

Research project EMOS: Development of a mobile, automated, optical inspection system for radioactive drums

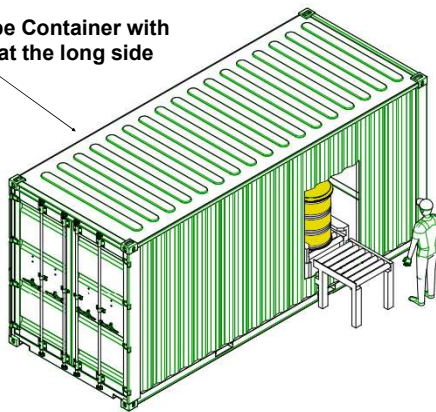
Sponsored by: *Federal Ministry of Education and Research - FORKA – Research for the dismantling of nuclear facilities*

Sponsoring number **BMBF**: 15S9420, **Timeframe**: 01.01.2020 – 31.12.2022

Starting position

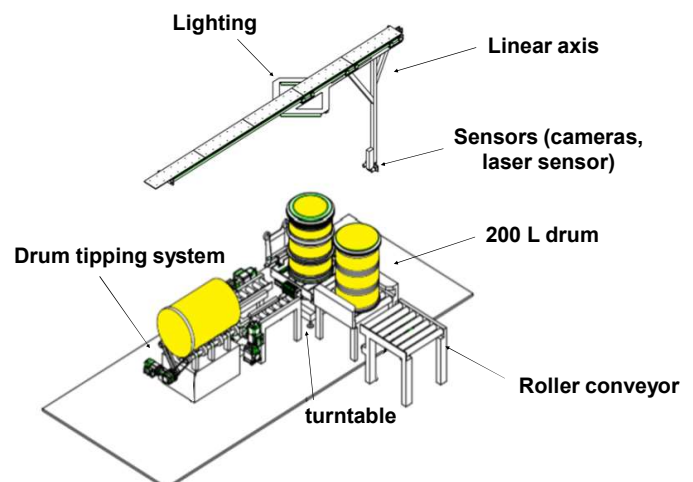
- Due to delays in the construction and commissioning of a German repository for medium and low level radioactive waste, waste stocks from several decades are now at the interim storage locations.
- The safe storage of these waste packages must be guaranteed for an indefinite period of interim storage.
- The usual practice in interim storage facilities is recurring inspections of the drums, which are almost exclusively carried out manually, without electronic comparison recordings and without machine documentation and archiving.
- The visual tests are highly subjective and therefore also prone to errors; In addition, the manual implementation is labor-intensive and the personnel is exposed to radiation.

20 ft High Cube Container with a rolling gate at the long side



Goal of the research project

- Development and conception of a mobile inspection unit that remotely and automatically handles and evaluates the entire drum surface, including lid and bottom, optically and analytically.
- Detection of geometry and corrosion damage to the drum at an early stage.
- Facilitation of the optical monitoring of the stored drums.
- Increase in occupational safety and optimization of recurring tests through standardization and reproducibility.



Project shares of the Cooperation partners

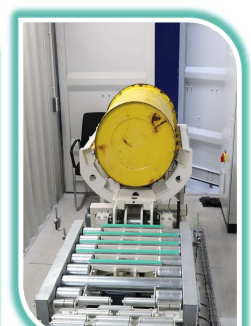
- Institute of Technology and Management in Construction (**TMB**) – development, conception and construction of the inspection unit
- Institute of Photogrammetry und Remote Sensing (**IPF**) – selection and conception of the optical acquisition, as well as creation and implementation of the evaluation algorithms



Drum on turntable



Drum on tipping system



Drum bottom

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