Evaluation and Demonstration of Robotic Solutions for the Inspection and Maintenance of Ballast Water Tanks on Ships

The international research project “RObots in Tanks” (ROT) contributes to the development, implementation, and integration of new maintenance and inspection processes in narrow, difficult-to-access, dirty, and complex closed spaces, such as ballast water tanks (BWTs) in ships.

Design parameters:
- **Control:** Fully autonomous
- **Locomotion:** 3D rail guided
- **Length:** 693 mm
- **Width:** 244 mm
- **Height:** 293 mm
- **Approx. Weight:** 9 kg
- **Max. Speed:** 0.52 m/s
- **Est. Power Consumption:** 45W (depending on tank design)
- **Power Supply:** 25.6 V 5000 mAh LiPo Battery
- **Est. operation period:** 2.9 h

Drivetrain
- **Motor type:** Brushed DC
- **Motor torque:** 110 mNm
- **Gear:** Planetary 36:1
- **Torque @ rail:** 198 Nm

Designated sensors
- **High-Res Cam:** Prosilica GC2450C 2448 x 2050 px 15 Hz
- **IMU:** Xsens Mti
- **Oxygen Monitor**
- **Thickness measurement:** ATP TE 1250-FN

Partners:

Supported by:

on the basis of a decision by the German Bundesministerium für Bildung und Forschung.