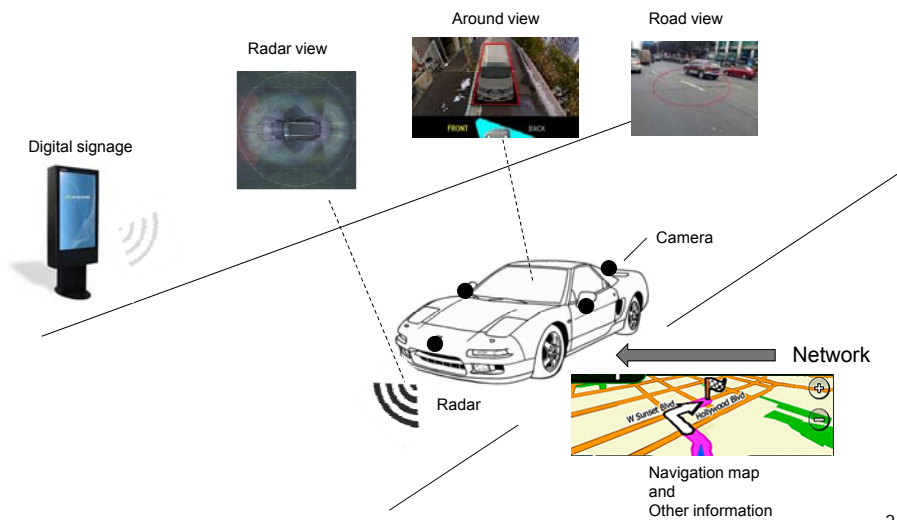


Study of map/geography information for car

at SS5 and AGS
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In Milano, CEI
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- Car user uses many kinds of AV and IT information for infotainment.



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- Car infotainment system uses various map/geography information.
 - Information for car navigation
 - Web base map
 - Dedicated map
 - Information for driving
 - Web base
 - Dedicated
 - Information around car for infotainment
 - Event monitor
 - Drive monitor
 - Radar
 - Information of road for infotainment
 - Drive monitor

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The issues of map/geography information

- No international standard of navigation map
 - Many specifications are exist.
 - Alliances want to enclose users, whether they want to make international standard is not clear.
- Auto drive supporting map/geography information
 - For autonomous driving, 3D visual information and 3D scan information are necessary, also various information provided from outside are used.
 - Auto-drive is under development, the methods and standard will be made.
- Various kinds of information based on map/geography
 - There are many kinds of information that are useful with overlay on map. For instance, store location, weather information and others are familiar in use of smart phone.
 - Many kinds means there are many formats, no standard for interoperability.

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Map standard

- Electronic map
 - OGC (Open Geospatial Consortium) is US based SDO of electronic map.
 - Over 500 organization including Google are the members, they are making electronic map specification. The subject is IT/Internet map.
 - Some of specification is standardized as ISO, for instance, GML(Geography Markup Language) is standardized as ISO/TC211-Geographic information/Geomatics.
- Navigation map
 - There is no international standard of navigation map.
 - There are some alliances developing their own specification.
 - For instance, in Japan, some organizations develop map.
 - As smart phone was utilized for car navigation, Apple and Google maps are advanced for navigation.

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Use case under TC 100

- Navigation map supplementary
 - Actual information around car, for instance,
 - visual and audio information around car
 - road condition
 - atmosphere information
 - geography information and geometric information around car
 - Signage information
 - These can be useful to support navigation map and driving.
- All of these information make navigation map more functional.

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What is to be standardized

- All of these functional information to supplement navigation map for interoperability and compatibility
- Standardization items of the information
 - Information definition
 - Data format
 - Transmission protocol