CVII – Comparison of some initiatives

JASPAR, SENSORIS and VSS

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Standards: a need

Manifold Air Pressure

< MAP >
Standards: a risk (aka the xkcd 927 effect)

https://xkcd.com/927/
Purpose, Scope and Objectives... Some initiatives

**JasPar**
Japan-based organization
Electronic control systems
Software of in-vehicle networks
New areas of car electronics

**SENSORIS**
Interface for requesting/sending vehicle sensor data from vehicles to clouds and across clouds
Focus on the content and encoding of the interface

**Vehicle Signal Specification**
Domain taxonomy for vehicle signals
No external information
No concrete interface definition

https://www.jaspar.jp/en
https://sensoris.org/
https://genivi.github.io/vehicle_signal_specification/
Protocol and formats

**JasPar**
- REST interface
- “Messages”: JSON payloads over HTTP

**SENSORIS**
- Google Protocol Buffers (protobuf)
- Data messages in categories (expandable)
- Identifies of submitter, session, message, vehicle fleet, vehicle, and driver

**Vehicle Signal Specification**
- No communication protocol required
- JSON, csv, C, franca serialization

https://www.jaspar.jp/en
https://sensoris.org/
https://genivi.github.io/vehicle_signal_specification/
Data Message Structure

<table>
<thead>
<tr>
<th>Message</th>
<th>Envelope</th>
<th>Events</th>
<th>Sources</th>
<th>Relations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Event</td>
<td>Management information</td>
<td>Relation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Envelope</td>
<td>Space information</td>
<td>From... To</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Category</td>
<td>Contents</td>
<td>Type</td>
</tr>
</tbody>
</table>

No unique way. Here, a GENIVI approach

Data package

<table>
<thead>
<tr>
<th>Identifiers</th>
<th>Metadata</th>
<th>Value container</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Signal metadata</td>
<td>(Snapshot, bundle,</td>
</tr>
<tr>
<td></td>
<td>Usage metadata</td>
<td>stream or record)</td>
</tr>
<tr>
<td>Signal</td>
<td>Value</td>
<td>TS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...</td>
</tr>
</tbody>
</table>
Signal Catalogs

traffic
regulation
obstacle
attention
event
environment
infrastructure
parking

localization
object_detection
weather
driving_behavior
intersection_attribution
road_attribution
traffic_regulation
traffic_events
traffic_maneuver
brake
powertrain
map

https://www.jaspar.jp/en (ST-VI-3)
https://sensoris.org/
https://genivi.github.io/vehicle_signal_specification/
Signal metadata

Time
- UTC/ISO8601

Space
- 3 coordinates
- onRoad, name, lane
- Accuracy
- Sector ID (ISO/NP 17572)

Explicit fixed units per element

Time
- UTC/ISO8855

Space
- Position and Accuracy
- WGS84/3 coordinates/

Explicit fixed units (SI) per unit type

Explicit prefix symbols (kilo…) and exponent per value

https://www.jaspar.jp/en (ST-VI-3)
https://sensoris.org/
https://genivi.github.io/vehicle_signal_specification/
https://w3c.github.io/automotive/vehicle_data/vehicle_information_service.html