ITS scenarios, use cases (applications) and requirement categories

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Vehicular networking applications

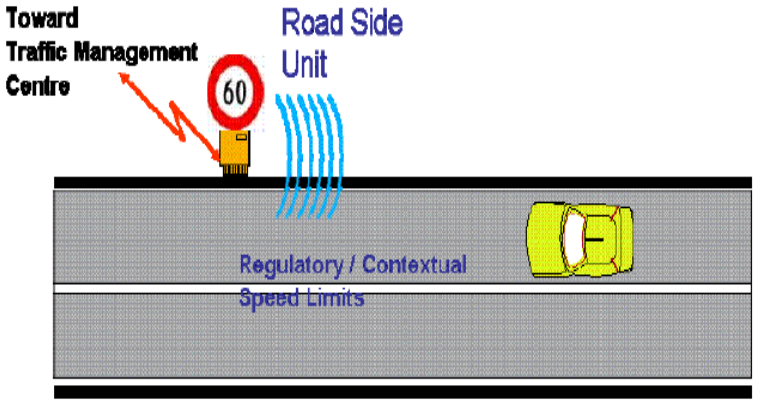
- Traffic (or Active) road safety: decrease probability of traffic accidents and loss of life of occupants of vehicles
- Traffic efficiency & management: improve vehicle traffic flow, traffic coordination and traffic assistance and provide updated local information, maps and in general, messages of relevance bounded in space and/or time
- Infotainment applications: All other type of applications considered to be Infotainment applications

➢ Based on ETSI TC ITS and CALM TC 204 only Infotainment applications and some of Traffic efficiency applications make use of IP based protocol stack

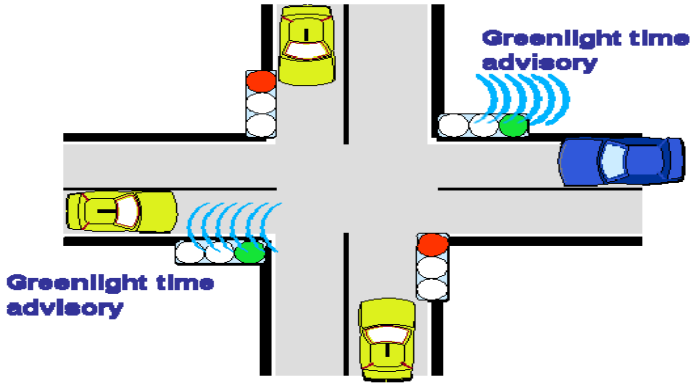
Traffic efficiency & management applications

a) Speed management (figures from ETSITR102638)

Regulatory/contextual speed limit notification



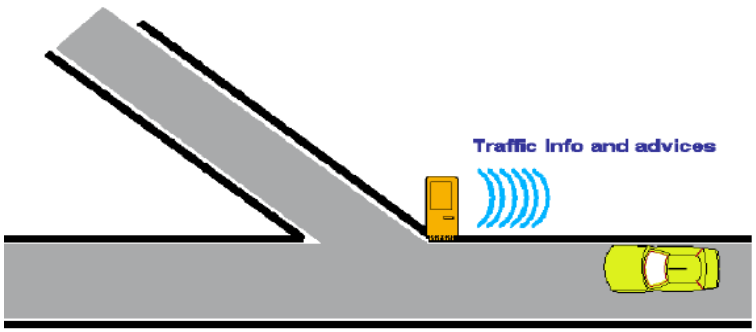
Green light optimal speed advisory



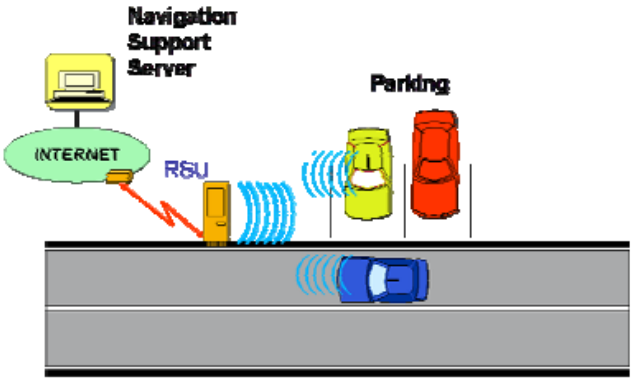
Traffic efficiency & management applications

b) Co-operative navigation (figures from ETSITR102638)

