
High-Level requirements Suppliers EG.2

DG eCall meeting
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EG. 2 members

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- ❑ Alfred Krappel, Motorola
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- ❑ Olivier Beaujard, Wavecom
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Automatic eCall trigger

Restraint devices equipment rate



	2005 From unit sold	2005 From cars tested by EuroNcap
Frontal	~92%	100%
Side	~60%	85.2%
Rollover	~0.2%	?

Automatic eCall trigger Conclusion



- ❑ Robust detection of planar events is possible by using X/Y accelerometers available in airbag control units (front, rear, side)
- ❑ Protection deployment is not equal to eCall trigger, dedicated eCall trigger criteria shall be used
- ❑ Rollover sensor equipment rate is low, the feasibility of detecting rollovers using X/Y accelerometers have to be assessed
- ❑ Statistics from GM OnStar shows 1 automatic eCall / 1000 cars and year

Embedded vs. Nomadic

□ Pros.

- Car standard compliant and robust design will secure function in most accident situations
- Allows certificating of complete IVS, including GSM
- Embedded device allow other car related telematic like safety and security, and remote control and diagnostic

□ Cons.

- To be viable, the IVS need to have a useful life of 10-15 years

Pros.

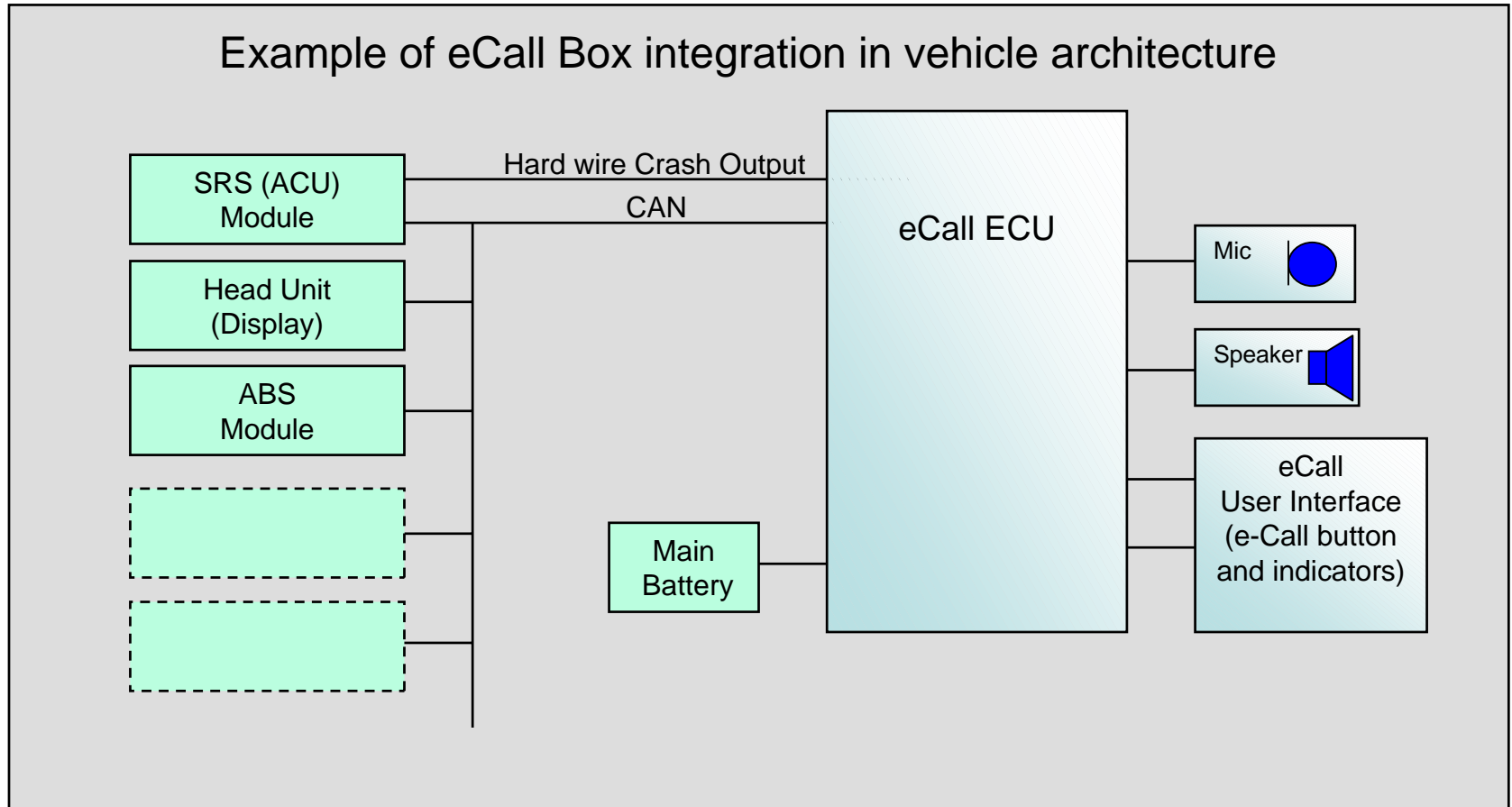
- Use of existing customer's equipment (if compatible with onboard IVS node and application)

Cons.

