

PANTOhealth

Keeps Trains on Tracks.

Dec 2021

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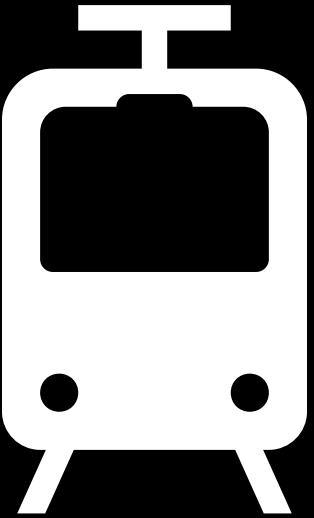
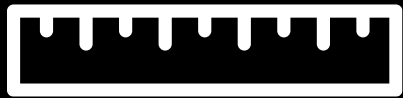
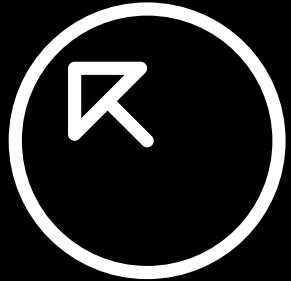
Problem

10,000,000 €
Railway Daily Maintenance
Cost in Germany



30% delay





existing solutions
Measurement trains

Delay in defect detection

No information about the reasons for the defects

Reducing infrastructures' on-time

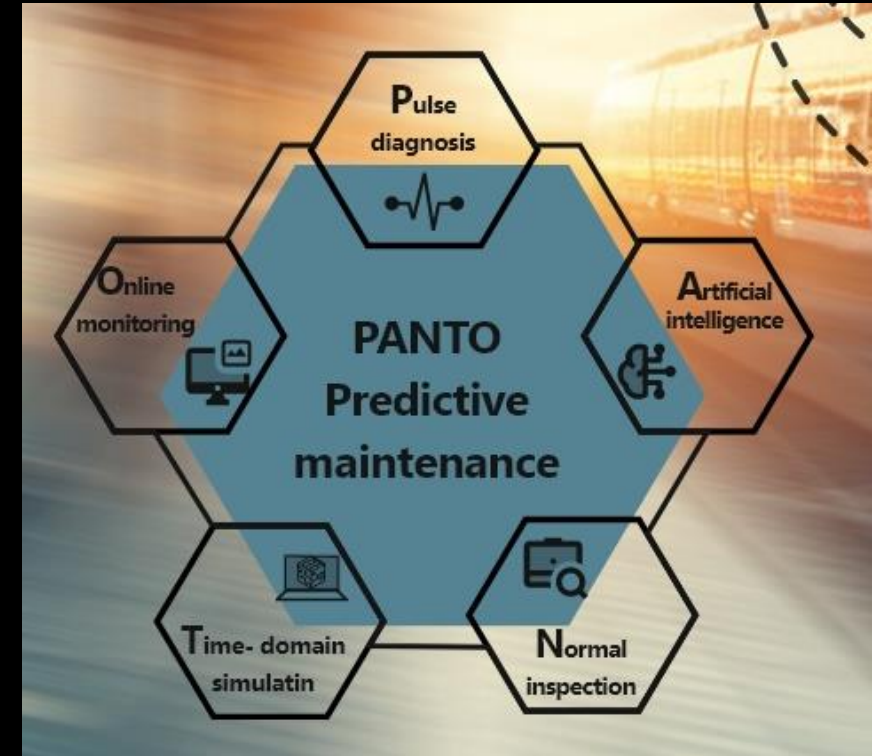
Unable to validate proper maintenance operations

