Usability and UX of a Gaze Interaction Tool for Front Seat Passengers
Evaluation of a Gaze Controlled Optical Feedback System in a Car

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| What are the front seat passengers’ feelings towards gaze interaction, are they comfortable using it and do they think it is necessary? | Laboratory Experiment, collecting qualitative and quantitative Data using SUS [1] and CTAM [4] | 13 student participants 8 male, 5 female aged 21-31 | 1. 15-minute simulation of a car drive  
2. A semi-structured interview (qualitative)  
3. Complete ATI, SUS and CTAM questionnaires (quantitative) |

Abstract
Input modalities generally as well as in cars are evolving quickly regarding their spread and reliability. One possible input technique would be gaze interaction, a topic still being researched. What are the front seat passengers’ feelings towards gaze interaction, are they comfortable using it and do they think it is necessary? A laboratory experiment was conducted with 13 student participants, using a driving simulator, eye tracker, lamp and a driving wheel. Qualitative data was collected during and after the experiment through observation and a semi-structured interview. Quantitative data was collected through questionnaires (ATI, CTAM, SUS). The results were that the usability of the system was high, but participants didn’t feel well using it.

Qualitative Findings
Positive Statements
- trigger a light with gaze (6)
- communicate with driver non-verbally (3)
- ease of use (3)

Negative Statements
- it is hard and counter-intuitive to look at a fixed point in the car, and not towards the approaching danger (4),
- distracts driver (3)
- restricts looking at speedometer out of interest (2)

Quantitative Findings
SUS-Results
CTAM-Results

Conclusion
Trigger light with gaze 😊
Using speedometer as gaze activated trigger 😞