Novel technologies to boost the shipyard industry

# OSI4IOT Platform

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**ORGANIZED BY THE EU HORIZON 2020 PROJECTS:**

FIBRE4YARDS SHIPYARD FOR THE FUTURE

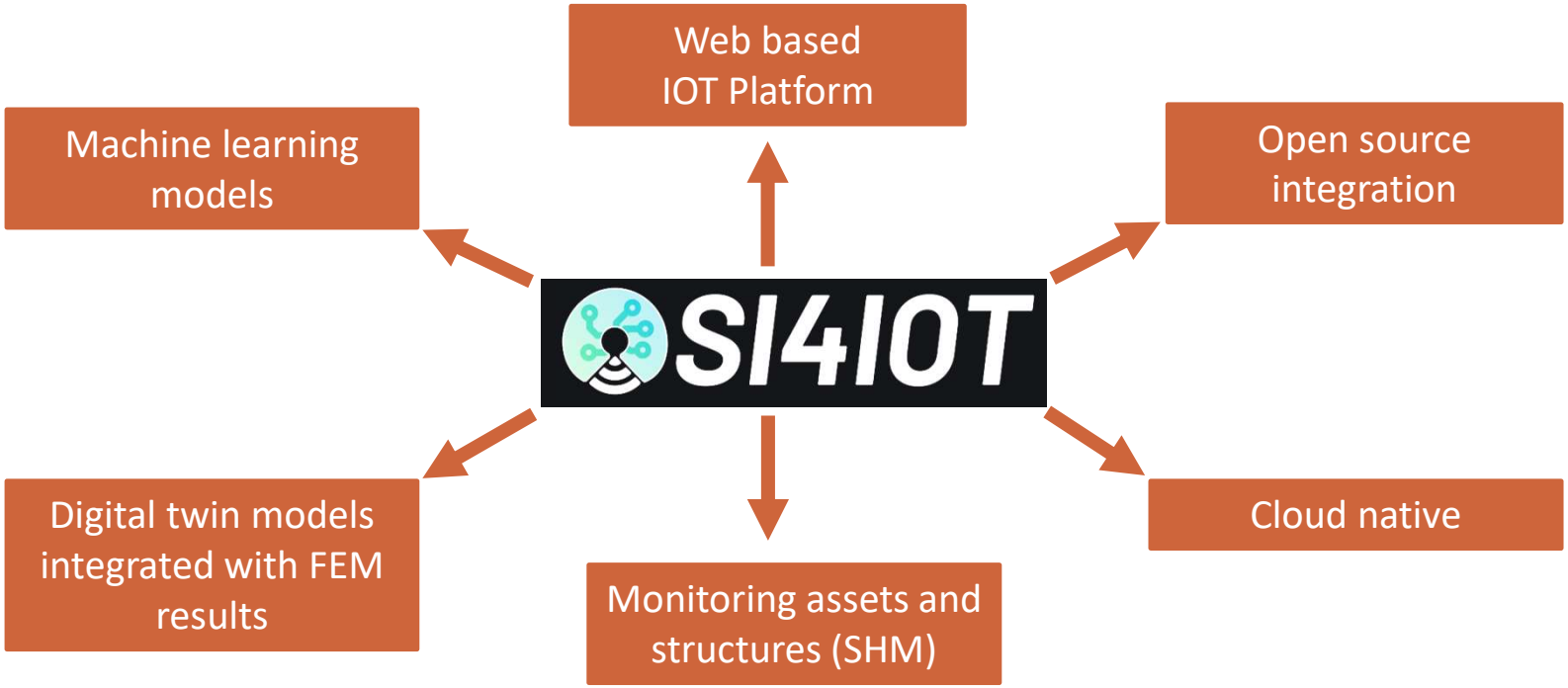
RESURGAM

MARI4YARD MARI4ALLIANCE

30th and 31st May 2023, RTD Innovation Dock, Rotterdam

These projects have received funding from the European Union's Horizon 2020 research and innovation programme under grant agreements n° 101006860 (FIBRE4YARDS), n° 101007005 (RESURGAM), and n° 101006798 (Mari4_YARD).

