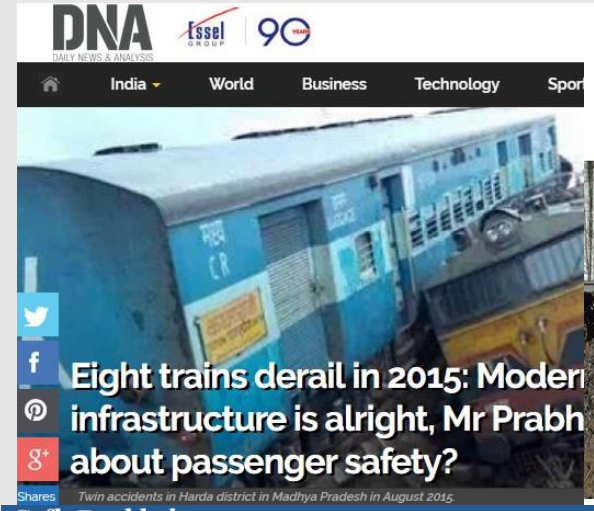
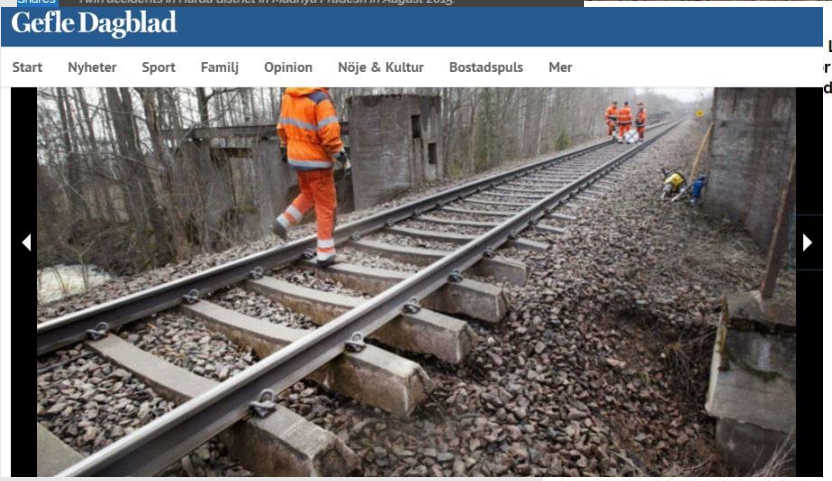
D-RAIL

ENABLING DIGITAL RAILWAY

Real time railway infrastructure monitoring as a service





Around the world the railway infrastructure sometimes wear down until and beyond the point where it is safe to drive a train upon it.

WanderWisdom

Train Operator(s) - West Anglia Great Northern

Primary Cause(s) - Track defect

Secondary Cause(s) - Inadequate maintenance

Result - Derailment, collision with structure

No. Fatalities - 7

No. Injured - 76

On 10 May 2002, a railway accident occurred when a northbound train derailed at high speed. Part of the train ended up wedged between the station platforms and building structures.

A West Anglia Great Northern train service left King's Cross station at 12:45 bound for King's Lynn in Norfolk, via Cambridge. At 12:55, travelling at 97mph, the four-car Class 365 electric multiple unit (unit

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Photo: Svante Fäldt

The railway as we know it is measured for deviations by a special measurement vehicle couple of times per year. In sweden it is enough time between measurements to let 30 000 trains pass.

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By installing our measurement system on <u>any railway vehicle</u> a real time view of the infrastructure asset condition is a fact.

Defects are automaticly pin pointed and sent as an alarm to the responsible unit.
Wear over any chosen time span is easily analysed.

