

Intelligent Maintenance for Railway Systems



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OUTLINE



Problems of Railway Track



Solution for The Problems



Intelligent Maintenance

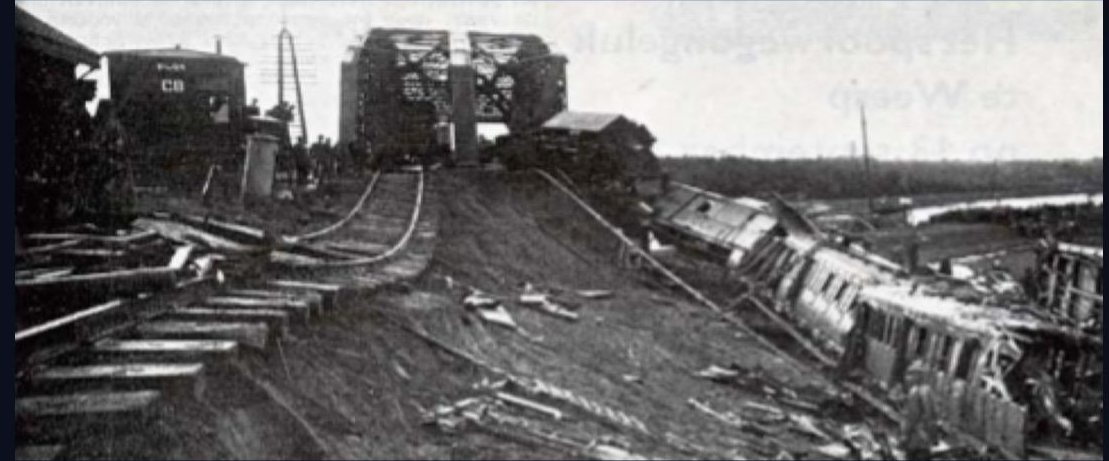
Problems of Railway Track

Current Problems



Sagging Track

Need to check the mainlines periodically with measuring train



Landslide

A landslide does not wait for the measuring train to come

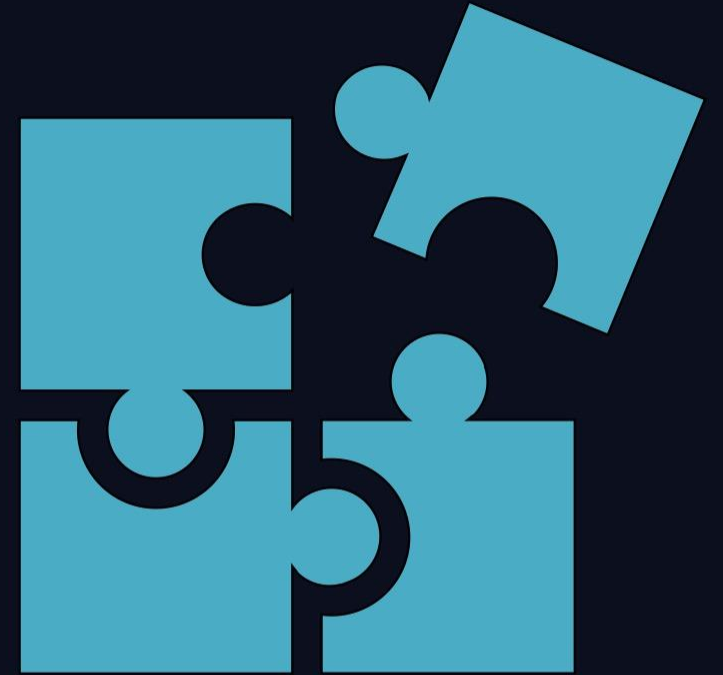


Shifting Track

A shift of track needs immediate action

Problems of Railway Track

Current Solution



Measuring Train Is Not The Solution

- Need time to deploy
- No operation during deployment
- Cannot detect sudden incident such as landslide