Online monitoring

Intelligent to find the reason of the defect

No interference with trains operations

Effective to evaluate maintenance actions

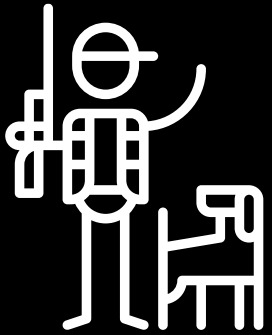


On-board online monitoring and predictive maintenance



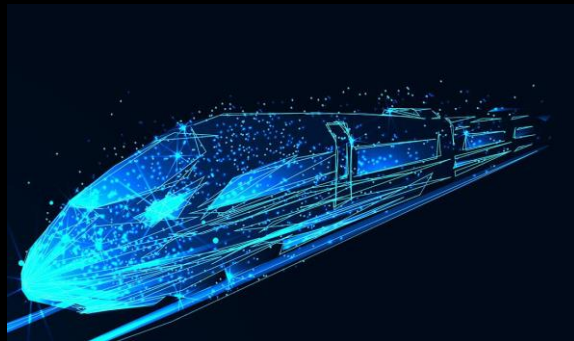


Solution



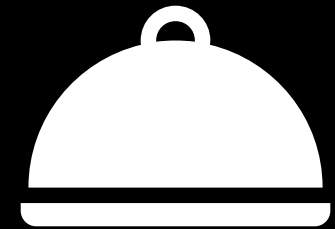
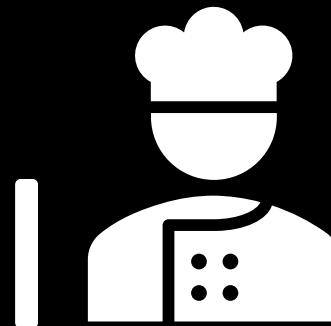
Data Hunter

Sensors and Edge Computer



Data Farmer

Simulation Software & Digital Twin



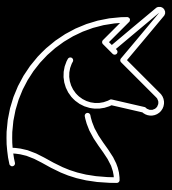
Analysis Chef

Algorithmic analysis and
Machine learning

Predictive Maintenance plan

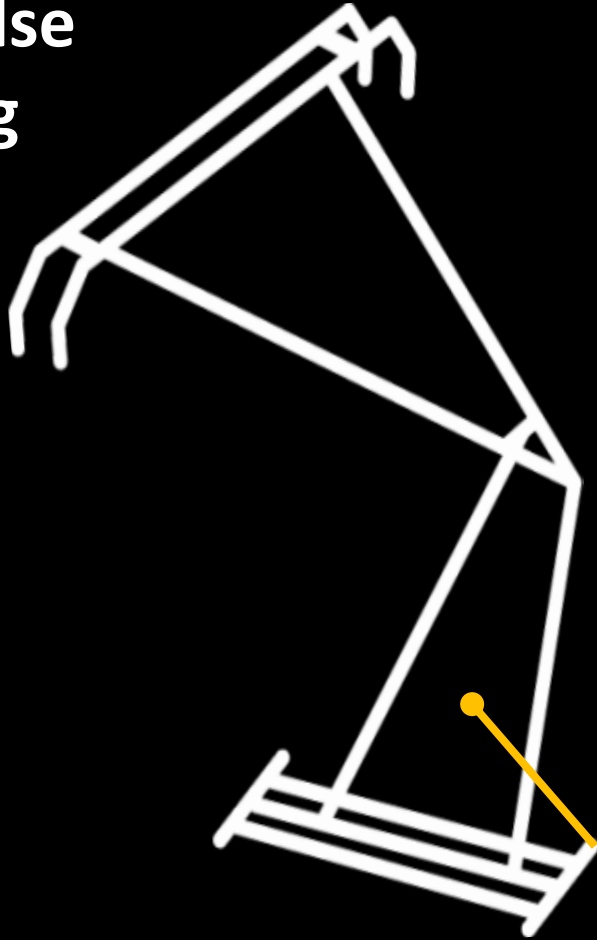
Where? What? When?
Should be repaired





USP

Patented Pulse Monitoring



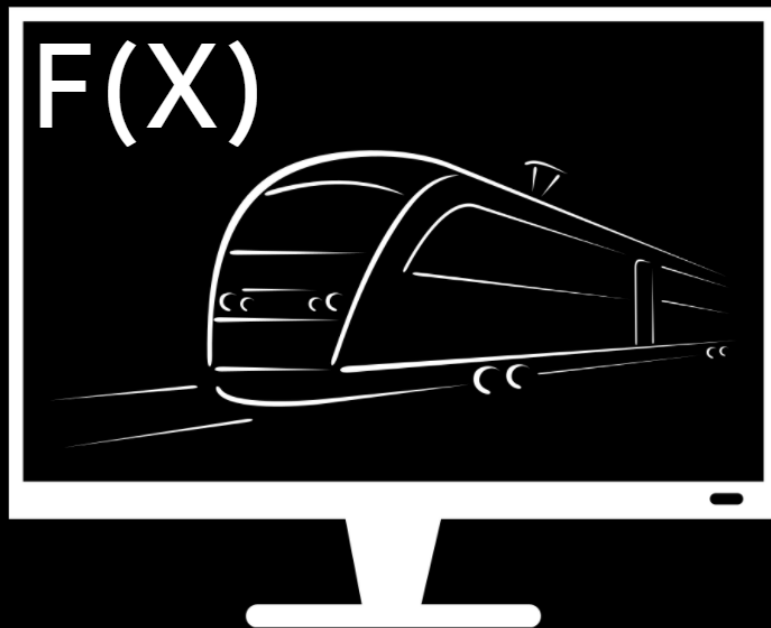
<https://www.youtube.com/watch?v=LLwClbpnlaM>





