Lehrstuhl und Institut für Schienenfahrzeuge und Transportsysteme

RWTH AACHEN UNIVERSITY

Project-/Bachelor-/Master-Thesis

Development of a track robot for maintenance processes on ballast bed

Photos: Der Eisenbahningenieur, https://www.munich-startup.de/80634/servail-7-fragen/, iPP RWTH

Current situation

Maintenance work on the ballast body at working speeds of less than 20 km/h interferes with rail traffic. This includes mechanical vegetation control in the track area, which can only take place when the line is closed or in a time window without rail traffic. A robot for maintenance processes that moves outside the vehicle gauge is exempt from these restrictions. The challenge here is the avoidance of infrastructure components such as safety and communication technology and the application in the areas of railroad switch and curves. As part of this work, based on the product development process VDI 2221, the mechanical functions and components of a maintenance robot for the space between the tracks and outside the vehicle gauge line are to be developed.

Your tasks

- Literature and patent research of similar systems
- Definition of the system functions
- Research and evaluation of relevant solutions
- Selection and CAD modeling of the new concept

Your profile

- Study program mechanical engineering, rail vehicle engineering or similar
- High motivation and reliable way of working
- Previous knowledge of Solid Edge advantageous

The subject area can be adapted in consultation. If you are interested, please contact us by e-mail with a brief introduction and a grade transcript.

Head of Institute

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About us

The Institute for Rail Vehicles and Transport Systems (IFS) at RWTH Aachen University specialises in research and teaching on rail vehicles and their components. It deals with issues in the areas of lightweight construction and structural integrity, driving dynamics and vibration comfort, wheel/rail interaction, assisted and driverless driving and condition monitoring. The IFS carries out studies, computer-aided simulations and practical tests on the above-mentioned topics. To carry out the practical tests, the IFS has its own track system with a connection to the public Deutsche Bahn network.