

# Challenges and solutions for eCall triggering by aftermarket IVS devices

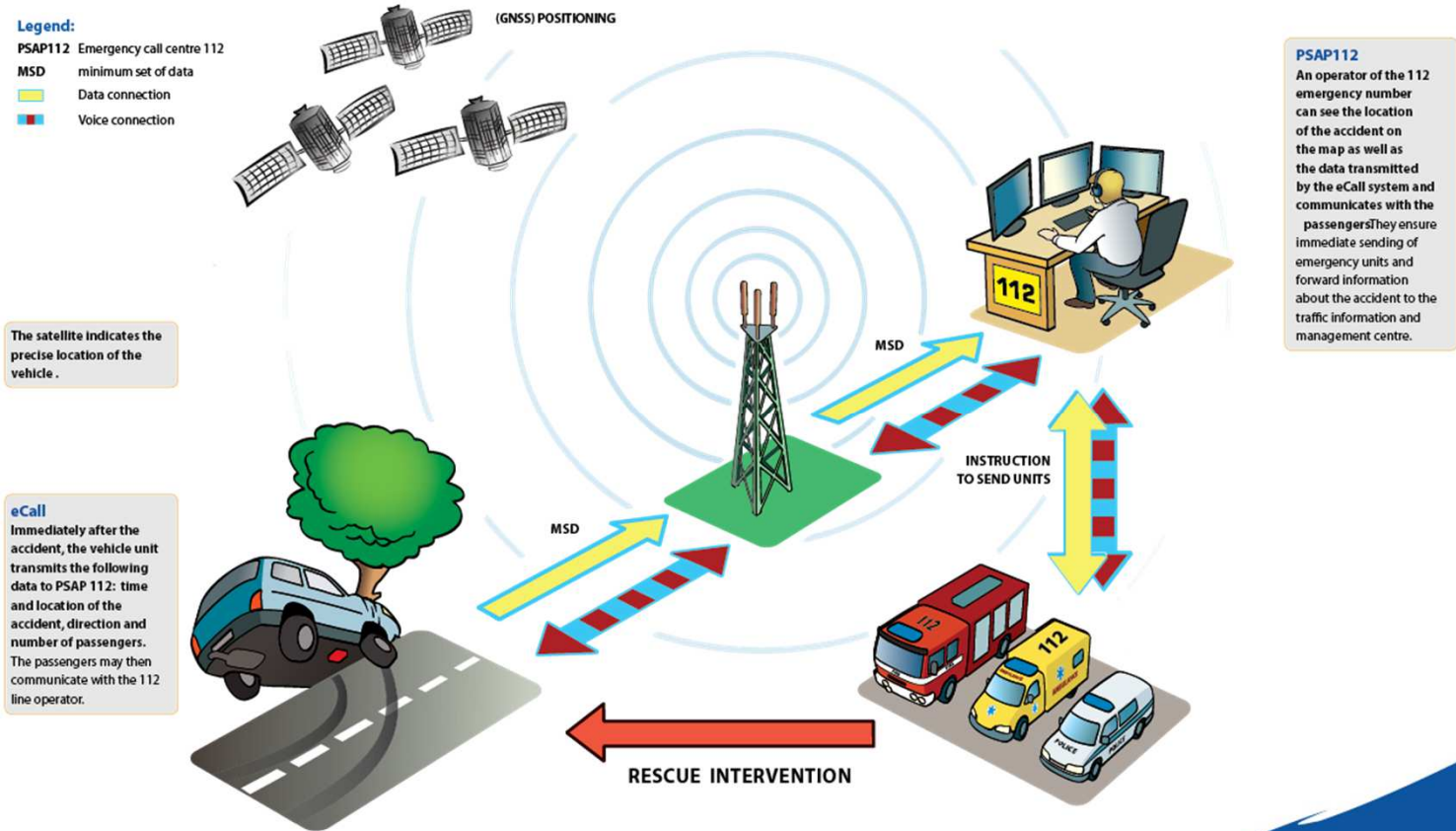


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# The well known eCall chain



