RAMSIS

RAMSIS COGNITIVE

RAMSIS COGNITIVE is a RAMSIS AUTOMOTIVE module for analyzing and optimizing the reception and management of information in the vehicle.

The benefits of ergonomically-optimized instrument visibility

In the concept and design phase as well as in vehicle construction, the positioning of the instruments must be designed from the outset in such a way that all drivers, whether tall or of shorter stature, can assimilate the necessary information at a glance. The instrument positioning must also ensure that no obscuration effects can take place, outward visibility is ideal and that the size of the displays provides a clear display of information. Ergonomically-optimized instrument visibility thus increases vehicle operating safety and comfort. This virtual ergonomic control prevents time-consuming after-development processes when the design phase is finished. Planning errors are thus prevented and the level of market readiness is consequently well above average, even before the first production series is ready to roll.

Analysis procedures for instrument visibility

The RAMSIS Cognitive module offers the following analysis procedures for testing the visibility of instruments:

- Analysis of direct vision
- Analysis of reflections
- Analysis of acuity
- Analysis of the minimum visual range
- Display of expanded field of vision limits
- Analysis of optical display attributes
- Analysis of head-up displays (HUD)
- Display of visual focus adjustment zones
- Analysis of (situational) visual focus adjustment times

Examples

Analysis of reflections in the vehicle

Potential reflections in the vehicle impair both the a driver's view of the instrument panel and outward visibility – so these should be avoid or minimized as much as possible. Here a distinction is usually made between reflections from sunlight (incl. light from headlights) on the glass covers of the instrument display (and also on trim strips and metal objects) – these are "daytime reflections", and the reflections from illuminated displays (including bright cockpit surfaces) in the front windscreen (also in side windows), so-called "nighttime reflections". Thanks to the analysis of reflections in the RAMSIS Cognitive module, questions can now be asked about the characteristics of the objects reflected in the reflecting surface – like, for example, their exact zone or their point of reflection, in accordance with the course of the light paths and the details of the actual distances to the shadowing components. Considerable savings can thus be made, since time-consuming practical tests with mock-ups and prototypes are no longer necessary.

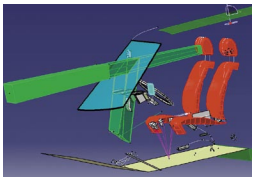
Analysis of acuity

Readability problems (e.g. age-contingent) with the symbols and characters of a vehicle instrument panel are generally based on accommodation limitations caused by expanded minimum visual range or by reduced acuity.
The RAMSIS Cognitive analysis of acuity provides distance hull surfaces of the minimum visual range for long-sighted, normal-sighted and short-sighted drivers. The limit zone and the zone which is too close are also color-highlighted.

Analysis of optical display attributes

The quality of readability of LCDs in the vehicle depends on the position of the display in relation to the eye of the observer and the optical attributes of the display (brightness, contrast). This function geometrically visualizes the limits of the angle of view in accordance with the specifications of the component (vision display), which can be compared with the eye positions of the vehicle occupants.

Analysis of head-up displays (HUD)



The use of a head-up display in a vehicle enables information to be directly displayed on the windshield in the driver's primary sight range. Here the design of the virtual image plays a major role, with regard to its geometrical attributes of instrument display location and size. Thorough testing of projection conditions from a position inside the cockpit must also be carried out.

Analysis of situational visual focus adjustment times

The spatial position of view-relevant objects in the vehicle affects the duration of the period of optical focus, until the actual reception of information. This function enables you to calculate a visual focus adjustment time for a special situation. Based on the current line of sight, the time for a change in the point of optical focus is specified for an individual target. The corresponding numerical results are saved in the structure tree.

RAMSIS COGNITIVE - A RAMSIS AUTOMOTIVE MODULE

- optimizes instrument visibility for improved operating safety and increased comfort
- improves functions and display design for the positioning of instruments
- minimizes costs for changes during the development phase

HUMAN SOLUTIONS

HUMAN SOLUTIONS GmbH | Europaallee 10 | 67657 Kaiserslautern | Germany | Tel.: +49 (0)631 303-5600
E-Mail: contact@human-solutions.com | Internet: www.human-solutions.com | Fax: +49 (0)631 303-5700