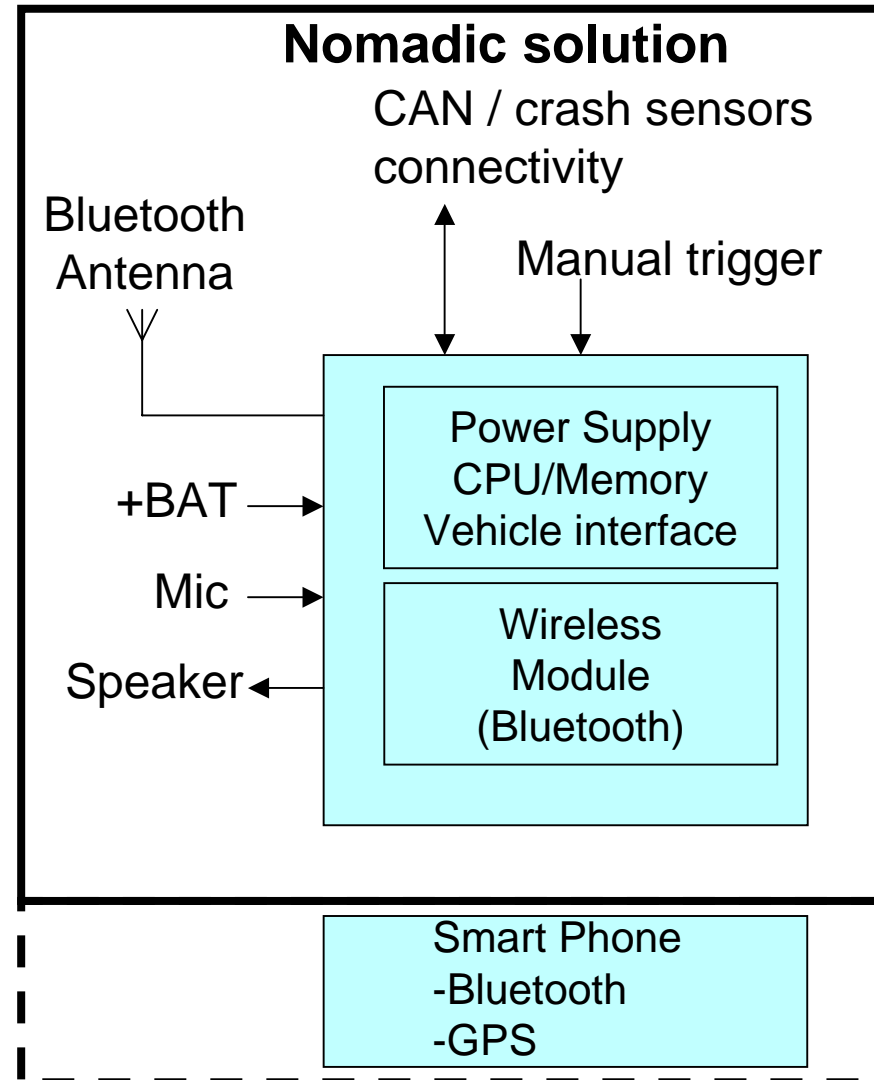
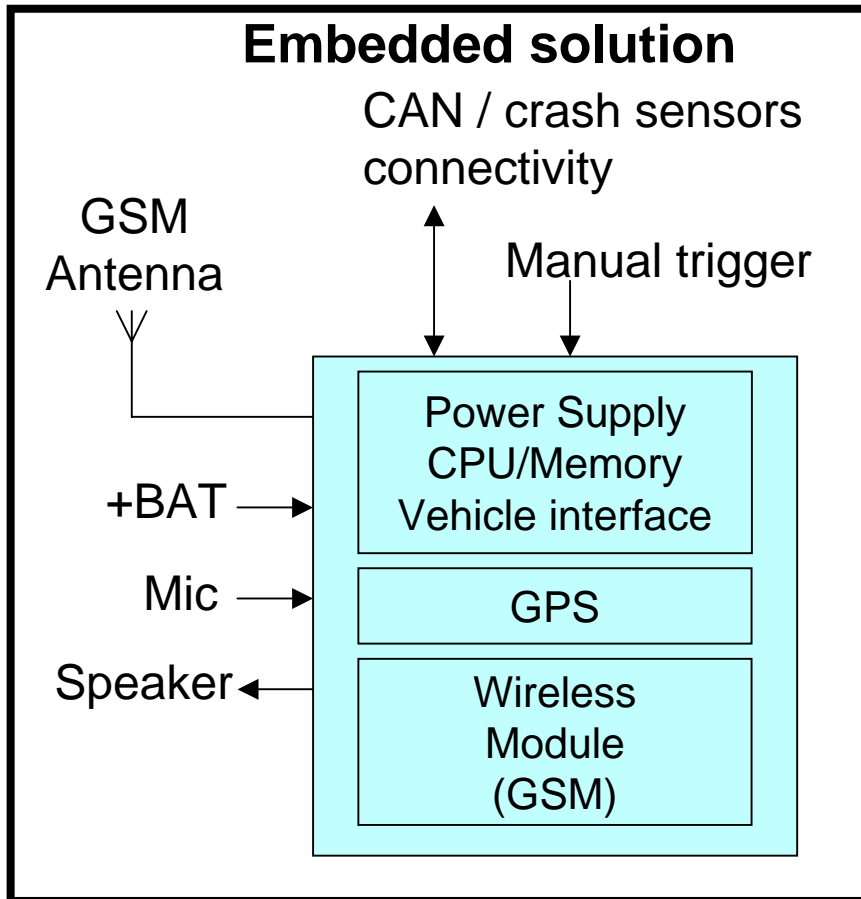
- Requires that the driver brings his phone, risk for incompatible device
- Certificating needed for each new mobile phone on the market that should work in the eCALL system

