Contract No. 777564

INNOVATIVE RUNNING GEAR SOLUTIONS FOR NEW DEPENDABLE, SUSTAINABLE, INTELLIGENT AND COMFORTABLE RAIL VEHICLES

D1.1 – Description of system requirements and architectures

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Dissemination Level		
PU	Public	
CO	Confidential, restricted under conditions set out in Model Grant Agreement	X
CI	Classified, information as referred to in Commission Decision 2001/844/EC	

Start date of project: 01/09/2017 Duration: 25 months

PUBLISHABLE SUMMARY

The objective of Run2Rail Workpackage 1 (WP1) is the formulation of technology concepts for condition monitoring systems to be applied in the next generation of railway running gear.
In this framework, Task 1.1 of WP1 is concerned with the analysis of existing solutions for sensors and condition monitoring equipment and with the definition of concepts and specifications for the architecture of the condition monitoring system.
Three main case studies are considered:

- Condition monitoring of wheelsets,
- Condition monitoring of bearings and gearboxes,
- Condition monitoring of suspension components.

This document consists of six sections. After the introductory Section 1, Section 2 describes the needs for condition monitoring in the running gear of modern railway vehicles, mostly based on experience and return from operation at Metro de Madrid, the railway operator included in the Run2Rail Consortium.
Section 3 reports on the results of investigations performed by the Run2Rail WP1 team in order to identify solutions already available, both as products available on the market in different sectors (including railways) and in terms of R&D solutions, i.e. concepts that to date have been developed up to TRL 4-5.
Section 4 describes the concepts elaborated for the system architecture. It consists of two parts, the first one presenting the general architecture developed for the entire on-board condition monitoring system and the second one presenting the detailed system requirements defined for each of the three cases studies.
Section 5 provides an overview of the operational requirements for the condition monitoring systems.
Finally, Section 6 presents some conclusions for the work.

This report represents the starting point for work now being undertaken in Tasks T1.2 and T1.3 of the project, respectively addressing the selection of hardware components for the condition monitoring system and the definition of methods for data processing, fault detection and separation.

The concepts for system architecture and the system requirements presented in Section 4 of the report shall be considered as subject to revision during the project, based on a refinement of the hardware / software selection and also based on interaction with PIVOT.