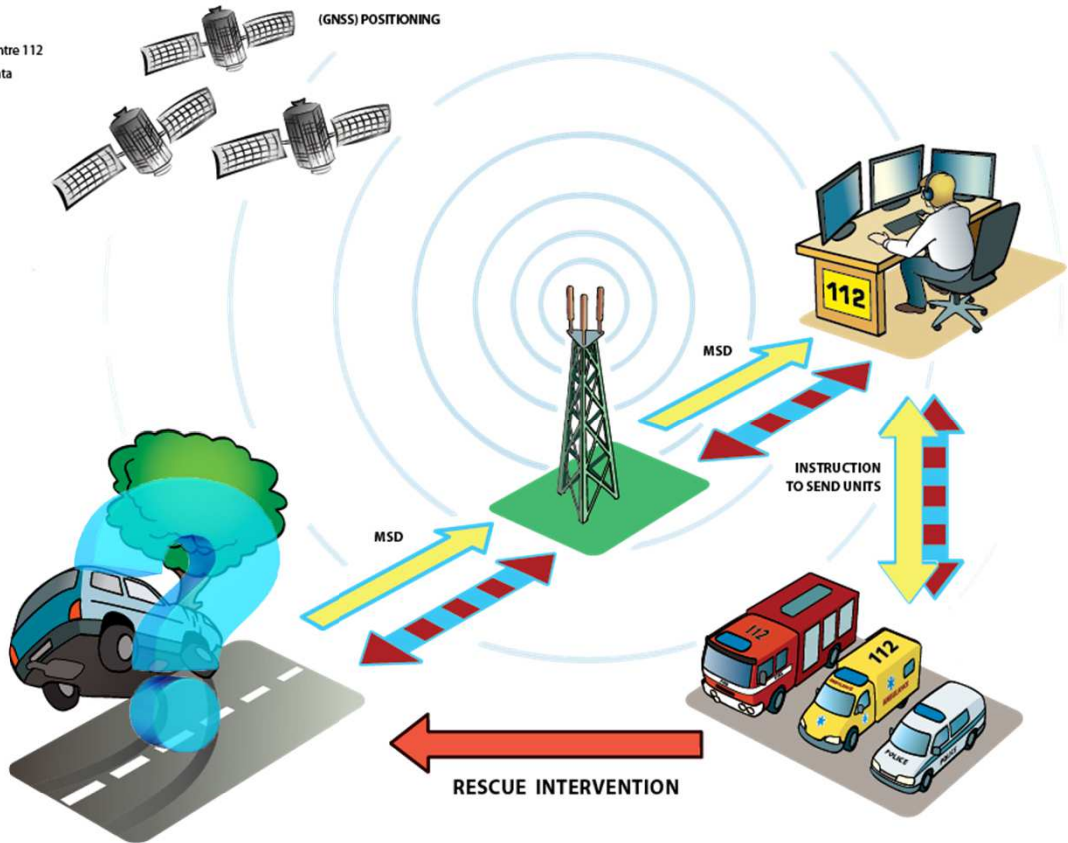
# The well known eCall chain

- A car crashes
- IVS detects crash and initiates Automatic eCall session
- MSD is sent and presented at PSAP
- Voice connection is established
- Data is analysed by operator
- The appropriate rescue forces are informed
- Rescue forces arrive at scene
- Time saved = lives saved!

# IVS crash detection. How?

**Legend:**

- PSAP112 Emergency call centre 112
- MSD minimum set of data
- Yellow arrow Data connection
- Red and blue striped arrow Voice connection