Block diagram an cost estimation

In vehicle system architecture



Block diagram



High Level BoM

	Embedded	Nomadic
NAD (GSM module)	X	N/A (*)
GPS	X	N/A(*)
Bluetooth	N/A	X
Vehicle interface (CAN, Buttons)	X	X
CPU	X	X
Memory	X	X
Connectors	X	X
Power supply	X	X (**)
External antenna interface	X	N/A
Housing	X	X
SIM Card Holder	X (***)	N/A
Back-up power	X	X
Back-up antenna (GSM)	Optional	N/A

*) Smart phone with GPS needed for nomadic solution

**) The nomadic solution needs to be charged

***) SIM no SIM discussion, SIM is needed for FSD

Cost Estimation

- ❑ The cost estimating is based on the high level BoM
- ❑ The estimation does not include microphone, speaker, MMI (manual trigger) and antennas
- ❑ Embedded solution: <100 € in 2009, even for relatively low volumes (100k units/year)
- ❑ Nomadic solution: the cost for the embedded part of the Nomadic based solution is approximately 50% of a Embedded solution, however to cost for the smart phone will be added

Functional Requirements

- ❑ eCall E-112 requirements for the in vehicle system must be specified on a functional/performance level. The final solution that meet the functional requirements will differs from one car manufacturer to an other depending on vehicle architecture (vehicle network work, connectors ...)

- ❑ The following documents contain requirements that the in vehicle system must fulfill
 - EG1- eCall Performance Criteria
 - European e-Call functional specifications In vehicle System. Author: Vehicle Functionality Working Group (ECIV, ACEA)
 - Clarification Paper – sub-working group PSAP eCall requirements
 - 3GPP TR 22.967 V1.1.0 (not finalized)
 - MSD definition 10102005 v1.5.doc (under discussion)

Conclusion EG.2

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- ❑ EG.2 recommend eCall in-vehicle system should be based on embedded device for safety and security reasons
- ❑ The automatic eCall trigger must be robust and reliable in order to avoid false eCall, the trigger strategy shall allow estimation of crash severity as this is of great importance for the PSAP:s
- ❑ The eCall in vehicle system shall be specified on functional/performance level, the detailed specification will differ from one car manufacturer to another as the vehicle architecture not are standardized, for example different vehicle network
- ❑ The eCall in vehicle system shall support SIM in order to allow FSD to a SP
- ❑ Back-up power is needed for safety reasons
($\frac{1}{4}$ of severe accident will cut main power according to “LAB”)

Conclusion EG.2

- ❑ Issues that must be further investigated and/or clarified before design of the IVS can start
 - Transport protocol / Bearer must be frozen (3GPP working group)
 - Final definition of MSD
 - Automatic eCall trigger strategy, define what crash event that must trigger the eCall (exclude roll over?)
 - Certification procedure

Thank you for your attention!