W3C LBD Community Group
Minutes - Call 08/02/2022

Attendees:

- Karl Hammar (Jönköping University)
- Christian Kreyenschmidt (Jade University, Oldenburg)
- Alex Donkers (Eindhoven University of Technology)
- María Poveda-Villalón (Universidad Politécnica de Madrid)
- Salvatore Cataldi (BELIMO Automation AG)
- Gabe Fierro (Colorado School of Mines / NREL)
- Joel Bender (Cornell University)
- Eleanna Panagoulia (Georgia Institute of Technology)
- Katja Breitenfelder (Fraunhofer IBP/ acatech, Munich)
- Flavia de Andrade Pereira (UCD/CARTIF)
- Lasitha Chamari (Eindhoven University of Technology)
- Kyriakos Katsigarakis (UCL)
- Jeroen Werbrouck (UGent)

Date and time

- 08/02/2022, Tuesday, 16:00-17:30@UTC/ 17:00-18:30@CET/ 08:00-09:30@PST/ 00:00-01:30@CST

Moderator

- Karl Hammar

Agenda

1. Introduction of new participants
2. Brick: Present and Future (Dr Gabe Fierro, Colorado School of Mines / National Renewable Energy Laboratory)
3. Discussion/Q&A

Minutes

1. Introduction of new participants
    a. Gabe Fierro (Colorado School of Mines / NREL)
    b. Lasitha Chamari (Eindhoven University of Technology)

2. **BRICK: Present and Future** (Dr Gabe Fierro, Colorado School of Mines / National Renewable Energy Laboratory)

a. Slides online
b. **Problem statement**
i. Increasing amounts of building data available enabling new kinds of data processes and workflows - but hard to access
ii. Current state of Building Metadata: 3 (or more) different buildings / BMS / Subsystems
iii. Opaque data silos, missing common design, labels, machine readable

c. **BRICK**
i. Goal of BRICK: Facilitate data driven workflows/ working with Building data
ii. Approach: metadata Graph supporting portable data-driven use cases
iii. BRICK classes: “Points”, “Equipment” and “Location” (physical and logical ones)
iv. Small number of relationships in order to make the ontology accessible to non-expert users
v. Entity Properties added (not changing parameters of the building)
vi. BRICK Ontology (formal description) versus BRICK Model (the graph representing a particular building)

d. **Existing Elements of BRICK’s Design**
i. How to deal with telemetry? BRICK’s approach:
Put the “foreign key” or access parameters into the model
ii. External Reference Types:

“hasTimeseriesReferences”
storedAt: database connection string
TimeseriesId
dataTable
dataColumn, timeColumn, valueColumn: names of (SQL) fields

”hasBACnetReference”
Object-identifier, object-name
objectOf
Dear-property or BUCnetURI

“hasIFCReference”
hasProjectReference
globalID
Name

e. **Classes versus Properties**
i. v1.2 (OWL 2 RL)
1. Bi-directional population: class <-> properties
2. Inferring tags: tags vers. Class
3. Easer to express and validate the behavior

ii. SHACL(-AF) vs OWL (2 RL)
iii. OWA: making sense on ‘the web’
iv. OWL Issues: Limited Negation (e.g. mutually existing information), ‘And’ relationships not ‘or’, inference to materialize rdfs: subClassOf transitive closure, when logical inconsistency is reached, OWL 2 RL rules spit out owl:Nothing; definition “when X “is not true” can’t be given
v. Goal: Interoperability between Brick, Project Haystack and 223(P)
- Approach: Different levels of abstraction
- 223P: detailed, fine-grained
- Brick: high-level, verifiable etc.
- Haystack: High-level, application-facing
- Brick community links in the presentation Slides online: Please join to get involved.

3. **Q&A - Open Discussion**
   a. (Gabriel Fierro): Today, there is a huge amount of existing buildings in need to interact with. Approach: Taking existing ontologies (e.g BRICK) as a starting point, most important to normalize standardized efforts in order to access the existing building data.
   b. Q (Karl): In how far does BRICK support the design of platforms accessed by federated stakeholders? A (Gabriel): BRICK’s interoperability lies in the capability to import/ export the BRICK model, accessing any platform by building the API surface on top of it.
   c. Q (Karl): What designs emanate on the meta level deriving from bi-directional properties? A (Gabriel): Rules/ SHACL queries set requirements on property structures, current works focus on making the meta data accessible for non-experts (e.g. by a filter/ view on the RDF graph without changing the triple store inherent properties).

Next Call

- 22/02/2022, Tuesday, 16:00-17:30@UTC/ 17:00-18:30@CET/ 08:00-09:30@PST/ 00:00-01:30@CST

We are interested in getting suggestions from the community about potential agenda items for the following calls. Please send your suggestions to public-lbd@w3.org, whether you have a short presentation to bootstrap the discussion, and an approximate duration you think the discussion will last.

Previous minutes

https://github.com/w3c-lbd-cg/lbd/tree/gh-pages/minutes