Ergonomics in Automotive
Reading at USER INTERFACE DESIGN

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Date 16 / 04 / 06
Ergonomics in Automotive

An "operator environment" that everyone uses regularly, if not daily: the cockpit of your car. In a nutshell, EAO Automotive, the expert in Human Machine Interfaces, guides you through various operator designs and reveals important ergonomic aspects in the car. EAO also captivates consumers through current trends, and today will raise a piece of the veil of technology for the (near?) future.

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EAO Worldwide – with over 50 distribution regions
EAO Market Segments

Transportation   Automotive   Heavy Duty & Special Vehicles   Machinery

... plus others
Expert manufacturer.
since 1943.

Part of EAO Group
Evolution of HMI in Automotive

Evolution of HMI in Automotive

- functions to control
- mechanical HMI components
- electronic functions, displays, sensors...
- importance of design, materials, surfaces...

Evolution of HMI in Automotive

importance of design, materials, surfaces...

American cars of the `50s and `60s

European cars of the `70s

Evolution of HMI in Automotive

- **mechanical HMI components**
- ~ 50 pushbuttons in this area
- only a few switches remain

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New Technologies in Automotive HMI

Currently established substitutes for conventional buttons:

- smartphone link
- gesture recognition
- touchpad
- speech input
New Technologies in Automotive HMI - Sensor Module

Prototype in review with potential customers:
New Technologies in Automotive HMI – Sensor Module

Approach Zone

If approach is detected, the search illumination will illuminate as the module awakens.

Intention Zone

The nearest function is detected and the illumination is highlighted.

The function is activated when a precise force is then applied.
Other trends for the future

Black Panel Effect

- Nothing is visible if the system is inactive
- 3D shapes with high value materials

prototype EAO

Audi concept car
Other trends for the future

**Smart Textiles**

- with LED
  - new possibilities for ambient lighting

- switches and sensors including,
  - ex. seat adjustment switch in the fabric

- electronics and displays
  - various applications
Autonomous Driving

The question mark of the future: How will autonomous driving influence HMI in the car?

- New class of car: "driverless taxi" no driver
- New class of car: "lounge on wheels" drivers activity strongly reduced
- Added functionality on classical car: drivers activity still required

HMI eliminated
HMI reduced to a minimum
HMI still the same or slightly modified
Autonomous Driving

New transportation for students: autonomous driving car "Wepod" campus of University of Wageningen, Netherlands
Imagine

You're leaving the airport and you're in a hurry to pick up your rental car to get the meeting, ...and then you get this:

Maybe, you need some minutes to start the engine, ... you will be very confused, ..... you have to search for the manual, ............ and then you miss the meeting!
Therefore my opinion...

Interior design will become more and more important, embedding the HMI components.

New HMI technologies will be used for comfort, multimedia, and social media functions.

Steering wheel, footbrake, stickshift, and a handful of mechanical pushbuttons for basic functions will survive the next decade or longer.
Thank you for your attention.

Your Expert Partner for Human Machine Interfaces