

Interview Peugeot Citroen Automobiles



Olivier Morellec, HMI Principal Engineer
 Nicolas Laurent, Ergonomics Expert for HMI and ADAS
 The industry is currently looking for innovative HMI concepts which allow intuitive operation and reduce driver distraction.

Prior to the CAR HMI concepts & systems 2013, we spoke with Olivier Morellec and Nicolas Laurent about the benefits and limitations of touchscreen displays.

we.CONECT:

What are the main benefits and limits of touchscreen displays according to your opinion?

Olivier Morellec & Nicolas Laurent:

The main benefits of an automotive touchscreen is its intuitivity due to the familiarity with high diffusion consumer electronic devices (smartphone, tablets ...). This became a major expectation for customer. Certain interactions are more natural with a touchscreen like list management, alphanumeric input, Mirrorlink functionalities. An automotive infotainment device based on a touchscreen also enables to centralize multiples functions that otherwise would be fitted on the dashboard. That finally allows designers to create very simple dashboards, with less constraints. Unfortunately we have to deal with specific limits due to the touchscreen. The major one from an ergonomic point of view is driver distraction with the necessity to manage visual demand. The other one from a design point of view are the constraints regarding the touchscreen location (compromise between reachability and eyes off the road).

we.CONECT:

Please give a short description of your design approach?

Olivier Morellec & Nicolas Laurent:

Generally, interior concepts are brought by marketing teams and/or design dept. The dual screen HMI concept of the new Citroen C4 Picasso, which we will present during this conference, was pushed by human factor teams. The proof of concept has been demonstrated through an iterative field studies design process. Finally, the whole cockpit was designed around that dual screen concept. After that, a more traditional process has been ran: functional needs, cockpit allocation, detail design of each component, vehicle integration, final test.

we.CONECT:

What are the main issues to manage driver distraction?

Olivier Morellec & Nicolas Laurent:

The main issue is to reduce visual and cognitive demands. For this, we worked on different HMI solutions such as: Centralized HMI in order to reduce memory effort during interaction (less effort to remember and locate a control in the cockpit); Touchscreen close to the hand for commands, TFT cluster close to the road for feedbacks, information; Mitigate all the touchscreen limits regarding driver distraction: Provide additional non-visual feedbacks (auditory, haptic); Avoid precise gestures (large, spaced touch areas, gesture recognition, wipe, slide etc); Voice recognition. Another goal is to promote the use of embedded touchscreen instead of nomadic devices, by providing a connection between infotainment headunit and nomadic devices such as Mirrorlink.

we.CONECT:

What are the main benefits from the user point of view of using TFT display as an instrument cluster?

Olivier Morellec & Nicolas Laurent:

TFT instrument clusters are more and more presents on the automotive market. Although their highest cost, this trend could be explained by the high added value for the customer. This TFT cluster particularly allows features like user-reconfiguration, displaying of context relevant informations (map, guidance, ADAS).

we.CONECT:

Thanks a lot for this interview!

Interview Partners: Dr. Klaudia Malowitz and Olivier Morellec & Nicolas Laurent.

***Olivier Morellec** After being a trainee in Nuclear industry and railroad industry during his Master degree in Ergonomics and Postgraduate Dipl. in Engineering, Ecole Nationale Supérieure des Arts et Métiers, Paris, Olivier started his career in automotive industry in 1999 as an ergonomic engineer working on methods, guidelines, fields studies for many HMI topics(steering wheels controls, HUD, infotainment etc.). He then quit ergonomics to join an EE department in charge of sensors for ADAS system and HMI component (clusters, infotainments headunit). For three years now Olivier is in charge of HMI technical policy in the R&D department. His main tasks are the management of cockpit requirements regarding HMI as well as HMI devices (clusters, displays, headup, controls..). Olivier is also ISO TC22 / SC13/WG5 representative (ISO2575).*

***Nicolas Laurent** With a double background, Laurent graduated in Engineering (Product Design at the University of Technology of Belfort Montbéliard - UTBM) and in Ergonomics (Master and PhD in Ergonomics, Laboratory of Ergonomics of the Conservatoire National des Arts & Métiers, Paris). He joined PSA in 2000, at the Direction of Research and Innovation, as a cognitive ergonomics specialist. He worked on innovation projects dealing with HMIs (touchscreen, central input device, instrument cluster, vocal interactions) and ADAS (lane keeping system, night vision,...). Between 2007 and 2009, he has been in charge of the Ergonomics of an innovative HMI during the advance phase of a new vehicle project. Between 2010 and 2012, he was responsible operationally of the Ergonomics activity within the HMI division of the Direction of Research and Innovation, to ensure the ergonomic quality of the future innovative HMIs and driver assistance systems. Since the beginning of 2013, Laurent is responsible for the Ergonomics group within the "HMI synthesis and Ergonomics" entity of the Direction of R&D.*

The CAR HMI concepts & systems 2013 is the leading international conference for intelligent & integrated HMI concepts including development & design issues for the automotive industry. From 17th - 18th of June 2013, 130+ senior level executives from OEMs world-wide, major automotive suppliers as well as engineering & software companies will discuss challenges, cutting edge technologies in automotive HMI. The full program features more than 30 speakers from Daimler, Volkswagen, PSA, Renault, Evobus, General Motors, Jaguar Landrover, Mitsubishi Motors, Hyundai and many many more...

Information about the event and about we.CONECT can be found at: <http://car-hmi2013-we-conect.com>

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