We measure:

Tracks
Trackbed
Signal system
Overhead electric

<u>Train independent, no system integrations on the train.</u>

Pictures shows a pin pointed defect detected by D-RAIL infrastructure monitoring on the overhead electric. The horn to the right is missing from the isolated section on the overhead electric, torn down by a passing train.
Every train that passes this defect will get broken pantographs that in turn excess the wear on the overhead electric infrastructure.
Deviations like this one is not detected in time to be able to repair before it cause a stop in traffic or worse an accident.

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Picture shows three carbon strips from three different trains with identical damage. All damaged on the same day and on the same geographical spot.

CATENARY MEASUREMENT

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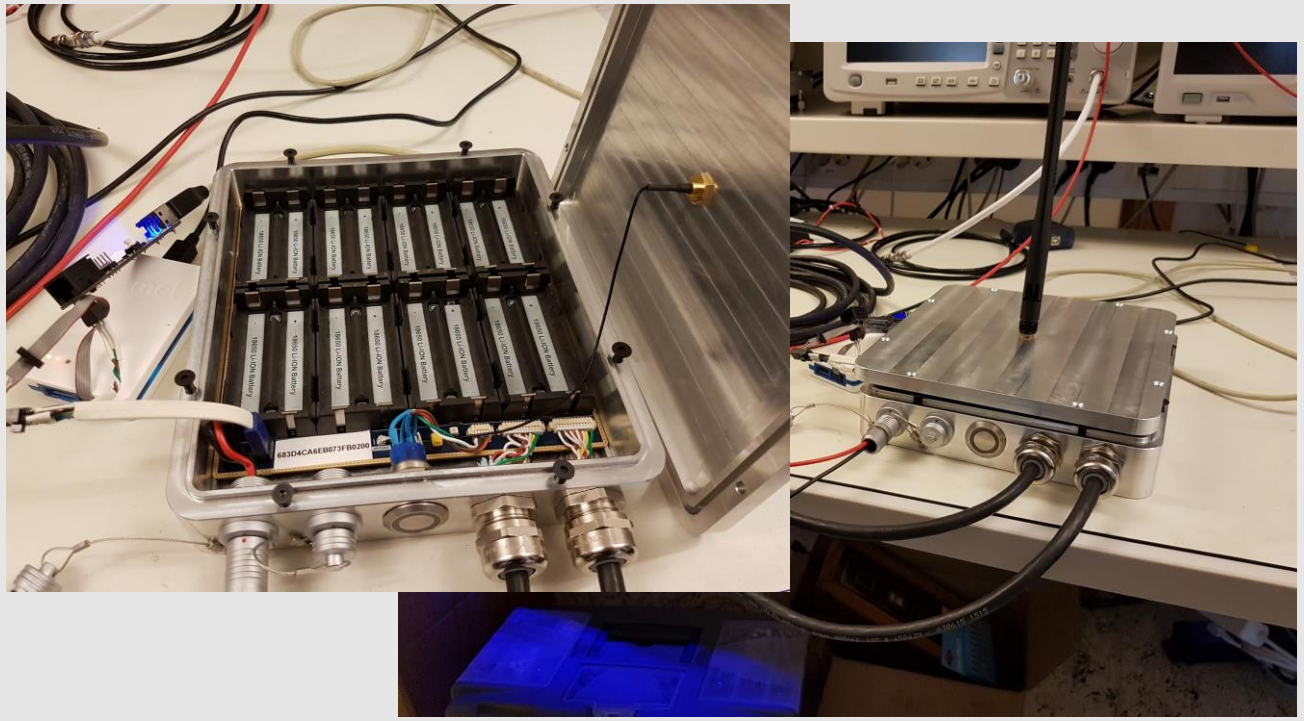

Installed today on two fleets in Sweden. And more pilots upcoming.

D-RAIL sensorsystem is rugged wireless and easy to install. All sensors are battery equipped and does not need to integrate any onboard system.

D-RAIL offers real time infrastructure asset condition monitoring as a service. We install, manage and deliver information directly to the customers choice of server/ system.

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Why not make any train a measurement train!
D-RAIL delivering digital railway information as a service.

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