# What is OSI4IOT?



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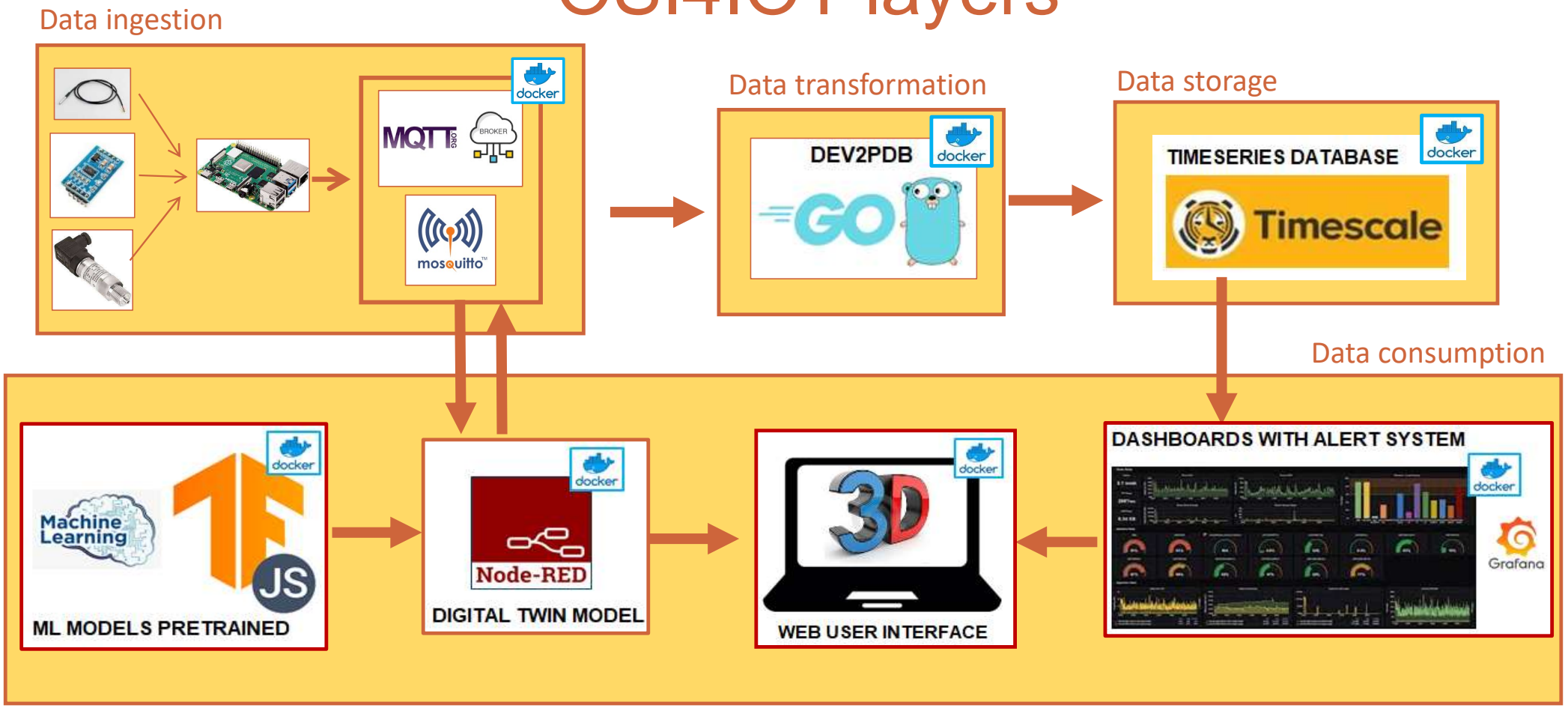
# OSI4IOT layers



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# Assets monitoring with dashboards

