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24 October 2019 V1

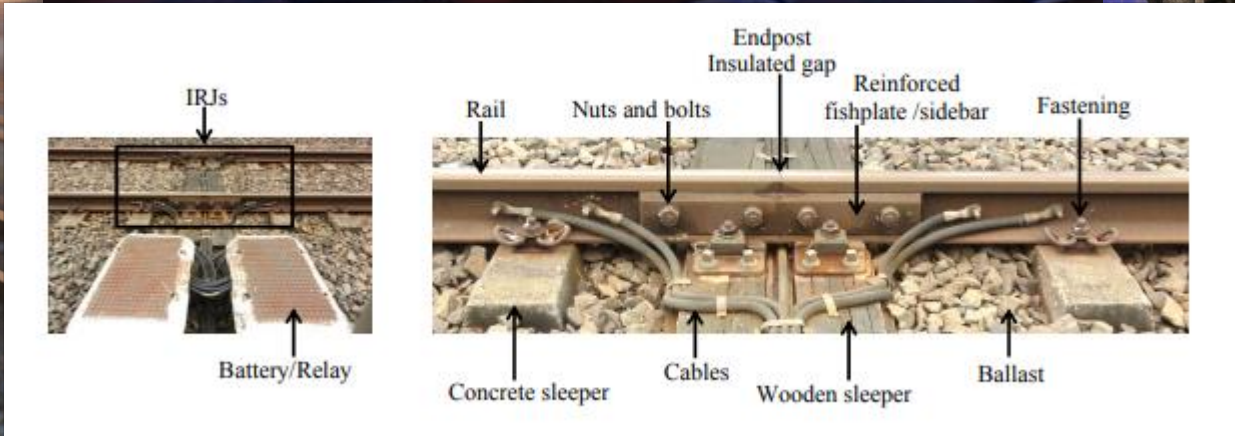
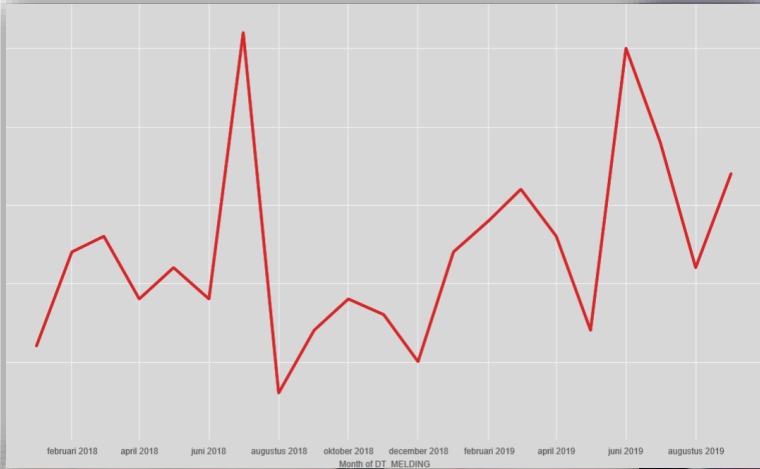
# Video Track Inspector

Hands on predictive  
maintenance on track circuits



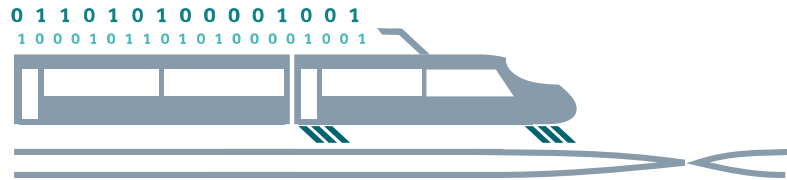
Technology as the only way forward

# The track circuit challenge

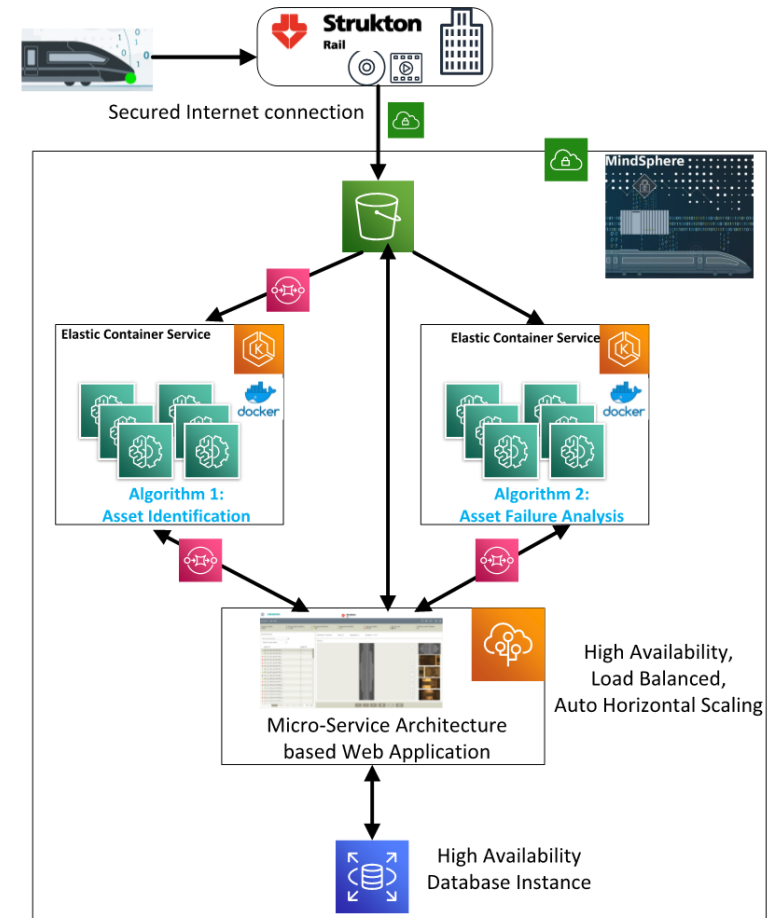
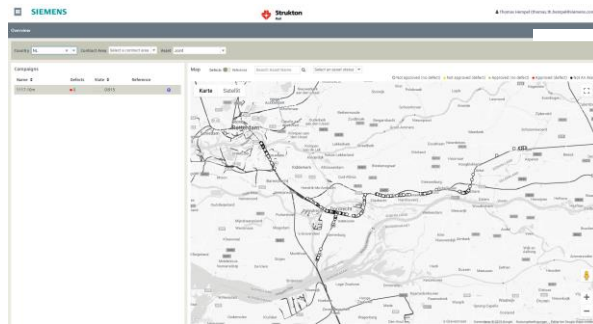