Solution for The Problems

Better Solution



Turning every train into a measuring train



Build database of every operational track



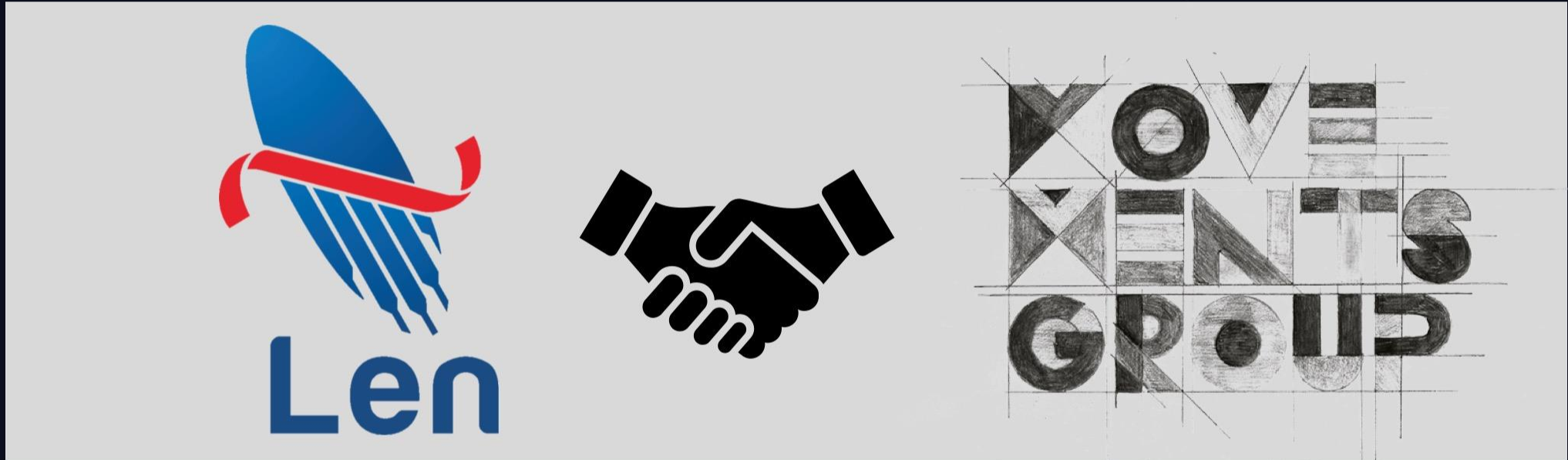
And we will:

- notice every change in the track
- expand the knowledge of the track



Solution for The Problems

Collaboration for Artificial Intelligence (AI)



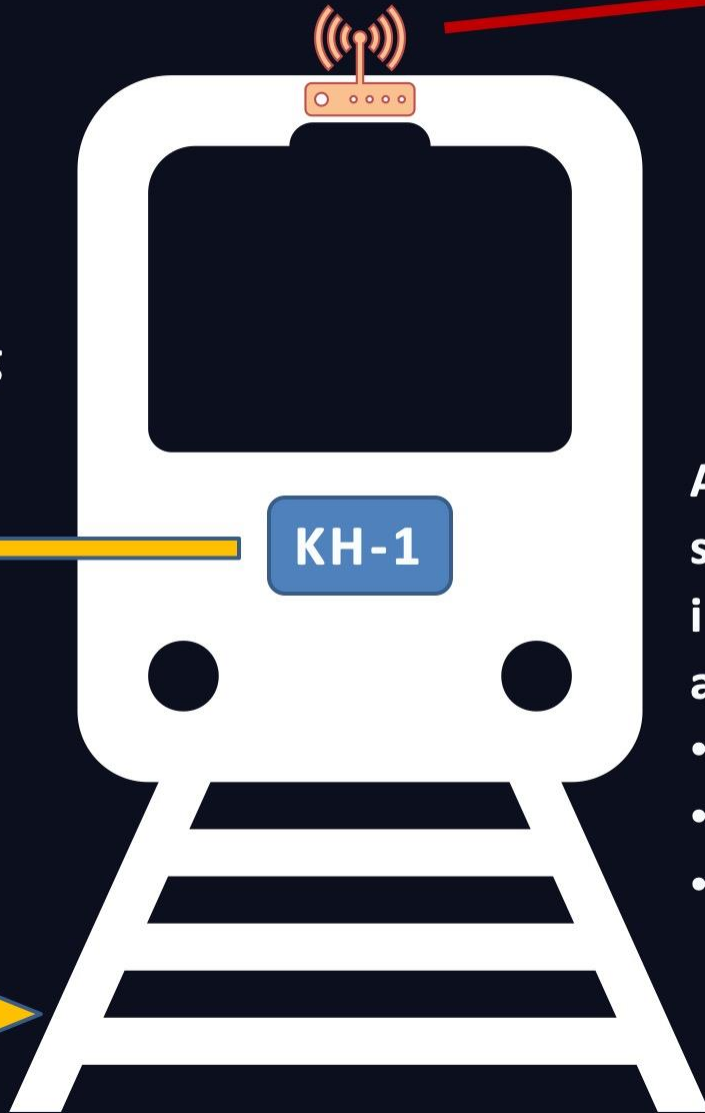
KH-1 – Sensor for Artificial Intelligence