Grafana dashboard

Assets geolocation

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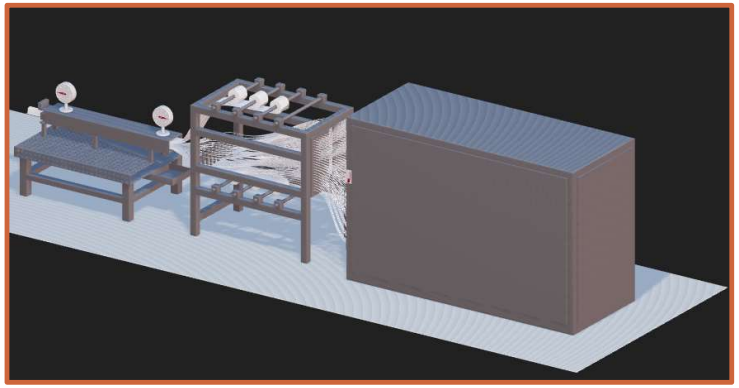
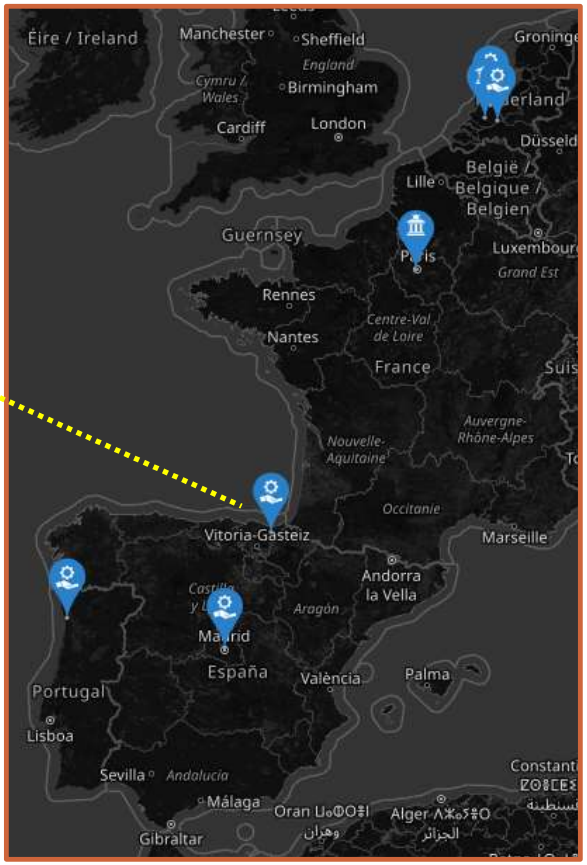
# Assets monitoring with digital twins