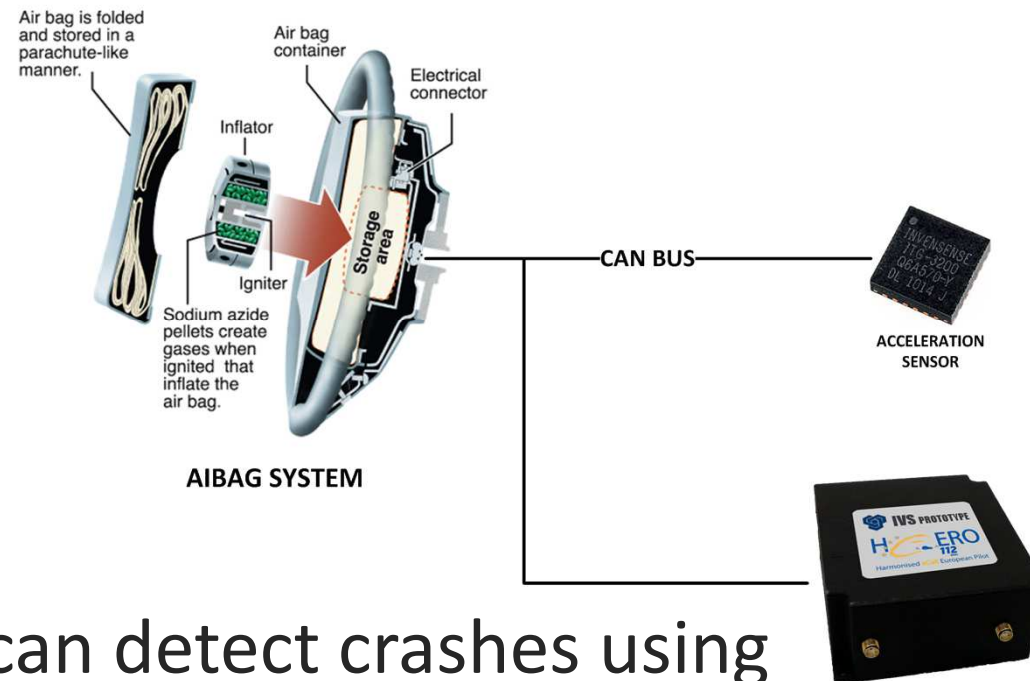


The satellite indicates the precise location of the vehicle.

**eCall**  
Immediately after the accident, the vehicle unit transmits the following data to PSAP 112: time and location of the accident, direction and number of passengers. The passengers may then communicate with the 112 line operator.

**PSAP112**  
An operator of the 112 emergency number can see the location of the accident on the map as well as the data transmitted by the eCall system and communicates with the passengers. They ensure immediate sending of emergency units and forward information about the accident to the traffic information and management centre.

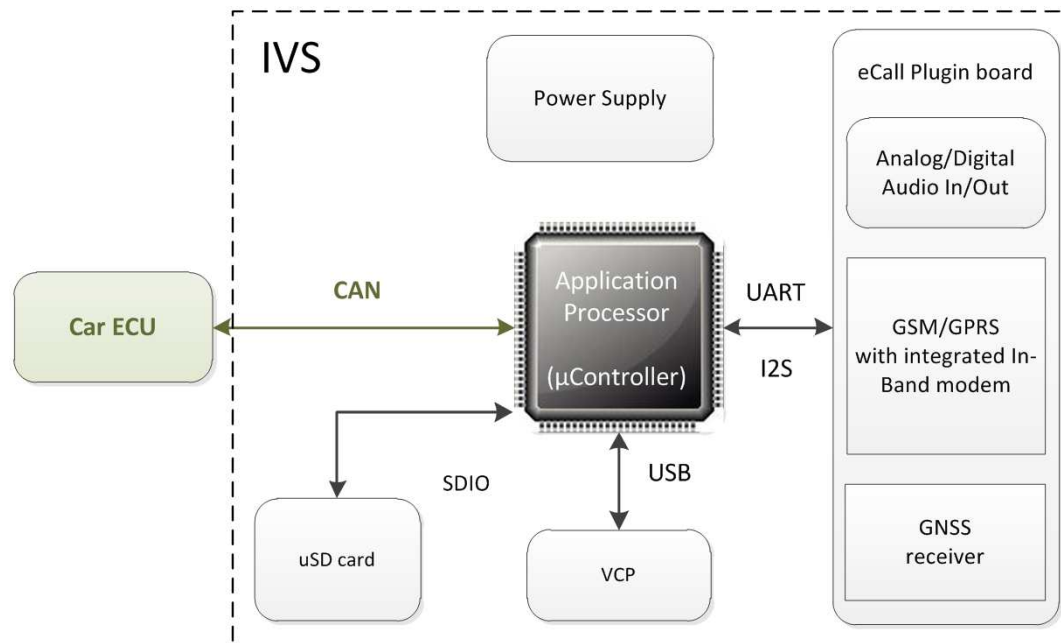
# Crash detection from airbag



- Airbag systems can detect crashes using acceleration data
- IVS can listen for airbag deployment status on CAN bus

# IVS listening to CAN

- Micro controller “talks” to the car via CAN
- Airbag deployment triggers automatic eCall



# Challenges

- Aftermarket devices may not have access to the CAN network
- CAN networks use car manufacturer's proprietary communication protocols
- Airbags may not deploy in a crash



