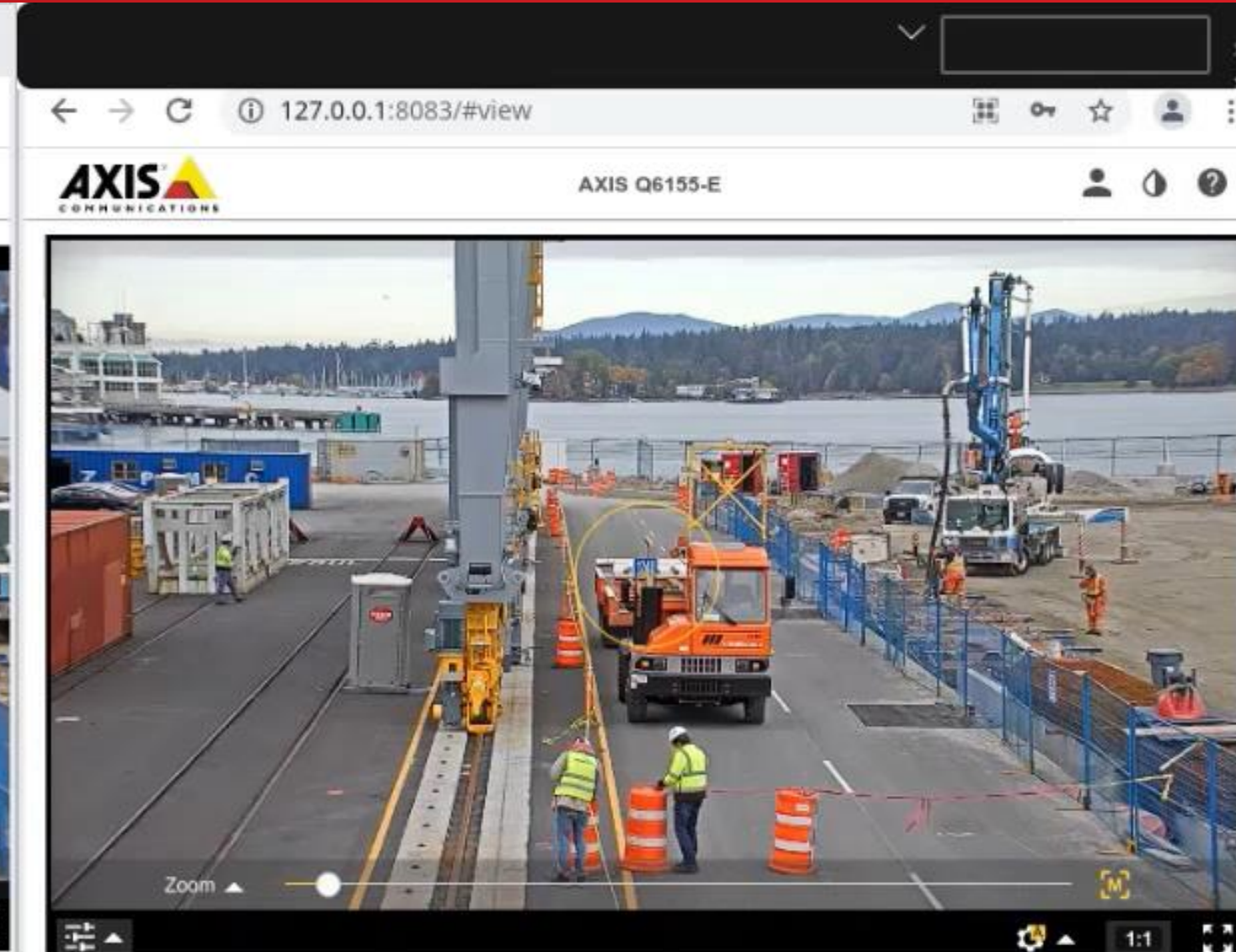
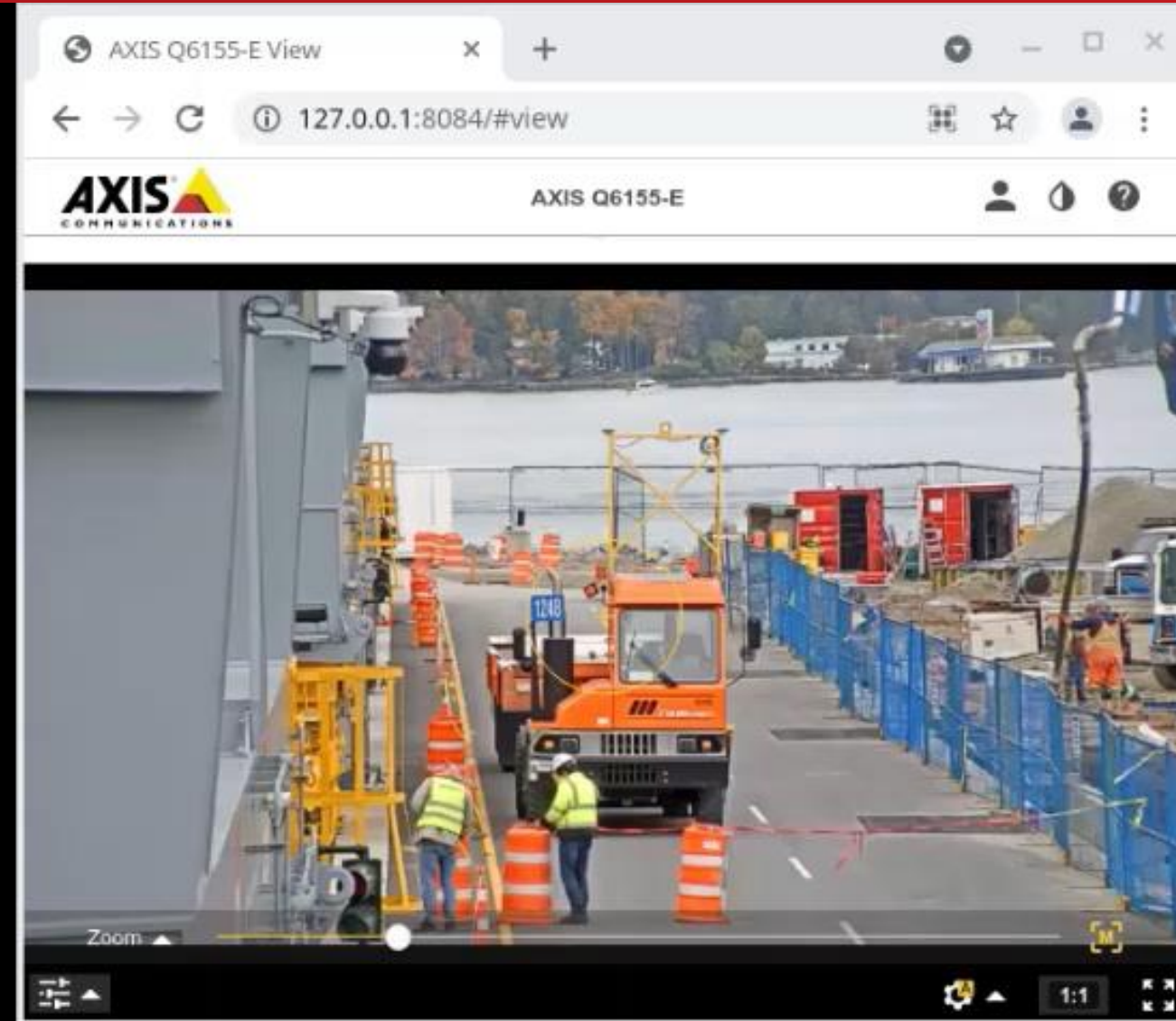
ANTENNA LAYOUT