Physical model

Digital twin model






Assets geolocation



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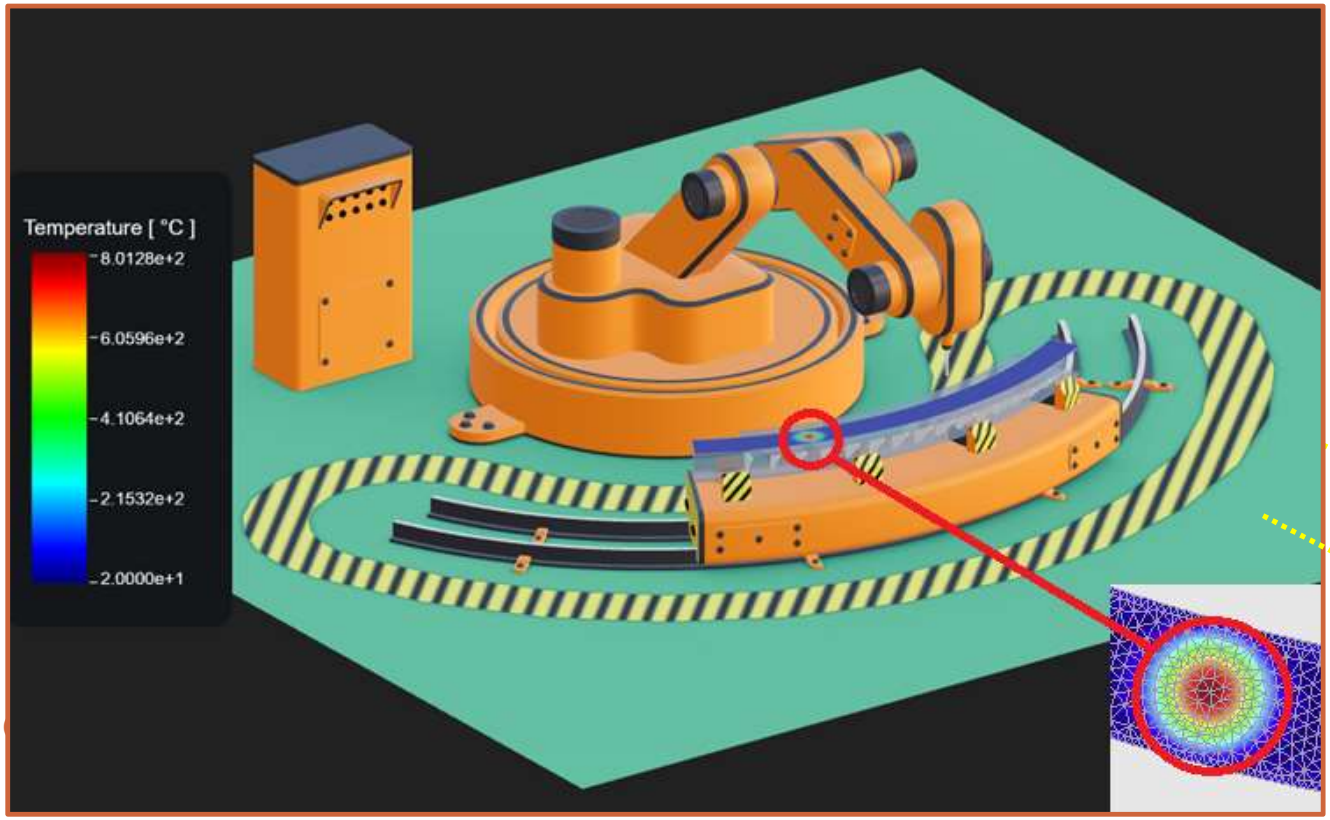
# FEM results integration

Assets geolocation



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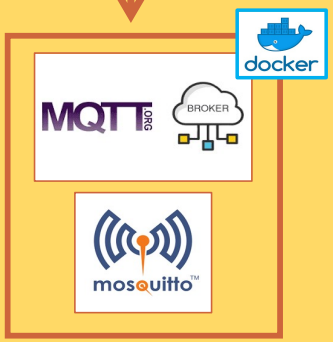
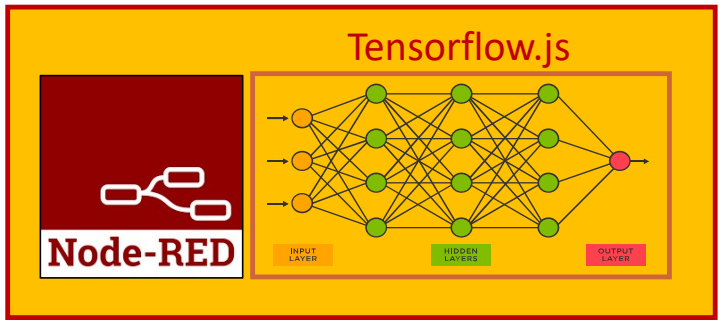
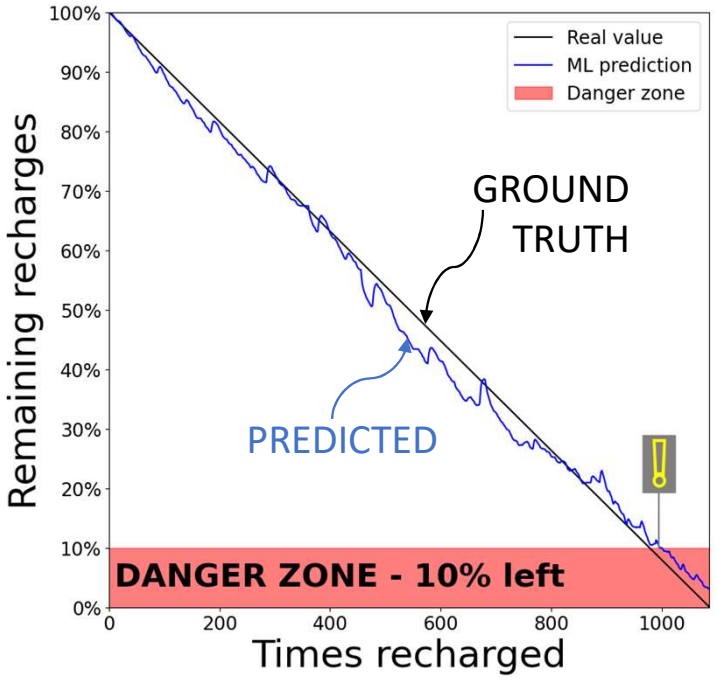
# Machine learning for remaining useful life