Traffic information and recommended itinerary



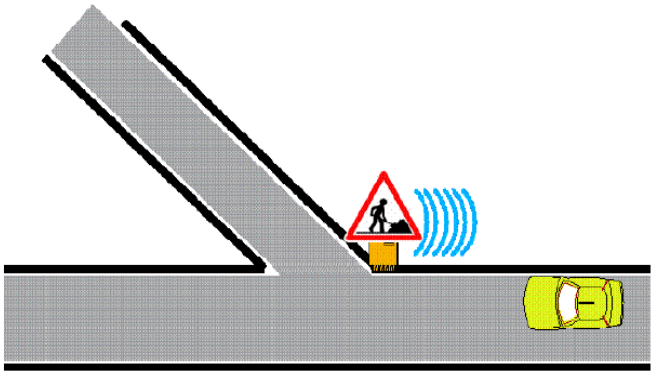
Enhanced route guidance and navigation



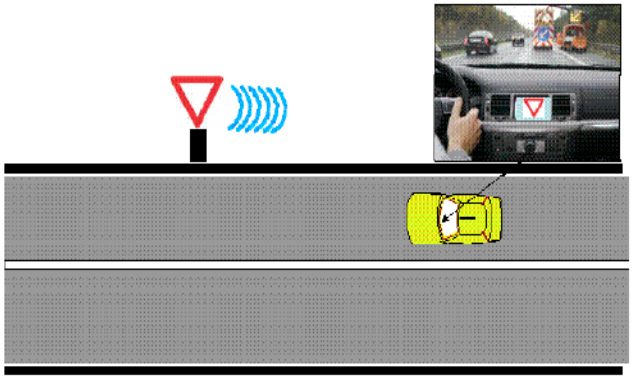
Traffic efficiency & management applications

b) Co-operative navigation (figures from ETSITR102638)

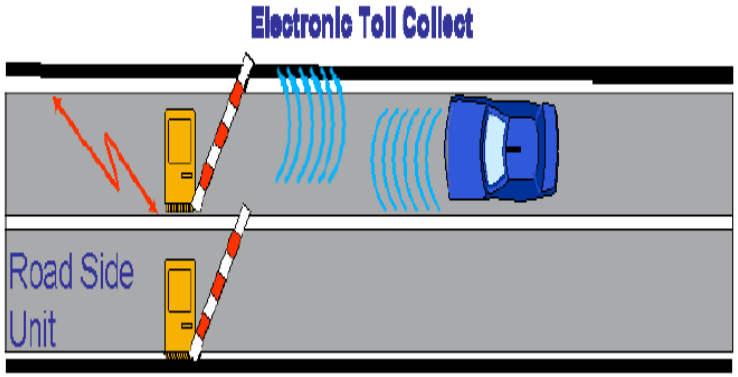
Limited access warning and detour notification



In-vehicle signing



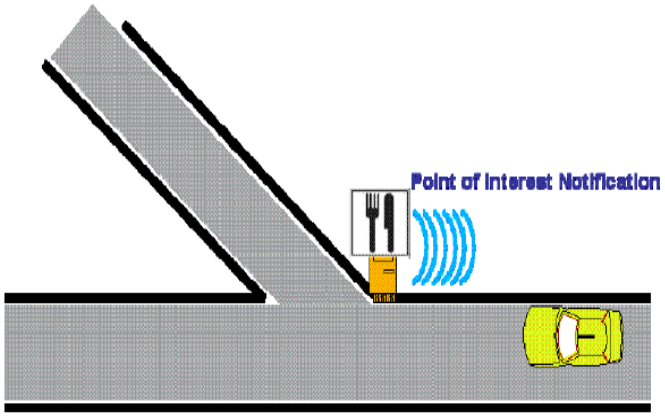
Electronic toll collect



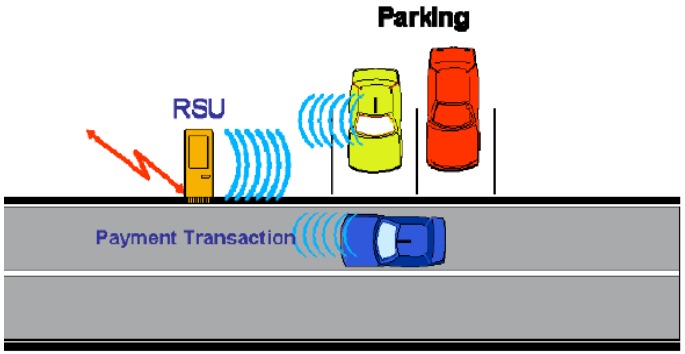
Infotainment applications

a) Co-operative local services (figures from ETSITR102638)