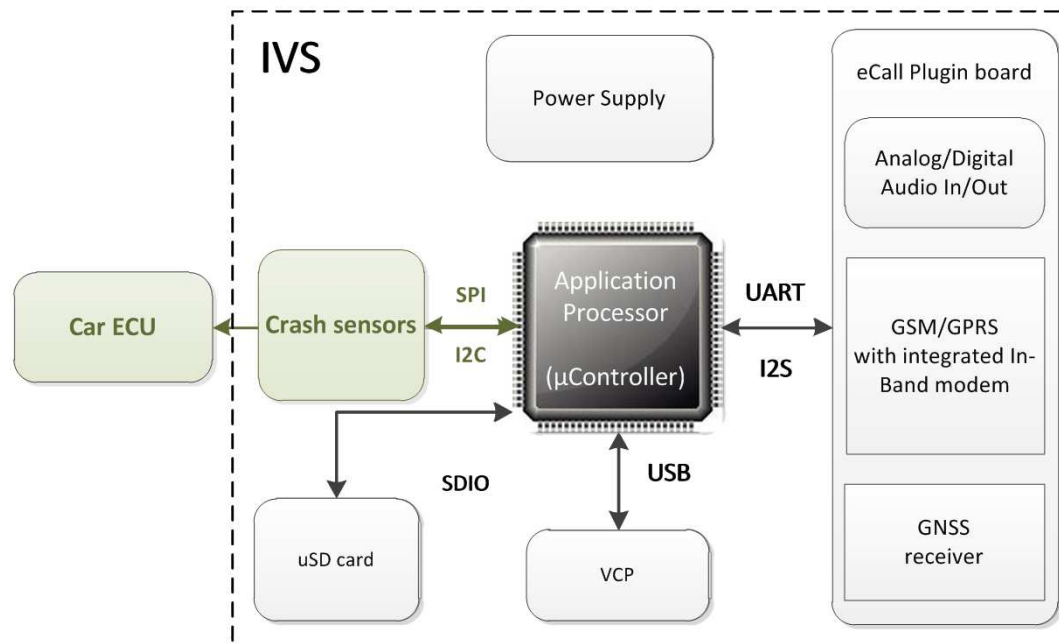
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Harmonised eCall European Pilot

# Solution

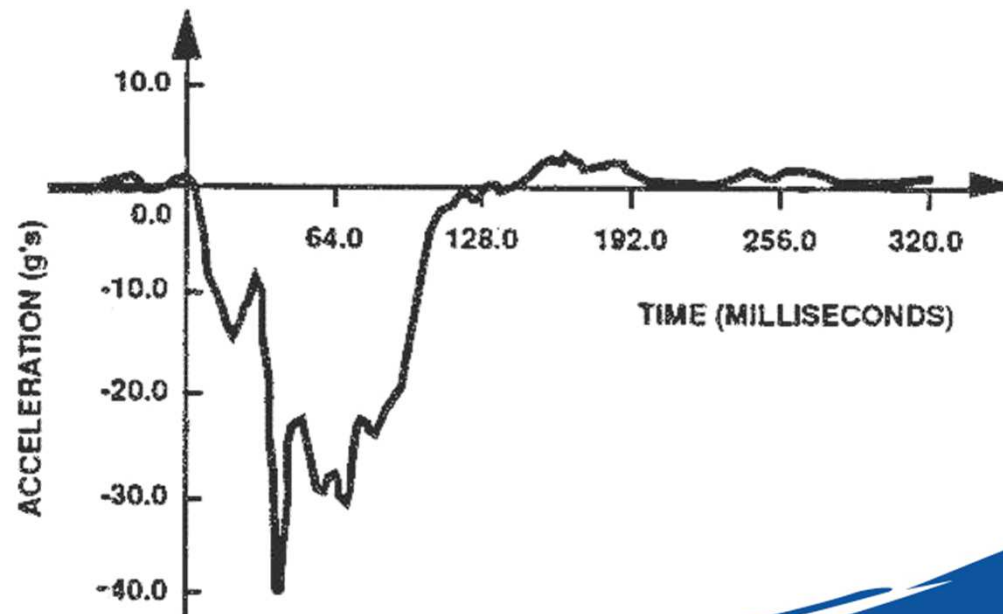
- IVS uses it's own inertial system (INS)
- Embedded crash detection algorithms





# Crash detection methods using INS

- Standard IEEE1616
  - Defines crash recognition via high G force detection



# Crash detection methods using INS

- EU project Veronica 2
  - Corrected trigger => better than IEEE1616
  - Detect “soft object” collisions



# Challenge

- For the eCall there is no formally defined crash detection method for aftermarket IVS devices
- Various manufacturer defined solutions
- Manufacturers competing to offer better automatic eCall triggering
- No way of telling the level of efficiency of each solution other than the “manufacturer’s promise”

# Solution

- Use one or combination of the already defined methods from IEEE1616 and Veronica2 which use reliable real life data
- Make the implementation of the chosen method mandatory for aftermarket IVS devices

# The result

- Unified technical guideline for automatic eCall triggering
- More reliable IVS devices
- Wider implementation of the eCall on various car models

# Thank you for your attention!

Questions?



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