- Discharge Time
- Time constant current
- Charging time




PREDICTION OF RECHARGE CYCLES LEFT




Dataset source: https://www.kaggle.com/datasets/ignaciovinuales/battery-remaining-useful-life-rul



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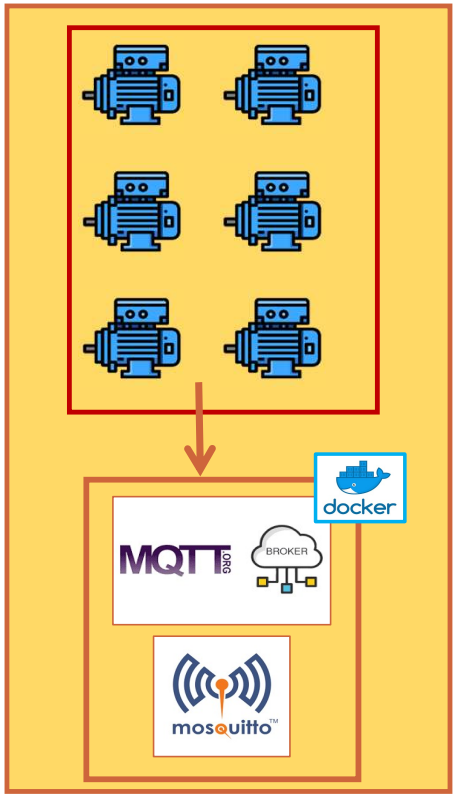
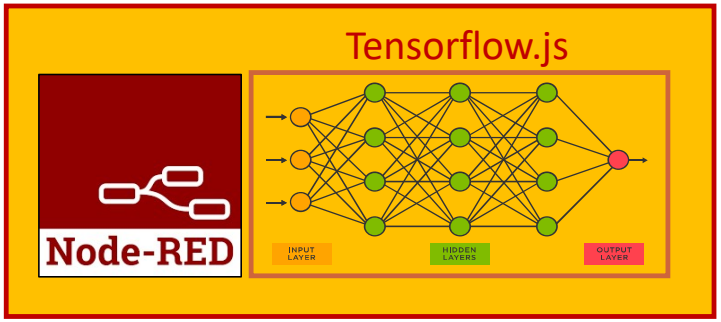
# Machine learning for predictive maintenance

