



Nomadic device Integration & Management: Towards a Solution

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Nomad Devices : Integration Issues

Background

- Number of types of nomad devices is increasing (cellphone, PDA ...)
- Popularity of nomad devices is increasing (not uncommon for people to have multiple devices) largely as a result of reducing cost, and increasing functionality, and are being brought into the car
- This is contributing to driver distraction issues, and resulting in safety issues



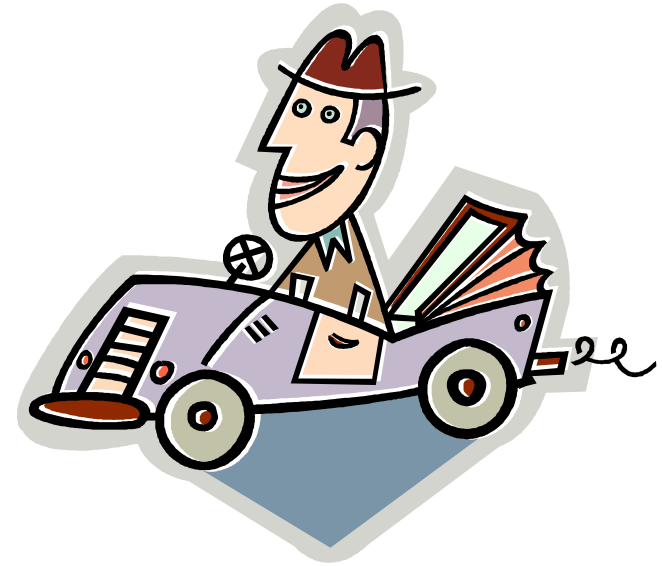
If these issues are not tackled by the industry, we may end up with legislation banning the use of nomad devices completely in the vehicle.



Nomad Devices : Integration Issues

Ideal Scenario:

- Standardisation of all nomad devices for easy integration of these devices into the vehicle
- Automatic integration of the nomad devices (of all types) to the automotive control systems



Reality!

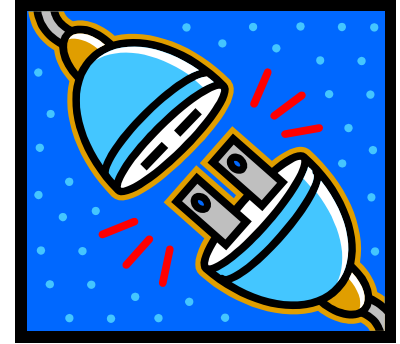
- No standardisation being used
- Limited integration of the nomad device with the vehicle systems
- Current choice is standard on high end vehicles, factory fit option (with limited take up?), or after market fit
- Integration is often limited to where the driver puts the device holder in the car!!



Nomad Devices : Integration Areas

What do we mean by Integration?

- Covers a number of integration areas-
- **Physical** – Where will it be mounted? What if there is more than one device? Devices are not all the same physical shape!
- **Electrical** – If there is a physical mount, will it be wired for electrical, and communications? (for recharging, and communication with the car systems)
- **Communication** – How will the nomad devices communicate with the car systems? (wired? Bluetooth? Wifi?)
- **Protocols** - what communication standards will it use?





Nomad Devices : Integration Areas

Other integration areas for consideration-

- **Control** - What level of control/management is required of the device (from the vehicle and/or nomad device)?
- **Security** – System implemented must be secure.
- **Safety** – The solution requires to be safe, and meet any legislation requirements (this may be multiple requirements in different countries)
- ...





Towards a Solution – Current SoA

Some of these integration areas are seeing solutions and standards being applied-

- **Communication**

- Bluetooth – fast becoming *the* standard for short range communication for nomad devices
- Wifi - increasing in popularity – especially in PDAs. Some mobile phones with this facility now appearing.

- **Protocols**

- Bluetooth - profiles
- AMI-C (Automotive Multimedia Interface Collaboration) – Standardisation of mobile information and entertainment systems [*nomad devices*] for vehicle communication systems. Protocol definition part of this collaboration standardising communications (Issue with these standards is the limited take up by manufacturers?)



Towards a Solution – Current SoA (cont)

- **Electrical/Physical**

- Some factory-fit options are available for specific devices (manufacturers, devices – e.g. BMW & IPOD). Typically limited to mobile phones.
- After-market options - often “ad-hoc” consumer fit – and integration really just means a “sucker” holder!
- AMI-C has standards and definition of electrical/physical connections in place
- CEA has a MOST standard (CEA-2012) defining the requirements for implementing an Aftermarket Network based on the Media Oriented Systems Transport (MOST®) standard. This can be used independent of any vehicle network, or connected to a factory-installed network with a gateway function.



Towards a Solution

Standardisation?

- Can standardisation cure these issues?
 - AMI-C seems like a potential solution (protocols, electrical, physical standards for Nomad devices) **BUT**
 - Unclear what the take up is of these standards.
 - Is it dead?
 - MOST Gateway function - is this the new way ahead?

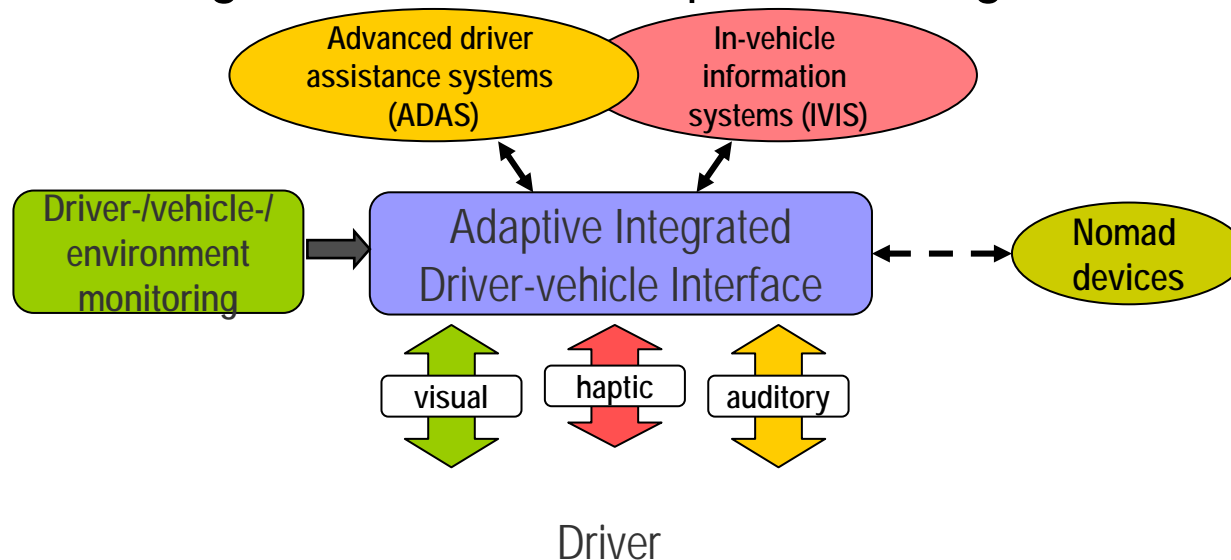
- Does the industry really want standardisation in this area? (if its standardised, then where is the USP?)



Towards a Solution

AIDE solution:

- Primary goal (with respect to nomad devices) is the safe integration and control of the nomad devices
- The AIDE project is considering a Nomadic Gateway as part of its architecture covering all of the above aspects of integration.





Thank You

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