

Enhanced Maintenance and Availability of Handling Equipment using IIoT Technologies

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Introduction

- 450 EOT (Electric overhead traveling cranes) and hoists at CERN
 - surface and underground large areas (France and Switzerland)
 - require **regulatory maintenance**
 - **Usage** on cranes is imbalanced, **varying from 1h/year to 177h/year**
 - **preventive maintenance intervention every 30h of usage**
- 150 forklifts operating over the CERN campus



EOT crane

Challenges

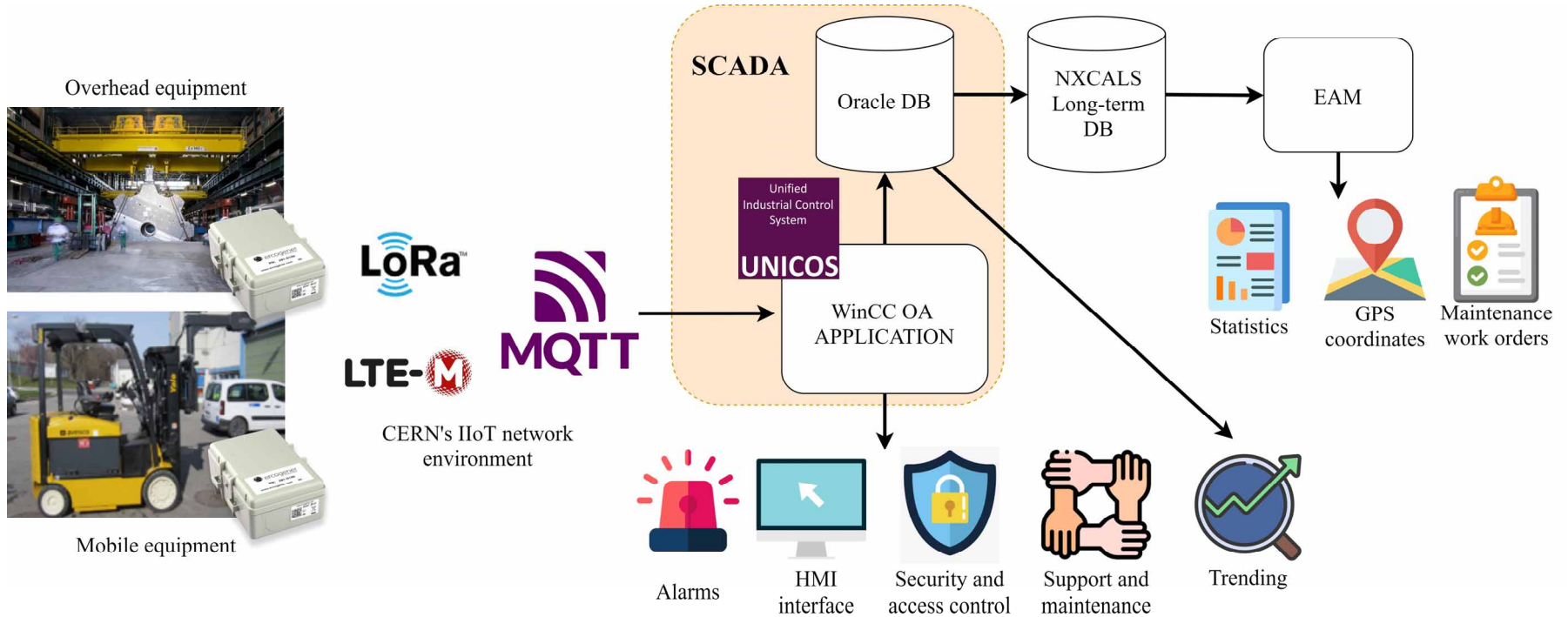
- Workload of manual on-site unit readings
- **Extra cost: most of the units are over maintained**
- Localizing forklifts over the CERN campus



Forklift

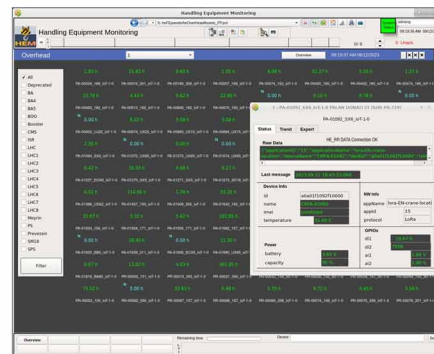
Technical solution

Industrial Internet of Things (IIoT) and Industrial Controls technologies



Outcome

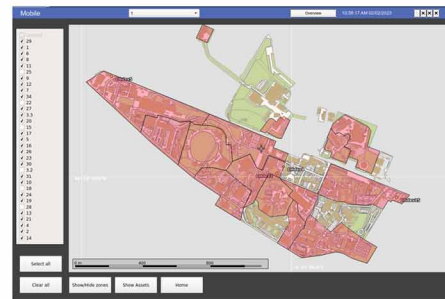
- **600** handling equipment units remotely monitored and tracked
- **Daily automatic accurate reads**
- **Automatic reports & statistics**
- **Maintenance triggered only when necessary (Work-orders automatically triggered)**
- Several **tens of thousands** of CHF on **savings** on the first year of operation
- Operators carry on tasks much quicker
- **SCADA UNICOS framework** applied to IIoT (beyond industrial controls)
- The system expands to **any kind of IoT sensor of the market**



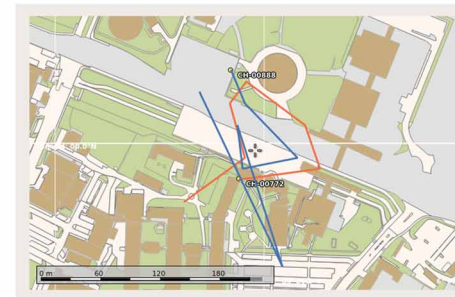
SCADA's HMI



Working hours of a hoist over time



Geofencing



Asset tracking by time-range