

RDF-based catalogue system for construction monitoring data

Task

In the area of big data, data management aspects become increasingly important to find and access data entries quickly. In the context of construction sites, it becomes common that large amounts of data are collected to monitor the progress of the site. This can include, for example, images, point clouds, measurements of temperature sensors, and many others. Catalogue systems help create and manage metadata about data entries to speed up data queries and access. The team shall use an RDF graph to manage such a catalogue of raw monitoring data.

- Set up an RDF graph database and other DBs to host the data catalogue and the monitoring data
- Investigate in existing data schemata for raw data storage suitable for construction monitoring data (e.g. SOSA/SSN, DCAT, etc.)
- Develop automated and manual methods to feed data records into the catalogue
 - Create a UI for manual data upload
 - Automated integration of live data streams
- Provide functionalities for quick catalogue querying (make sure that for all aspects, data in various formats is considered)





 R. Cyganiak, D. Wood, and M. Lanthaler (2014). RDF 1.1 Concepts and Abstract Syntax. Accessible: https://www.w3.org/TR/rdf11-concepts/
H. Dibowski et al.(2020). Using Semantic Technologies to Manage a Data Lake: Data Catalog, Provenance and Access Control. 13th International Workshop on Scalable Semantic Web Knowledge Base Systems.
A. Haller et al. (2017). Semantic Sensor Network Ontology. Accessible: https://www.w3.org/TR/vocab-ssn/ Jonas Schlenger, TUM CMS, jonas.schlenger@tum.de