Intelligent Maintenance

How It Works

KH-1 monitors the track during train operation, creating unique fingerprint of every track



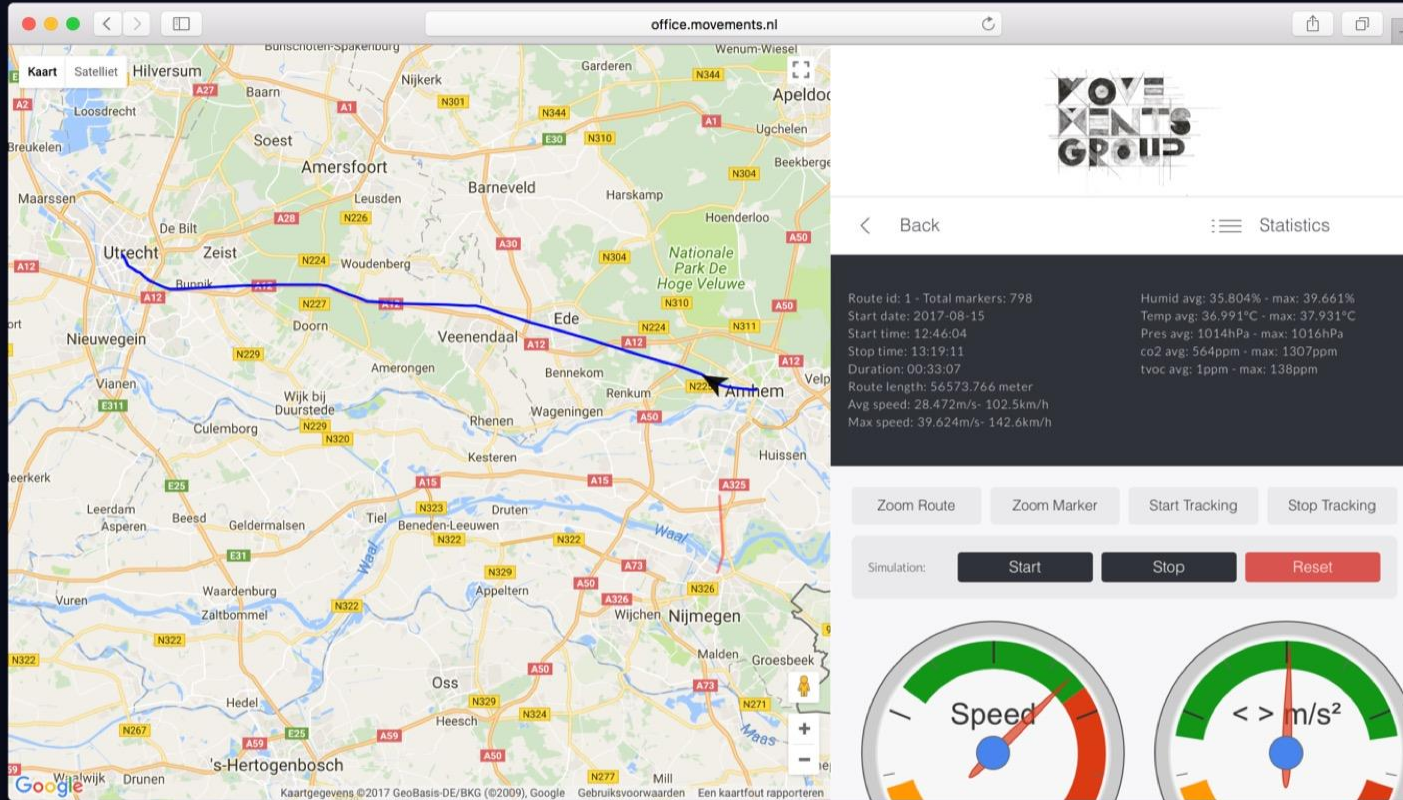
Artificial Intelligence (AI) system collects track information from everywhere and:

- learning all of track data
- real time monitoring
- early detection of problem





Intelligent Maintenance Artificial Intelligence System



Advantage of using AI in track maintenance:

- Not dependent on personnel
- Consistency of quality
- Can be duplicated easily

Any train ride with KH-1 are visible and all of the measurements being made can be seen

If the measured graphic is different from the fingerprint, AI system will recognize it and remind the operator to do proper maintenance





Intelligent Maintenance

Integration with Office Control Centre



Intelligent maintenance with KH-1 can be integrated with existing OCC



Thank You



Len
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Transportation Business