# Overview of the solution Video Track Inspector (1/2)

**1 Data Acquisition:** Linescan cameras generate high resolution images of the superstructure

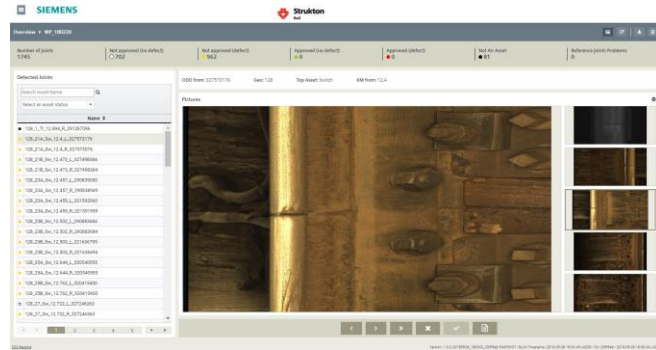


**2 Data Transmission:** Upload of the raw data and pre-processing on Railigent powered by MindSphere

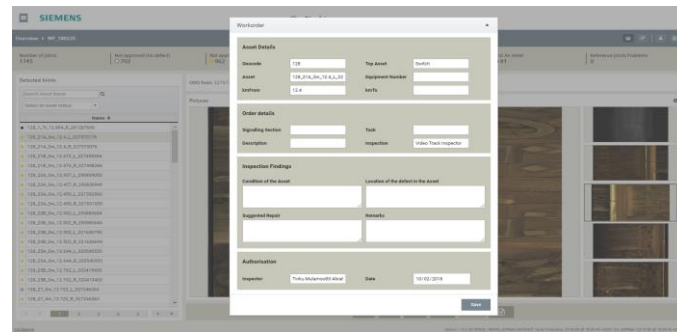


# Overview of the solution Video Track Inspector (2/2)

### 3 Data Analytics & Decision Support: Visualization of the algorithm results in an intuitive UI on Railigent



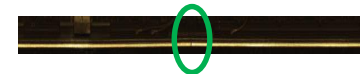
### 4 Implementation: Transfer of validated action proposals to work orders in the CMMS



Input: 10m sequence of a video

Output 1: Detected Insulated Rail Joint

Output 2: Defect Classification



1 **Detection Algorithm**  
*Where is an insulated rail joint?*

2 **Classification Algorithm**  
*Is there a defect at the insulated rail joint?*

Decision



# Combined (live demo)

Overview ▸ VLW-1904

Number of joints: 2892 | Not approved (no defect): 368 | Not approved (defect): 0 | Approved (no defect): 3 | Approved (defect): 1998 | Not An Asset: 523 | Reference joints Problems: 0

Detected Joints

Search Asset Name  Export Pdf

5 items selected

Name	Images
613_Tr_w173Al-w177Av_km75.263_R	5
017_Tr_w351Bv-w353Av_km31.954_R	5
613_Sw_173A_km75.246_L	5
608_Tr_106a_km88.017_L	5
017_Tr_VE_km37.912_R	5
608_Sw_23A_km87.674_L	5
017_Tr_VE_km32.822_R	5
608_Tr_w33r-w37Av_km87.961_L	5
021_Tr_BS_km66.137_R	5
021_Tr_BS_km62.318_R	5
017_Tr_VE_km32.745_L	5
613_Tr_w169Bv-w171Bl_km75.163_L	5
608_Tr_sCC-w21Av_km87.612_R	5
017_Tr_w353Bv-sVE_km32.240_L	5
108_Tr_sAH-w169Br_km74.847_R	5
017_Tr_VE_km32.823_L	5
017_Tr_VE_km32.613_R	5
017_Tr_VE_km32.830_L	5
017_Tr_VE_km32.613_L	5

ODO from: 224259829 | Geo: 021 | Top Asset: Tr | KM from: 62.318

Pictures

Open questionnaire

Version: 2.2.0-20190730\_171913\_612ed955 / Build Timestamp: 2019-07-30 17:23:06 +0200 / Git: 612ed95 / 2019-07-30 17:19:13 +0200

## Conclusion

- Quality control on Insulated Rail Joints
- Less in track inspections
- Up to 4 times higher assessment speed
- Early PF detection
- Increased safety
- Up to date asset register

# Thank You

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