

Implementation of an algorithm for Lidar-based monitoring the Berne Rectangle during automated coupling process with ROS & Gazebo

Introduction:

The shunting operation in industrial railways or small and flat yards shows great potential for efficiency enhancement through automatization. One aspect to be investigated at this is the sensor-supported monitoring of the track, especially of the *Berne Rectangle* during automated coupling.

Robot Operating System (ROS) together with [Gazebo](#) and [rviz](#) provides a possibility to implement and virtually test this function. On the basis of a previous study, an algorithm for monitoring the *Berne Rectangle* and detection of unexpected obstacles within is to be created and simulated.

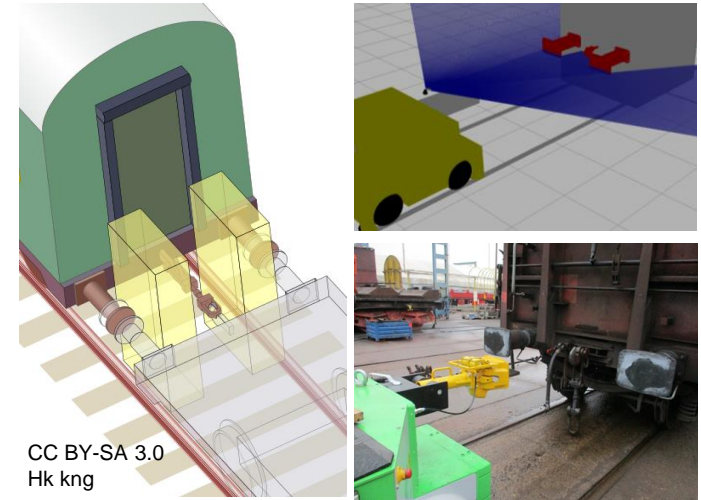
Possible tasks:

- Introduction to robotic simulation with ROS & Gazebo
- Preparation of 3D models for the simulation
- Research about methods for analysis of 2D Lidar sensor data
- Implementation of an algorithm (rostopic) for monitoring and detection
- Virtual validation of the functionality with Gazebo
- Documentation

Further notes:

- Independent and thorough way of working desired
- Experience in Python or C++ preferable
- Scope and extend of work adjustable depending on type of thesis

If interested, please apply with CV and performance record.



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