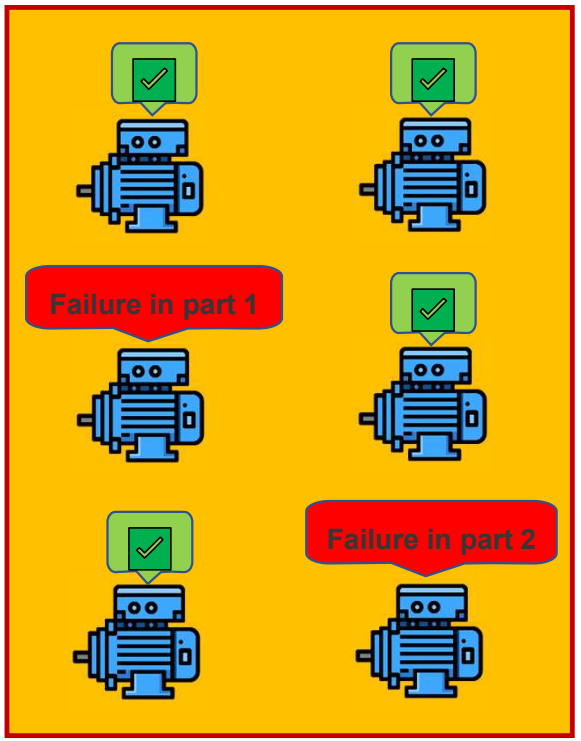
CURRENT MACHINE STATUS




PREDICTION OF FAILURE 24H AHEAD




24H MACHINE STATUS




Dataset source: https://www.kaggle.com/datasets/arnabbiswas1/microsoft-azure-predictive-maintenance



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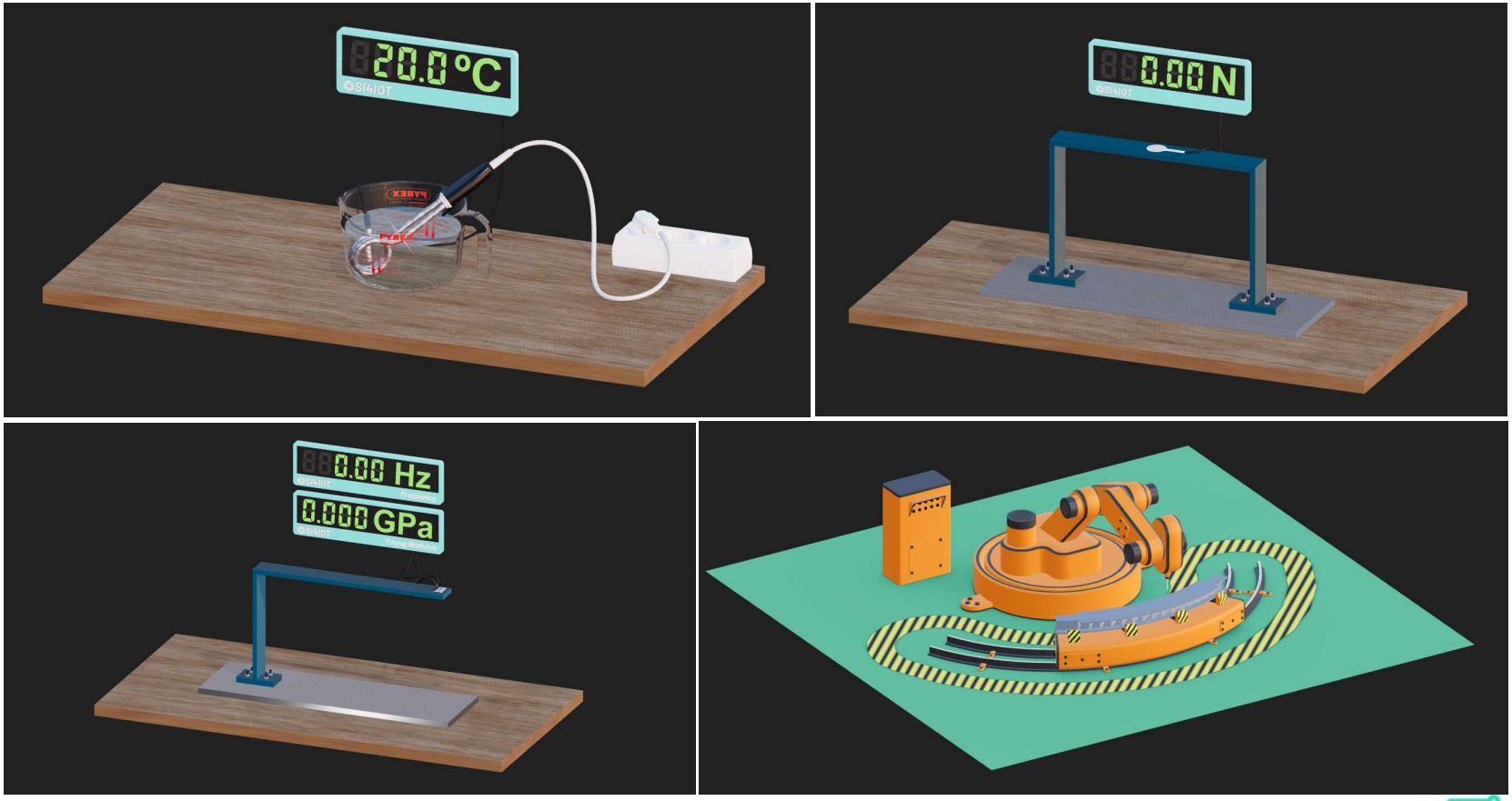
# Demo: Interactive digital twins



