

Rail-Based Mobility Concepts: Exploring Small Autonomous Vehicles like MONOCAB for Passenger and Cargo Use Cases

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Small Autonomous Rail Vehicles

Why Small Autonomous Rail Vehicles?

- Service-on-Demand Operation
- Scalable and Modular Fleet – Multiple Small Vehicles
- Energy-Efficient & Sustainable Mobility
- Cost-Effective Solutions for Reactivation and New Tracks



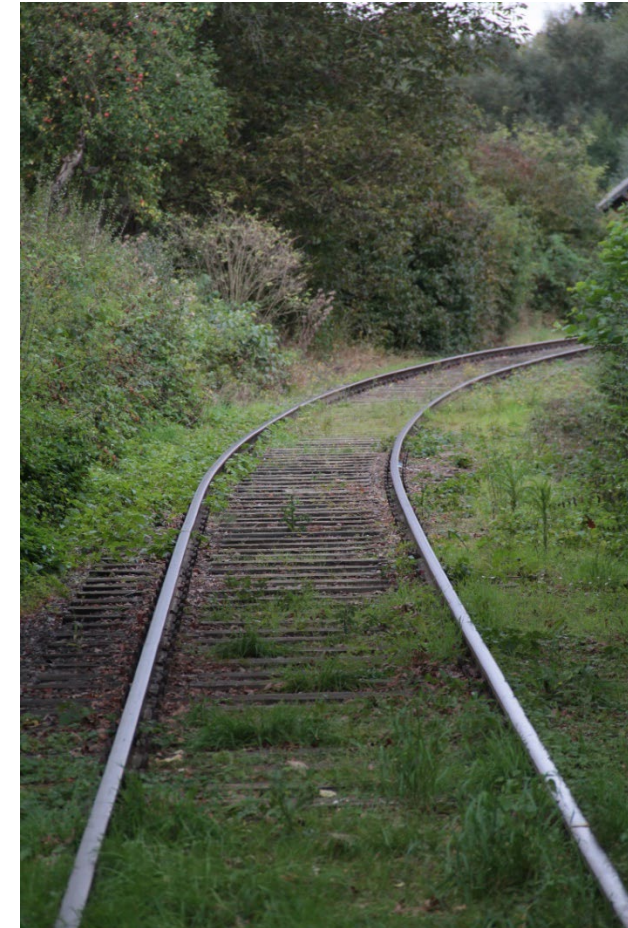
Aachener Rail Shuttle



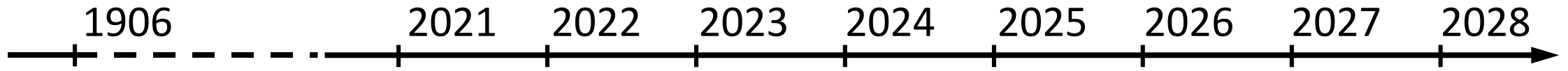
SolarTram



NGT-Taxi



MONOCAB-Projects and Roadmap



Tech. Readiness

TRL 4...5

TRL 6...7

TRL 8

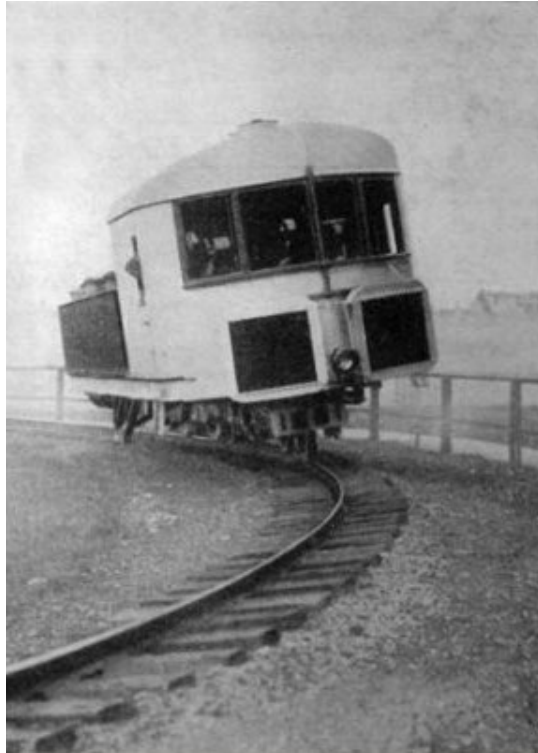
MONOCAB OWL

**MONOCAB
Schlüsseltechnologien**

MONOCAB ready

enableATO

Product /
System
Development



Louis Brennan,
gyro-stabilized Monorail



First MONOCAB test vehicle

- MONOCAB key technologies (Safe operation)
- Automated train operation in open environments
- Development of MONOCAB 2nd Gen.
- Total funding: 25 Mio. €

Gefördert durch:



