Using Public Sector Data for Advanced Driver Assistance Systems

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The Premise

- Indications are that digital map data used for ADAS in passenger cars will be supplied by current navigable map data suppliers.
- Public road sector organisations, particularly the national road authorities, regularly collect data that could be of high value for ADAS applications if it could be delivered in a form acceptable to all market players. Examples of data include:
  - Slope
  - Banking
  - Bridge Heights
  - Speed Limits
  - Vehicle Type Restrictions

ADAS Electronic Horizon
The Problem

- Information contained in the current navigable map databases is not sufficient to perform the required vehicle control and driver assistance functions.
- Public sector map data is not easily transferred to the navigable map databases. There are mismatches with:
  - Spatial Data Model
  - Geographic Reference System
  - Transfer Format

### Hazmat restrictions
- Prohibitions for vehicles carrying dangerous goods
- Recommended parking place for vehicles carrying dang. goods
- Recommended road for vehicles carrying dang. goods

### Warning attributes
- Steep hills (slopes)
- Sharp curves
- Truck accidents from period 2003 - 2006
Digital Map Databases: Why they build them

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<th>Road Authorities</th>
<th>Land Surveys</th>
<th>ITS Map Producers</th>
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Digital Map Databases: How they build them

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<td>Chainage Model</td>
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<td>Physical Attributes</td>
<td>Cartographic Att’s</td>
<td>Navigable Att’s</td>
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Resolving the Issues

- Convert data to common geographic reference system: WGS84.
- Agree on functional road class names.
- Agree on data transfer format: SHAPE or EuroRoads
- Match locations using a location referencing method: AGORA-C
  - Name(s) of road(s)
  - Functional Class, etc.

The top of a truck is given a shaving because of a mismatch between the height of the truck and the clearance of the overpass.
Conclusions and Future Work

- There are significant differences between the way that national road authorities and commercial map data suppliers collect and store their road-related information, but that does not mean that the data are incompatible.
- Methods exist to integrate useful data and make it available for ADAS applications.
- More focus needs to be given to cooperation, especially to develop a consistent, multi-country data pricing policy.
Thank you

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