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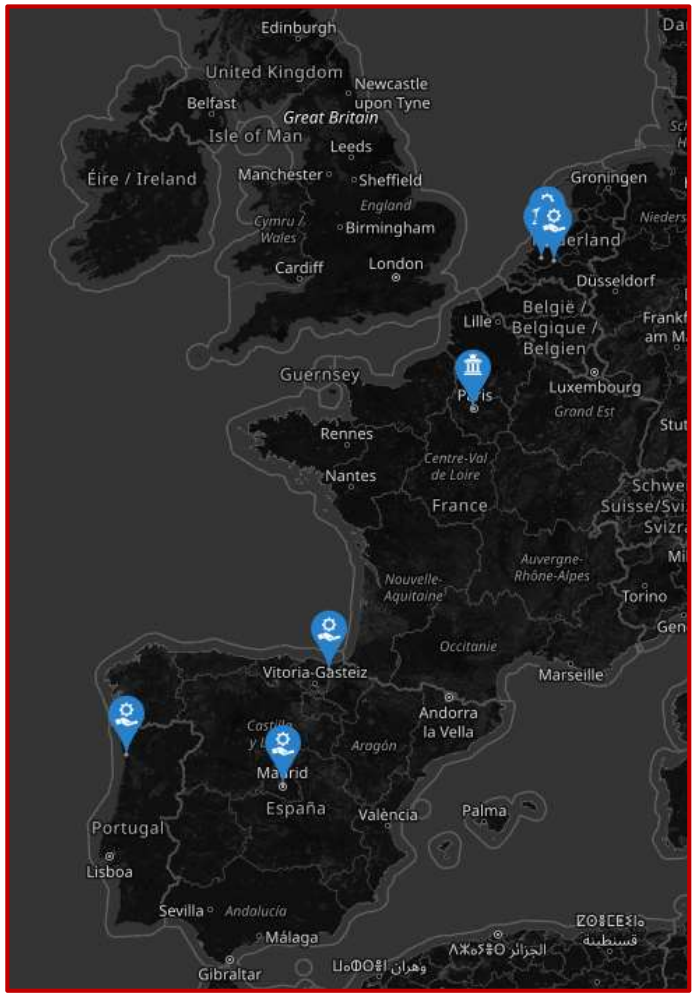
# Concluding remarks

- Organization roles:
  - Main org: Shipyard
  - Generic orgs: Subsidiary organizations
  - Provider orgs: Suppliers
- Assets monitoring in real time
- Geolocation of assets with problems with alerts notification channels
- 3D Digital Twin models integrated with FEM results
- Machine learning models integrated in platform
- Deployment options:
  - On-Premise: Single machine or cluster
  - Cloud: AWS EC2 single instance or cluster



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# THANKS
# FOR YOUR ATTENTION

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