Session C

Concept Project for OpenDRIVE

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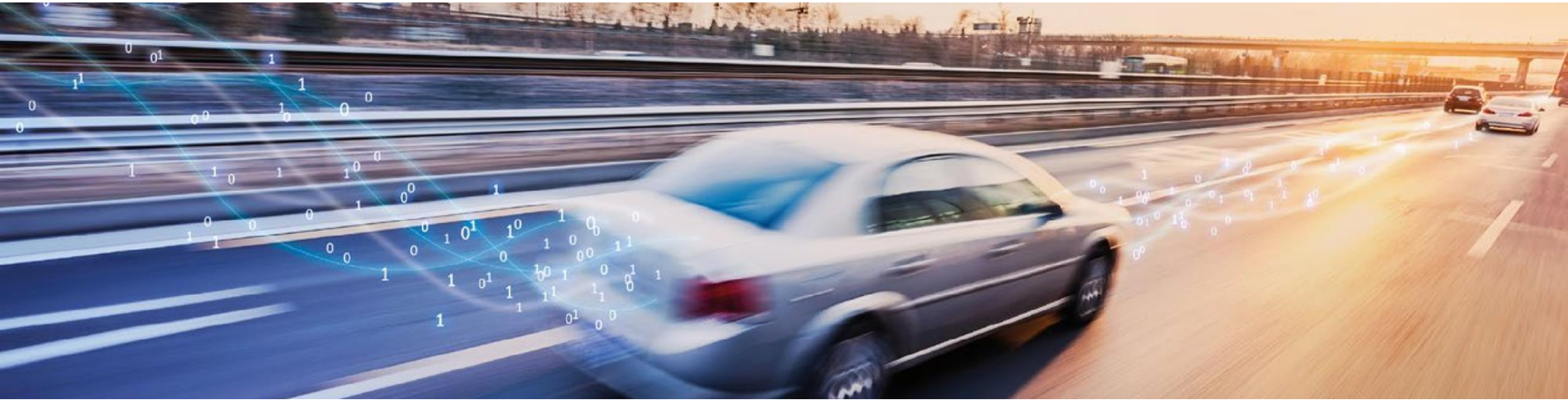

ASAM
Association for Standardization of
Automation and Measuring Systems

Features & Requirements for OpenDRIVE

Requirements

R001:	Add More Model Parameters
R002:	Remove or Reduce Redundant Information
R003:	Harmonize OpenDRIVE with Other Standards
R004:	Remove or Reduce Different Ways to Model

Features

F001:	Junction Model
F002:	Road Geometry Models
F003:	Arbitrary Spaces Model
F004:	International Signs Model
F005:	Environment Representation
F006:	Roundabouts
F007:	Parametrization & Variation
F008:	Georeferencing
F009	Crosswalk

Discussion

Questions or comments to the proposed requirements?

- R001: The number of parameters would probably be too much for the OpenDRIVE data model. There should be a generic data model, e.g. use codes for traffic signs. The code is then referring to a tool-specific data description or data dictionary.
- R001: There should be just a core model, which allows extensions and to model the extensions. Look into other standards, who have already such an extension mechanism.
- R003: Which standard shall actually be harmonized with OpenDRIVE? This shall be decided by the project group. Most important harmonization effort is to ensure easy mapping of data between the standards.

Discussion

Questions or comments to the proposed features?

- F001: There shall be a link between OpenDRIVE and OpenCRG wrt height-definition for junctions.
- F002: OpenDRIVE street networks shall be sub-dividable in tiles. This should be a separate feature.
- F004: It is currently not clear which point of the traffic sign the position references to. Example: If a coordinate is given on a round sign, then it is the center of the circle.
- F005: Properties for sensor simulation are important, such as material properties (RADAR cross-section, color, etc.) of the traffic sign. This might be too complex for the OpenDRIVE standard. OpenDRIVE may just have a reference to this data specified by another standard.
- F005: There is a strong preference to just have links in OpenDRIVE files to 3D objects, but no detailed specs that specify 3D objects.
- F005: The link between OpenDRIVE and the 3D objects can be established via geo-referencing.

Discussion

Questions or comments to the proposed features?

- F007: Parameter variation should not be done within the OpenDRIVE file. This is technically not possible. There needs to be another description, e.g. a DSL. This should be a separate standard.
- F007: Variation of simple parameters shall be possible, e.g. speed limits, lane widths. But where is the boundary to a separate standard?
- F007: Variation can also be done by creating variants of OpenDRIVE files, e.g. by search & replace. OpenDRIVE is a 'concrete' format (as opposed to a 'logical' format).
- F008: There are doubts, that this feature is actually needed.
- F008: It is a problem currently, if the map is not oriented towards north. The project group should work on projection methods or libraries for geo-referencing.
- F009: Other network definition formats, like Sumo from DLR, is used for this purpose. This feature is already included in the standard. May be included in a "Best-Practice" guide. Shall be removed from the prioritization list.

Feature Prioritization

Instructions

1. Please determine your scores to features that are most important for your company (~15 min).
   - Scores: 3, 2, 1
   - Higher number = higher priority
   - One company = one scoring
2. Determine a speaker for your company.
3. When being called, the speaker presents the scores and explains the reasons for his choice.

Features

F001:	Junction Model
F002:	Road Geometry Models
F003:	Arbitrary Spaces Model
F004:	International Signs Model
F005:	Environment Representation
F006:	Roundabouts
F007:	Parametrization & Variation
F008:	Georeferencing
~~F009~~	~~Crosswalk~~

Result

The total score will be added up per each feature. This determines its priority relative to the other features.

Results of Feature Prioritization

Features

F001	Junction Model	:	41
F005	Environment Representation	:	38
F002	Road Geometry Models	:	25
F004	International Signs Model	:	19
F007	Parametrization & Variation	:	17
F003	Arbitrary Spaces Model	:	14
F008	Georeferencing	:	7
F006	Roundabouts	:	1

Discussion on the Results of Feature Prioritization

Take a two-step approach:

1. Assessment
   Make an assessment, what is already possible with OpenDRIVE, determine recommendations, clarifications or new content for style guides, and then determine, where additional concept work is actually needed.
2. Spawn Concept Projects
   Potentially start a new concept project.

All features of the list are included in this project.

Key Points for Project Planning

Is there a heightened likelihood that your company would send an expert to this project?

- 13 companies would probably participate.

Key Points for Project Planning

Preferences for meeting frequency and duration?

- Should be on-site meetings. About every 6 weeks for 2 days.

Key Points for Project Planning

Expectation for the end of project?

- None

Key Points for Project Planning

Volunteer for document ownership?

- No

Key Points for Project Planning

Volunteer for writing the project proposal?

- Siemens Industry Software

Thank you!

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