USP

Mathematical Model

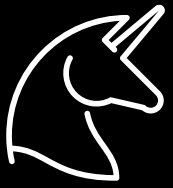


Monitoring Hardware

Mathematical Model

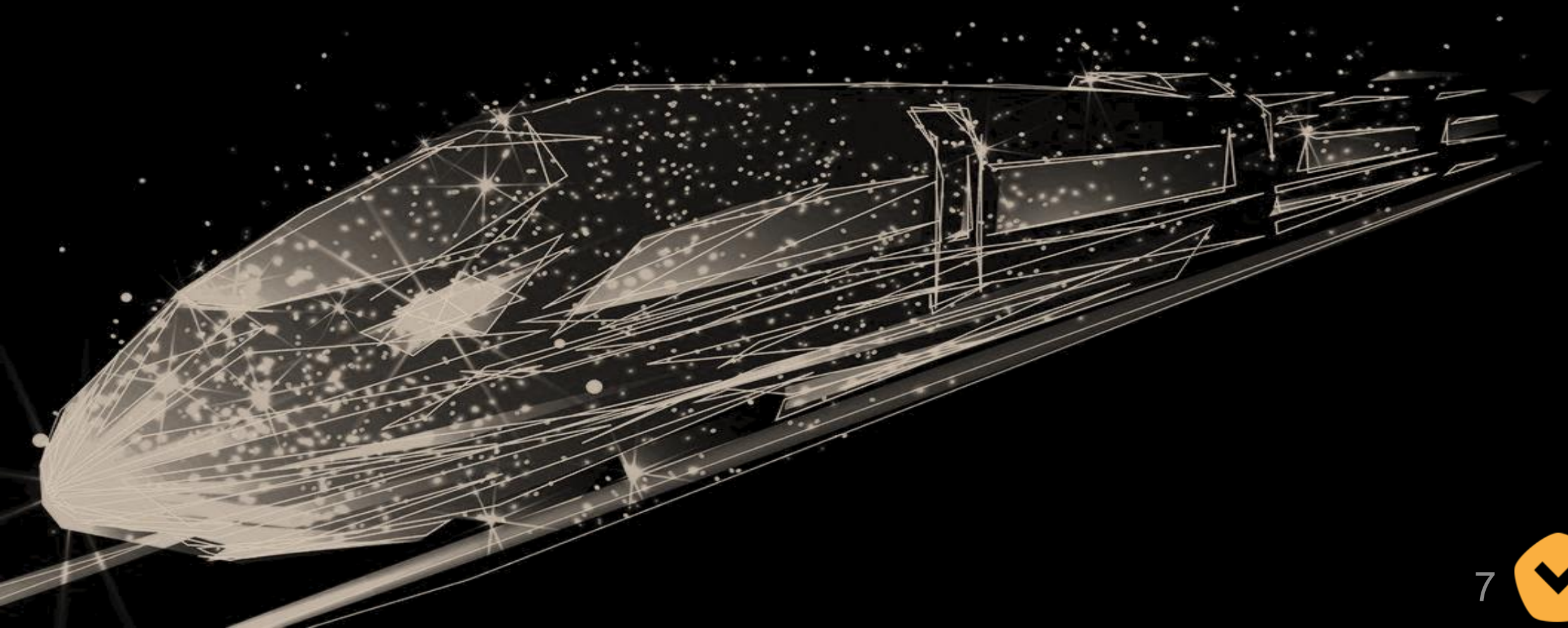
Meaningful Data

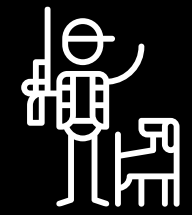




USP

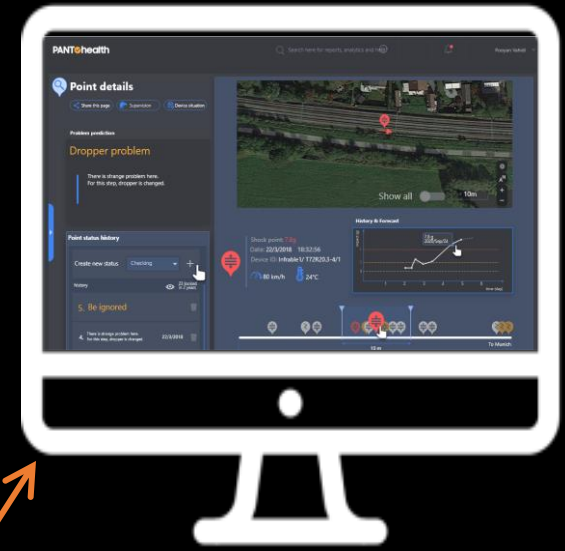
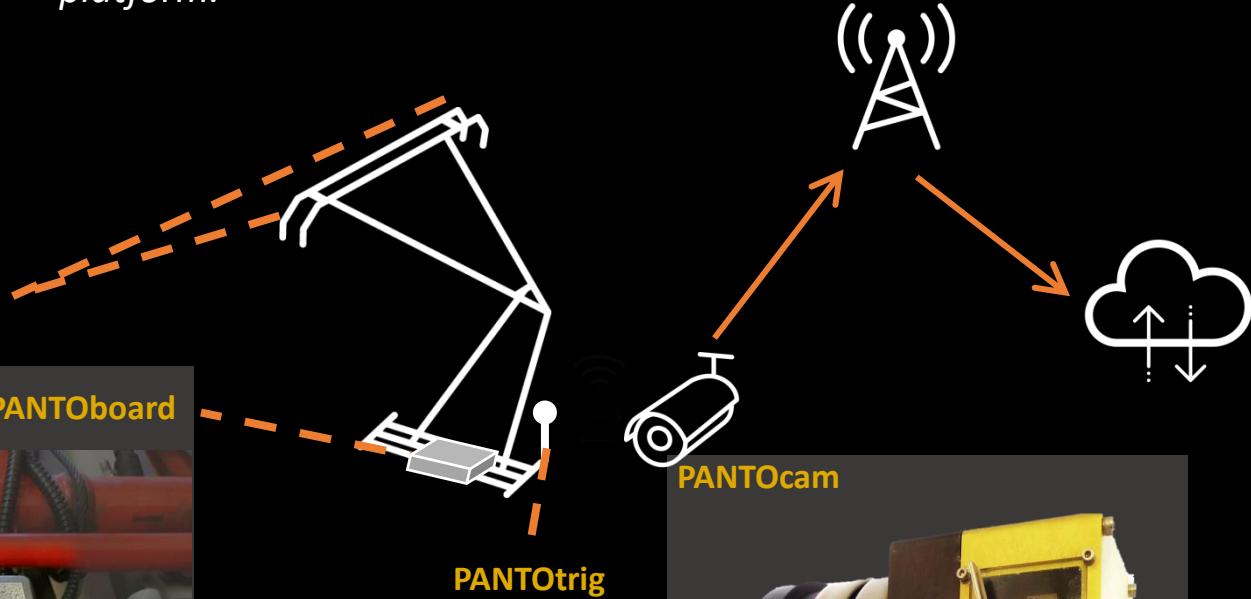
Simulation Engine





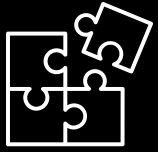
