DB Systemtechnik

Robotik Underground Burrow Inspection (RUBI)

Measure Size. Evaluate Risk. Plan Maintanance.

The Challenge:

As rail networks expand and infrastructure ages, railway corridors increasingly intersect with natural habitats. This has led to a noticeable rise in wildlife activity along railway lines, where animals build nests, burrows, and other structures in trackside areas due to reduced human disturbance and suitable shelter conditions. Those burrows can harm the track stability and increase the risk of track deformation.

Our Solution:

RUBI operates where ground-penetrating radar and endoscopic cameras reach their limits. Equipped with LiDAR and cameras, we capture a complete digital survey of the entire tunnel structure. This enables you to better assess potential risks and plan maintenance measures more efficiently.

Our services

- **Inhouse engineering and production:**
  We can tailor our robots to your specific requirements at any time and, using 3D printing, bring them into operation with minimal lead time.
- **Location-independent operation:**
  The robots are compact and easy to transport. The base station fits into a portable case and can be easily carried and operated by a single person.
- **Advanced 3D Mapping:**
  Our perception lab experts create high-resolution 3D models from captured data, enabling precise calculation of tunnel volume and length, as well as accurate determination of the distance to the track axis.

Your advantages

- **Improved Safety & Risk Awareness:**
  Early detection of hidden risks such as structural weaknesses or wildlife-related damage enables better assessment of potential hazards, reducing the likelihood of failures and increasing overall track safety.
- **More Efficient and Targeted Maintenance:**
  High-resolution data and precise 3D models allow maintenance teams to plan and prioritize interventions more effectively, reducing downtime, lowering costs, and extending asset lifetime.
- **Fast, Flexible, and Easy Deployment:**
  Compact, customizable robots can be quickly adapted to specific requirements and deployed with minimal effort, ensuring rapid response and operation even in challenging or remote environments.

Your contact

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