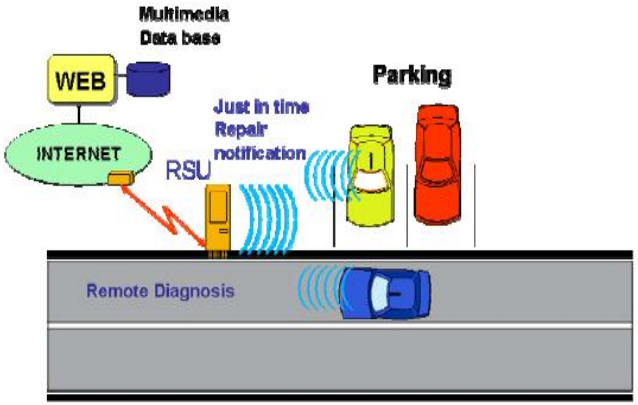
Point of interest notification



Intelligent Transport System local electronic commerce



Media downloading

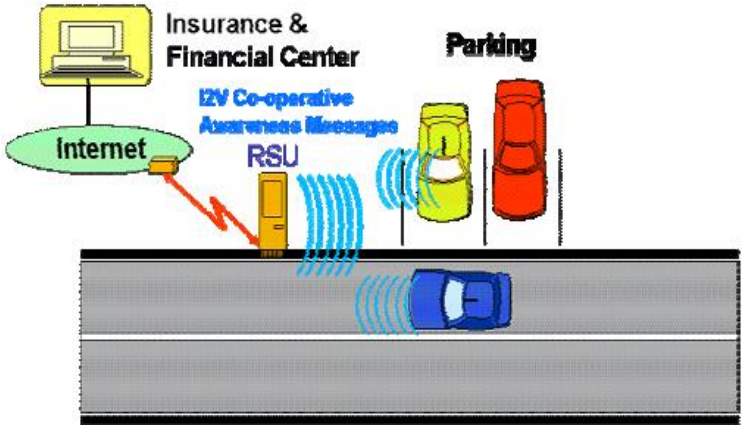


Infotainment applications

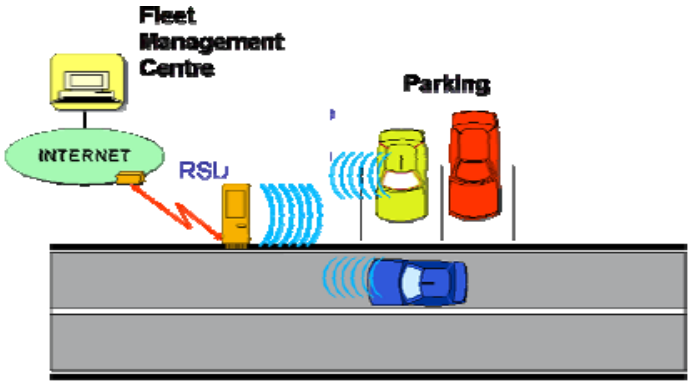
b) Global Internet services

b1) Communities services (figures from ETSITR102638)

Insurance and financial services
(pay as you drive with insurance and financial services support)



Fleet management

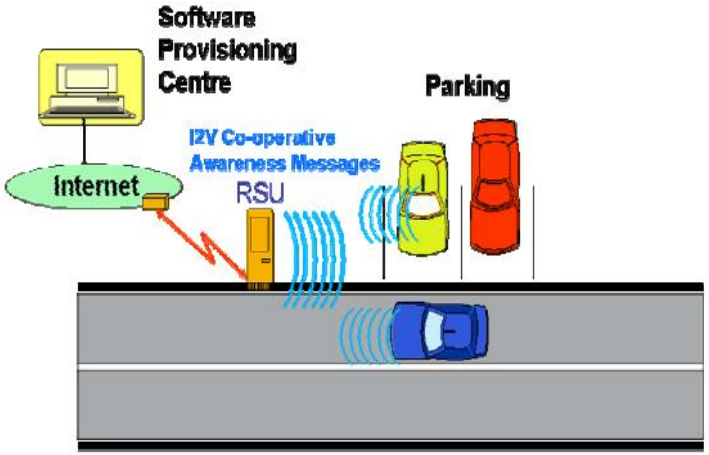


Infotainment applications

b) Global Internet services

b1) ITS station life cycle (figure from ETSITR102638)

Vehicle software/data provisioning
and update



Communication requirement types

- Radio communication capabilities
- Network communication capabilities
- Vehicle absolute positioning capabilities
- Vehicle communication security capabilities
- Other vehicle capabilities

Communication requirement types

Radio communication capabilities:

- ✓ single hop (or multiple hop) radio communication range
- ✓ used radio frequency channels
- ✓ available bandwidth and bit transfer rate
- ✓ robustness of the radio communication channel
- ✓ level of compensation for radio signal propagation difficulties by e.g., using road side units

Communication requirement types

- Network communication capabilities:
  - ✓ mode of dissemination: unicasting, broadcasting, multicasting, geocasting (broadcasting capability that is valid only within a specified area),
  - ✓ data aggregation
  - ✓ congestion control
  - ✓ message priority
  - ✓ management means for channel and connectivity realization
  - ✓ support of IPv6 or IPv4 addressing
  - ✓ mobility management associated with changes of point of attachment to the Internet.

Communication requirement types

- Vehicle absolute positioning capabilities:
  - ✓ Global Navigation Satellite System (GNSS), e.g., Global Positioning System (GPS)
  - ✓ Combined positioning capabilities, e.g., combined GNSS with information provided by a local geographical map

Communication requirement types

- Vehicle communication security capabilities:
  - ✓ respect of privacy and anonymity
  - ✓ integrity and confidentiality
  - ✓ resistance to external security attacks
  - ✓ authenticity of received data
  - ✓ data and system integrity

Communication requirement types

- Other vehicle capabilities, e.g.:
  - ✓ vehicle interfaces for sensor and radar
  - ✓ vehicle navigation capabilities