Data hunter

Data hunter collects signals from the pantograph, merges them with recorded video of pantograph and overhead contact line, sends them to the server. Finally, the results are presented on a user-friendly platform.

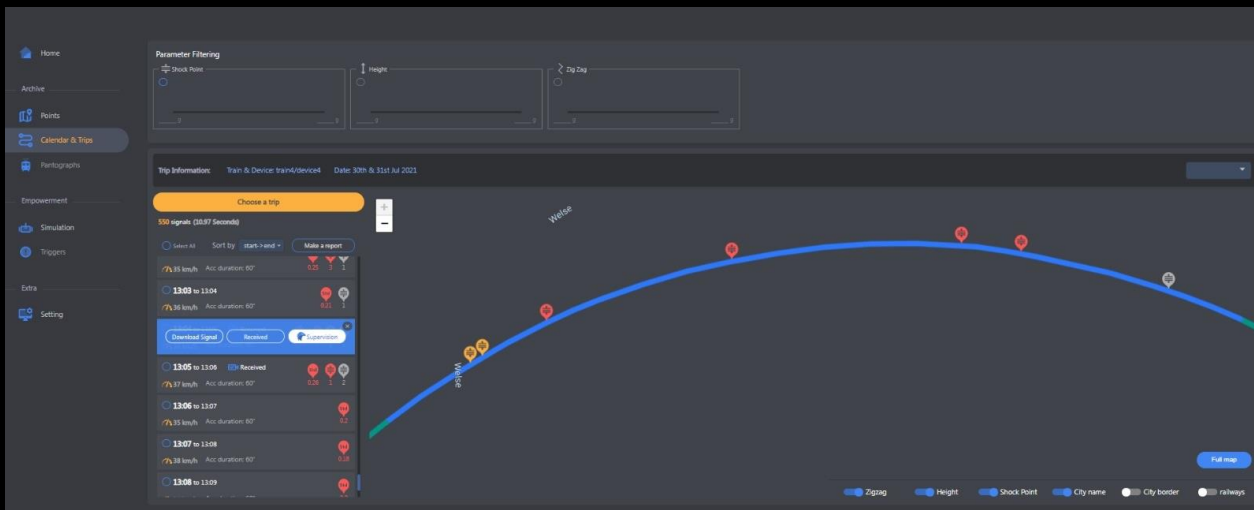


We are delivering the report on user-friendly Monitoring Platform or via API functions.

