Knowledge-based Real-Time Car Monitoring and Driving Assistance

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Car Diagnostics Systems with OBD

- New vehicles support the OBD-II (On Board Diagnostics) connector and protocol to:
  - provide real-time access to a large number of vehicle parameters
  - retrieve Diagnostic Trouble Codes (DTC) stored in car Electronic Control Unit
- Scan tools bridge OBD-II with standard computer communication interfaces:
  - wired (RS-232, USB)
  - wireless (Bluetooth, IEEE 802.11)
- State of the art:
  - remote monitoring systems do not allow a direct driver assistance
  - existing on-board systems only display the acquired low-level data
  - high-level, comprehensible information is not provided for decision support to the driver
A matchmaking process is exploited to infer safety requirements that are not explicitly satisfied by current vehicle configuration and driver behaviour.
Prototype for iPhone Platform

- Weather
- Instantaneous and average fuel consumption
- Emissions and gear lever
- Fuel autonomy

- Traffic and road information
- Vehicle speed
- Driving style
- Driver attention
- Safety devices