

PROJECT

EntKuRo

Automated uncoupling process for railway stations

Automatisierter Entkupplungsprozess für Verschiebebahnhöfe

Funding: National (Austria)

Duration: Oct 2015 - Sep 2018

Status: Complete



Objectives:

The introduction of automatic central buffer couplings within European standard gauge railways seems unfeasible in spite of the long-term efforts made in recent decades. The coupling and uncoupling of rail wagons and trains using old fashioned coupler chains is a complex procedure which requires a lot of time and is dangerous for the people doing this job. These disadvantages are therefore very relevant for marshalling yards. The feasibility study 'BaKuRo' investigated whether an automated solution for uncoupling is feasible using available modern technology. The results of this study indicate that the automation of the uncoupling process seems to be feasible. This process comprises two steps in most cases:

1. The first step is the uncoupling of the air-brake hoses and the unscrewing of the coupling.
2. The second step is the unhooking of the coupling during the movement of the train to the marshalling hump.

The goals of the project are

- to develop a breadboard to unscrew the coupler (step 1 as mentioned above) which shall be tested in the lab and
- the development of a breadboard for the final uncoupling (step 2).

This breadboard shall be tested in an enhanced lab environment using a real marshalling yard in the field. These two objectives will be supplemented by (c.) accompanying research dealing with questions of economic life-cycle management, operational consequences and industrial safety.

The project partners plan to use the following methods to reach the aforementioned goals. The mechanical construction will be developed using enhanced mechanical construction methods including appropriate simulations. Sensors and their algorithms will be developed based on prior experience with autonomous systems. The required architecture and the software development process will take into consideration the high reliability requirements of railways. The additional research topics will be dealt with by comprehensive analysis of the economic feasibility, consequences for operational performance and the industrial safety of the staff.

Parent Programmes:

[MOTF - Mobility of the Future](#)

Institute type: Public institution

Institute name: FFG - Die Österreichische Forschungsförderungsgesellschaft

Funding type: Public (national/regional/local)

Other programmes: MdZ - 5. Ausschreibung 2014

Lead Organisation:

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Technologies:

Rail vehicle design
Coupling two trains together with the slave locomotive in the middle of the
convoy

Development phase: Research/Invention

STRIA Roadmaps:

Cooperative, connected and automated transport, Vehicle design and
manufacturing

Transport mode: Rail transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Safety/Security

Geo-spatial type: Infrastructure Node