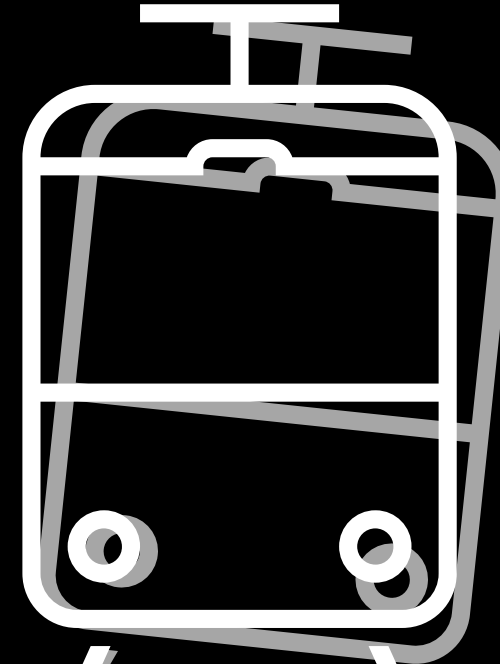




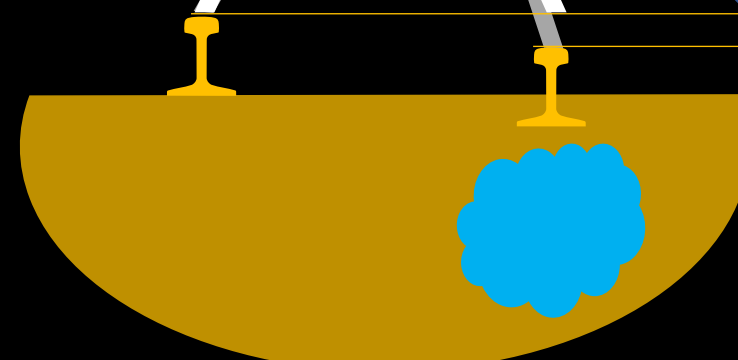
Not only the catenary, but also the tracks



Lateral acceleration in the pantograph



Any misalignment in the level of the rail in city trams

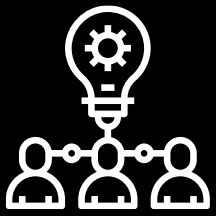




Our training courses after each project

- Pantograph and catenary maintenance
- Measurement in pantograph and catenary; Facts and figures
- Simulation in pantograph and catenary; Facts and figures
- Q&A and discussion





Team Advisors



MOR**T**EZA NOKHODIAN
CTO

Double MSc, Software
Engineering
Microsoft, John Deere, Flatlay



DR. FARZAD V**E**SALI
CEO

PhD, Rolling stock Eng.
Yaragh Avaran Pooya,
RiBe, Isfahan university



DR. MINA KOL**A**GAR
CMO

PhD, Energy system Eng.
Sharif Energy Research institute,
Mehr Renewable Energies



A**M**IR BASHARI
CPO

MSc, Mechanical Eng.
Dirand, Pulsa, Yaragh
Avaran Pooya



Prof. Dr.-Ing.
Markus Hecht



Prof. Dr.-Ing.
H. Molatefi



Kai Malkwitz



Ralf Holtkamp




Dr. Viola Prifiti





Timeline

First customer for our Hardware 

INFRABEL

Mar. 2021



May 2021



Sep 2021
Top 5 rail Startup Globally
startUS
INSIGHTS

IMAGINE 2030

MOBILITY ACCELERATOR

Nov, 2020

Feb. 2020

Sep. 2020



Oct. 2020



Jun. 2021

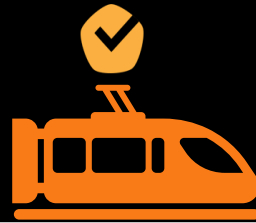


Accepted in TechFounders accelerator

Oct 2021



EU innovation award



Mar. 2020



First customer for our simulation



Awards in DB Netze Challenge



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**Thank
you**