

# Turnout monitoring using physical models

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## Technological Description

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Ceit develops state-of-the-art models with which to design a non-intrusive monitoring system, thus optimising the number of sensors and their features.

Physical models of turnouts enable important information to be generated about the dynamic behaviour involved in interaction with different vehicles under a range of traffic conditions.

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## Application

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Systematic monitoring of turnouts, avoiding manual or periodic inspections, with a view to pinpointing the right moment to programme maintenance activity and thus reduce lifespan costs. The technology, based on multibody and finite element models, avoids long periods involving field data acquisition while at the same time, it can be used for other dynamic behaviour assessments.

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## Specifications

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- Wayside systems.
- SW tools for signal processing.
- Adaptable to track features.

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## Benefits

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1. Automatic estimation of the extent of wear-and-tear.
2. Optimisation of maintenance tasks.
3. Avoids long periods involving data acquisition.
4. Future applications in elements with moving parts.

**ceit**

MEMBER OF  
BASQUE RESEARCH  
& TECHNOLOGY ALLIANCE

### Knowledge driving the Railway Industry

Over 30 years' experience collaborating with companies from the rail sector by developing state-of-the-art technological solutions, as well as activities that include systems design, modelling, experimental characterisation, development and validation.