

# Self-Driving Vehicles: Changing the Mission of Human Machine Interface

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March 17, 2015



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# Agenda

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**Status Quo**

**Autonomy and Evolution**

**Examples**

**Conclusion**

# Status Quo: The mission of in-car HMI today



**Entertain the driver**



**Provide comfort**



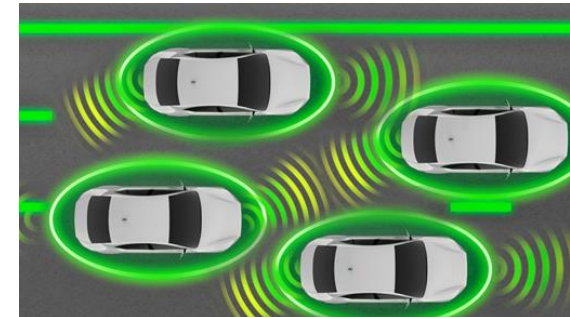
**Provide safety**



**Provide access to car functions**



**Minimize driver distraction**



**Autonomy**

# Level of autonomy and evolution of in-car HMI



**HMI will change with the level of autonomy**

**Traditional functions of in-car HMI need to be covered**

**Driver distraction still needs to be minimized**

**Driver assistance functions need to be represented**

**Safety critical functions need to be incorporated**

# Visualization of what the car is doing



**Visualization can build driver's trust**

**Visualization of environment model**

**Display of parameters**

**Indication of remaining distance  
and time of self-driving**

# Make the driver take control

**When does the vehicle need interaction from the driver?**

**Driver reaction time and unexpected situations**

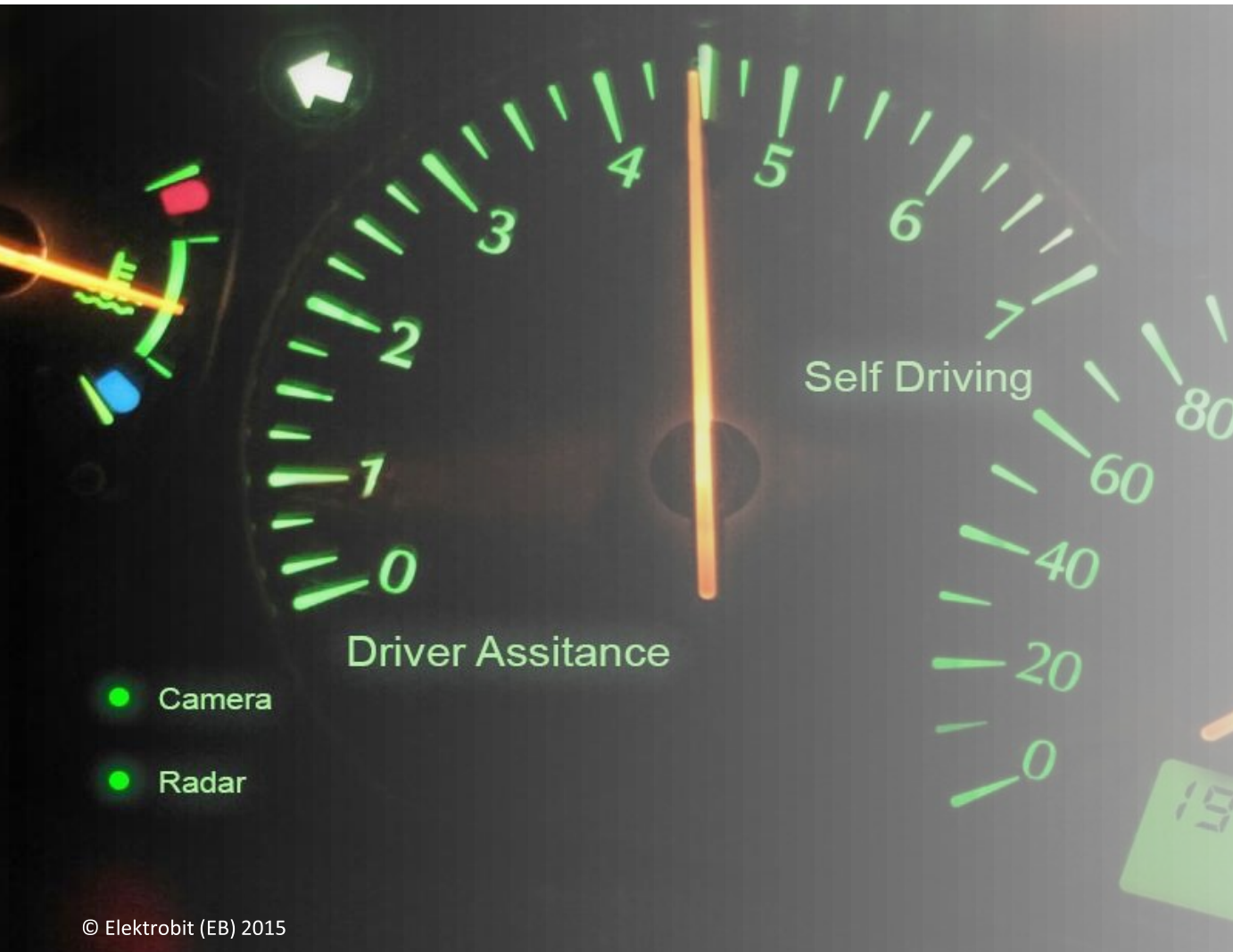
**Monitoring the driver's state and enforcement**

**Expected situations**

**Interaction - driver assistance software and vehicle HMI**



# Conclusion: The mission of in-car HMI for autonomous vehicles



**Traditional functions still need to be included**

**Driver distraction still needs to be considered**

**Data can be optionally displayed to the driver**

**Knowing the driver's state becomes important**

**Driver assistance software and vehicle HMI interface**

**HMI developers need to master functional safety**

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