Ministerium für Umwelt,
Naturschutz und Verkehr
des Landes Nordrhein-Westfalen



Kofinanziert von der
Europäischen Union

aufgrund eines Beschlusses
des Deutschen Bundestages

Project Ideas and Use Cases

Project ideas:

1. Modern Level Crossings – Low-Cost and Safe Solutions

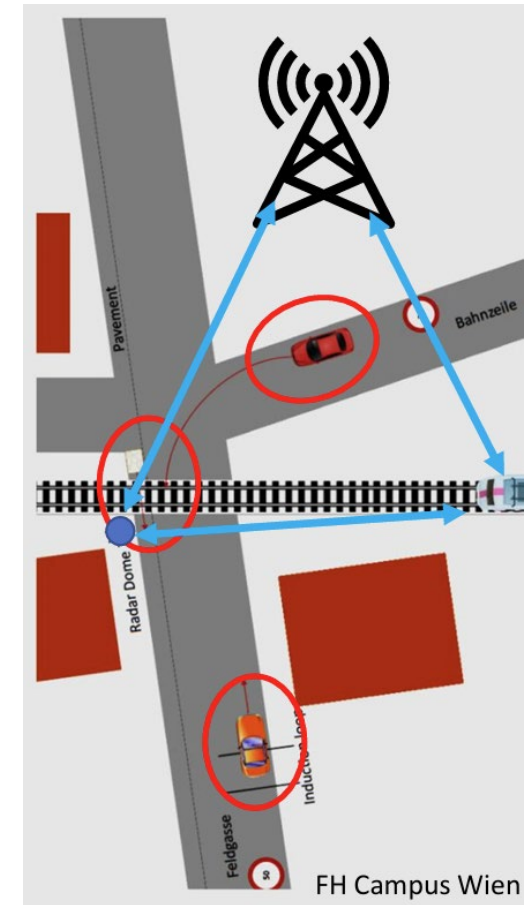
- Upgrade passive level crossing
- Autonomous vehicles (communication)
- Increased safety (perception sensors)

2. Logistics and Cargo transportation

- On-demand rail services
- Replace passenger cabin for cargo
- Transport of small goods (parcels, pallets)
- Transport of parcel robots

- All projects not limited to MONOCAB

- Small autonomous rail vehicles



Source: TeLo / FH Campus Wien

Looking for Partners in Rail Innovation

- **Technology providers & developers**

- Sensor developers (perception, environment monitoring)
- Controllers and communication systems
- Functional safety
- Energy and power systems

- **System providers, operators & integrators**

- Operator and providers (of level crossings)
- Regulatory approval and certification
- Integration of autonomous rail vehicles into existing networks

- **Transport & logistics companies**

- Use cases for cargo and multimodal transport
- Autonomous cargo handling (automated loading/unloading)
- Rail freight operators (autonomous cargo services)

PROJECTS
„LEVEL CROSSINGS“

PROJECTS
„LOGISTICS AND CARGO“

Strong Network: Regional Roots, Global Reach



MONOCAB Partners



Supporters



Transfer Ecosystem in OWL



Companies:



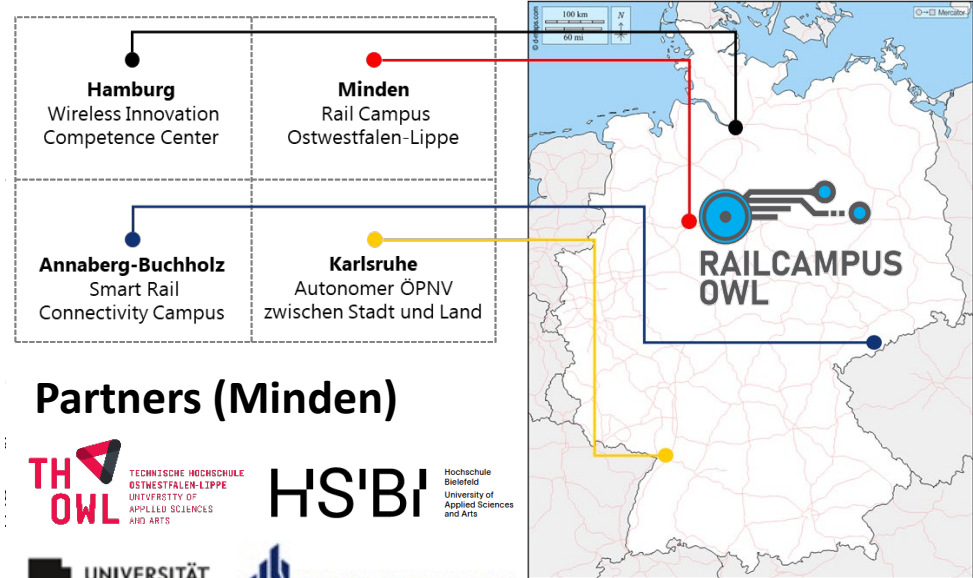
Research Institutes:



Transfer partner:



German Center for Future Mobility



Partners (Minden)

