Battery Pass Demonstrator

Presentation of Battery Pass Demonstrator @ CIRPASS Event

5th of March 2024
Brussels
Covered user stories / functions in the Battery Passport Demonstrator

• Collect and process data for the Battery Passport from economic operator back-end systems
  • Collect data from backend systems
  • Map data to common battery pass data model
  • Manage Battery Passport in Economic Operator local Battery Passport Data Repository

• Issue a Battery Passport
  • Create unique Battery Pass Identification based on URN notation scheme, which allows multiple identification standard adoption e.g. DID
Covered user stories / functions in the Battery Passport Demonstrator

• Distributed management of Battery Passport data at each Economic Operator
  • Common access to Battery Pass through Battery Passport IDs via resolver mechanism in central registry
  • Verify different data representation based on common semantic model (NoSQL, NGSI-LD, AAS) for verification of technology-open implementation approach

• Accessing and viewing of Battery Passport
  • Scan QR Code or enter Battery Passport ID
  • Access to public/restricted Battery Passport Data without/with authorisation
Scope of BP Demonstrator in DPP-System Architecture

Legend
- Access Portal
- Interface
- Software Service
- Data Storage and Management
- System Boundary of Stakeholder
- Data Carrier
- Authority
- Company / Organisation
- User
- Identity and Access Control Services based on Policies
- DPP System Service Provider
- End User Device

Battery passport system architecture

thebatterypass.eu
Battery Pass Demonstrator Implementation

- Minimum viable Battery Passport System
  - Cloud-based infrastructure for distributed management
    - Currently Multiple instances of Battery Passport Data Repository (BPDR) have been setup to mimic a Battery Ecosystem with multiple Economic Operators
  - Economic operator portal with a dedicated URL for each EO
  - Access protected with additional authorization
  - Common API providing CRUD operations on BPDR

- Battery Passport Manager
  - Management tool for managing a local Battery Passports in Data Repository
    - Collect data from external source or from existing model passport
    - Store Battery Passport in EO specific BPDR
    - Publish Battery Passport via central registry
Battery Pass Demonstrator Implementation

- Battery Passport Viewer
  - Get Access with QR-Code or Battery Passport ID
  - Landing page with most important data points, structured navigation through individual content clusters
  - Dynamic UI for automatic adoption to mobile devices
  - Multi-lingual and graphical representation of data points
Scope of Battery Pass Demonstrator

- Distributed management of data to ensure data sovereignty by applying a data space concept
- Each battery passport responsible economic operator manage its own DPP data repository in a high-availability system
- Machine-readable data model of battery pass based on semantic object model
- Identification of DPP by machine-readable identifier (QR-code)
- Interoperability based on common generic standardised semantic data model and related domain ontology
- The DPP system shall be designed technology-open in order to allow system-overarching interoperability
- Data interfaces and transport shall base on common standards (e.g. REST API and HTTPS via TCP/IP)
- Public DPP data shall be accessible via the identifier
- Reliable identity and Access Management for granting access to restricted DPP data necessary (e.g. Dismantling Information)
API Access to the battery passport manager

- The data model is derived from a platform independent semantic object model based on the generic Resource Description framework.
- From that platform independent model a platform specific model can be derived (e.g. JSON Schema).
- The JSON Schema model defines the data structure of the individual data models for each battery pass content cluster.
- For access to the battery pass manager we developed an API that uses GraphQL for all CRUD (Create, Read, Update and Delete) operations.
- This can be reviewed in detail in a workshop.