Driver Monitoring System Evaluation Tool

Features

- Easily perform driver monitoring system (DMS) tests and verify their correctness.
- Scenarios to test can be selected from the list of supported scenarios (see below).
- The positions of gaze locations/reference zones (e.g. rear view mirror) in the vehicle can be calibrated without needing to use external tools.
- Test scenario instructions for the driver are voiced.
- Once a scenario has been performed, the system validates if it was done correctly, taking into account gaze locations, duration, and owl/lizard-type movement. This ensures that only valid distraction inputs are considered when determining the DMS behavior.
- After the test is done, data can be reviewed in a timeline that shows the recorded videos, driver gaze, scenario timing, and sensor data.
- Based on the DMS warning onset, it is possible to generate a report that summarizes all the test scenarios performed, their key data and whether the DMS warning behaved as expected.
- Interface text is localized into English and Chinese. Additional languages are available upon request.
- Voice prompts support all languages supported by Windows text-to-speech.

Supported scenarios

- EuroNCAP Long Distraction, Short Multiple Distractions (VATS) and phone Use.
- General Safety Regulation Advanced Driver Distraction Warning (GSR ADDW).
- General Safety Regulation Driver Drowsiness and Attention Warning (GSR DDAW).
- User-defined cockpit research tasks.
- Scenarios can be customized with e.g. additional gaze locations or different gaze timings.

Main hardware components

- Smarteye Pro 4 cam DX 60Hz eye tracking cameras.
- 2x RGB cameras for recording the driver and instrument cluster
    - ELGATO Facecam PRO
    - ELGATO Facecam MK.2
- Microphone and inertial measurement unit for recording DMS alerts
    - XS Lav USB-C
- GNSS receiver for recording vehicle speed
    - USB GPS Columbus P-9 Race
- Mounted on a metal rail that can be secured in the car, and easily moved to another car
- 15" touchscreen
- Logitech Wireless Touch Keyboard K400 Plus - tang - Tangentbord med touchpad - Nordisk - black
- External harddisk

- Samsung 870 EVO 4000GB 2.5" Serial ATA-600
- Computer suited for placing in a car.
- CarPC - NUVO-9204VTC

- Sunglasses

  - Ray Ban ORB3716
  - Ray Ban ORB3016

- Battery not included.

Software components

- Smarteye Pro tool for calibrating the eye tracking cameras.
- iMotions tool for recording data from the various sensors, synchronizing it, and replaying it.
- OSM Reference tool software for relaying voice instructions to the driver, executing test scenarios, and validating them.