Introduction

AKQA are a worldwide digital agency with a wealth of experience delivering innovative digital solutions to a range of leading automotive brands. We developed the world's first non-linear online car configurator and built the first HTML5 car configurator.

This is an Automotive Specific API and speaks directly to the relevant W3c questions:

'What use cases are there for exposing different aspects of the car to Web applications through automotive specific APIs? Information from car sensors for road conditions and nearby vehicles. Information on fuel efficiency and need for servicing. There are many car subsystems, but how much information do end-users really want? What new standards are needed for this?'

InCar API Vision

To develop an open and transparent in car API that manufacturers, vendors and agencies can leverage in order to enhance and improve the in car experience.
This would be realized by a corresponding standards track and working group.

Scope

Maturity Model

Have a maturity mode for the API as it transitions from 0.x to 1.0, 1.x, 2.x etc.
OEM manufacturers are able to supply hardware based on the feature set of the API.

Conceptual Model

Hardware

- CAN Bus, IAP, MDI etc.
- Speed, RPM, Mileage, Fueltanklevel and Fuel consumption, Engine Oil Temp
- Faults and breakdowns

Environment

- Weather awareness e.g. Brightness in LUX, turn on driving lights, Is it dark?, amount of rainfall, temperature.
- Traffic, Incidents and

Settings and Configuration

- Doors
- Sunroof opening in %

GPS

- LatDegreeNS, LatDirNS, LatMinNS, LatMinFracNS, LonDegreeOW, LonDirOW
- LonMinOW, LonMinFracOW, Fix Altitude

Voice/Multimodal Inputs

Connectivity Stack

- Bluetooth, Wi-Fi or Cellular),
- TCP/IP Stack

API Interoperability Model

Methods and Operations e.g:

- playMusic()
- getLocation()
- recordDriver()
- getCurrentSpeed()
- getTemperature()
- getFueltanklevel()
- getFuelconsumption()
- getSpeed()
- getRPM()

Vocabularies and Interchanges

- Provision of RDF, XML and JSON vocabularies and guidelines

HTTP bindings

- All aspects of the API should include equivalent HTTP bindings

Normative and Informative References:

- MMI Model and its applications (w3c standard)
- HTML5

Security Model

Authentication

Functions move from a core to more open depending on authentication levels. Authentication and how it is managed i.e. digital certificates signed by the automaker or a trusted third party.

Authorization and Access Control

Access to certain resources should be controlled. The safety of the car must not be compromised.

What can be built on top e.g. Mashups

C02 Monitoring

This is an API example that uses MDI and a HTML5 application in order for these to exchange data relevant to CO2 Monitoring.

Perfect journey

In-vehicle temperature set remotely
Vehicle pre-plans routes based on traffic conditions
Vehicle alerts you to journey problems before you get in the car (2 way communication)
Car learns your habits (if you drive daily, preferred routes etc.), uses this to inform you of possible problems
Car makes useful/practical suggestions (plans fuel stops in advance, recommends leisure drives)
Standard Apps supplied by manufacturer

Cloud settings

Personal vehicle settings stored in cloud – seats, radio
Make any connected vehicle ‘your own’, pulls down cloud settings and applies them to base variables (seat distance to steering wheel etc)
Third parties can access your ‘open’ layer vehicle data to provide you services

Mobility

Load your cloud settings to any requested vehicle
Parked vehicles send alert when they leave a space
Location data supports end-to-end journey planning
Joined-up journey planning (leave at this time, arrive here, get train etc)