



NOMADIC DEVICE WORKSHOP – INTEGRATION ISSUES

Patrick Robertson

Global Software Group, Motorola

Scotland



Summary

- Overview of 1st European Nomadic Devices Workshop
- Overview of eSafety HMI recommendations
- Summary of Integration areas (areas + potential solutions)
- *Discussion (of integration areas)*



1st European Nomadic Device Forum summary

Overview of the first nomadic device forum.

overview of the presentations

overview of the workshops and any outcomes/findings



Recommendations from the eSafety-HMI working group

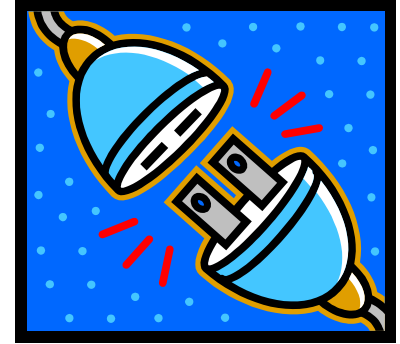
Summarise the recommendations - focussing on the nomad devices recommendations.



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?)



INTEGRATION ISSUES - PHYSICAL

Discussion points (not limited to the following)

Is it required?

Who is responsible? (eSafety)



INTEGRATION ISSUES - ELECTRICAL

Is it required? (for power)



INTEGRATION ISSUES – COMMS

Bluetooth? Wired? Wifi? MOST Standard



INTEGRATION ISSUES - PROTOCOL

AMI-C?

BLUETOOTH PROFILE?

BESPOKE?



INTEGRATION ISSUES - OTHER

Issues with multiple devices?

Aftermarket v's factory-fit



Thank You

Patrick Robertson

Software Architect Manager

+44 1506 46 3320

Patrick.Robertson@Motorola.com