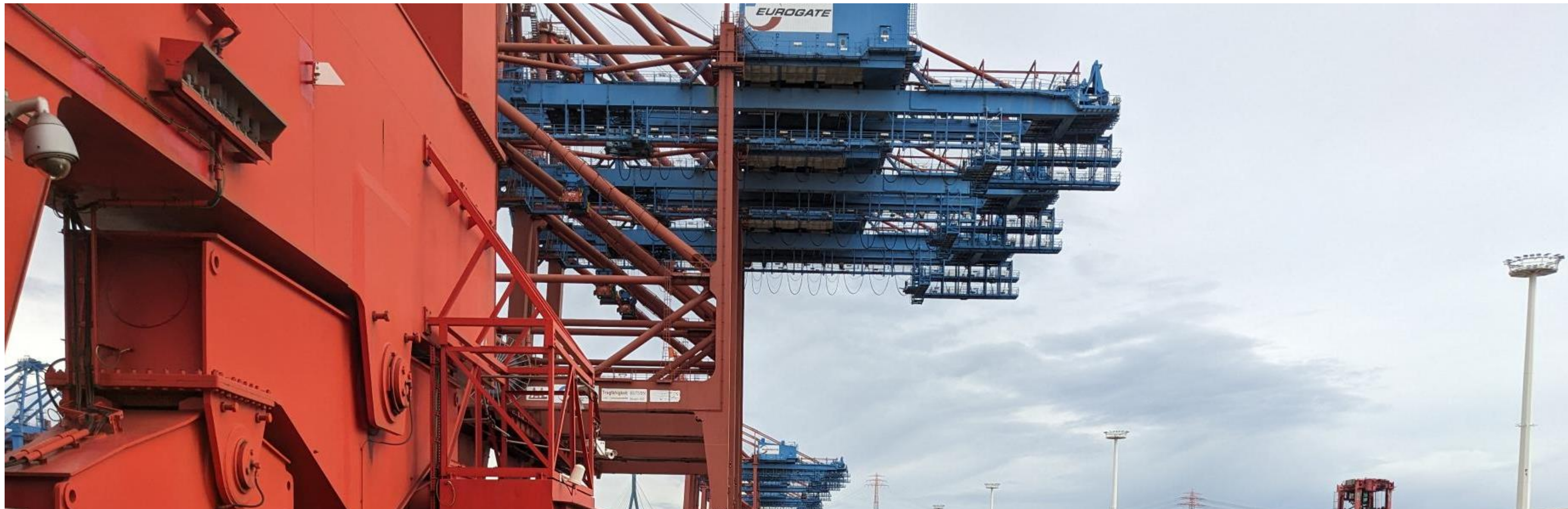
VISUALIZATION

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1. The discussion and scope definition itself **increased the awareness** of good and not good defined processes, safety, and gaps
2. The RTLS system generally **increase the visibility of personnel** in a very dangerous work environment
3. The RTLS system **allows a safe and simultaneous operation** between straddle carrier and personnel in the STS backreach area.
4. The RTLS system **reduce the STS movements** from 2 to 1 move per container
5. High LOS availability **keep the technical challenges low.**



Questions and Open Discussion

How can Automation take place – rules for Automation?

- Think before act / Write down your goals
- Define your processes / Activity-Frequency-Matrix
- Avoid exceptions
- Intense definition phase avoids surprises and expensive changes

How can technology in your terminal facilitate safer operations?

- Every technology has advantages and disadvantages
- Match the technology with your goals

How do you measure the value of safety? What are the KPIs?

- Safety
- Availability



Thank you for your attention.

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