An Assessment of an Automotive Sonic User Experience

Background
Interactive sound plays many different roles in an interaction between a driver and a car. It helps to inform, give feedback or warn the driver. It’s a way to bring trust to this interaction and give a feeling of control over a car to the driver. Sound interaction has to be design carefully to get a proper and correctly timed reaction from the driver and at the same time excite wanted emotions avoiding stress (especially in urgent situations). Designed sounds have to be assessed in a proper environment to prove their efficiency. It’s crucial to be sure that the results of the tests can be extrapolated to a real-life scenario.

Keywords
Sonic interaction, ecological validity, warning sounds, soundscapes, feedback, information sounds, auditory icons, earcons, human-computer interaction, user experience, continuous sound interaction

Industrial Supervisor
Justyna Maculewicz, UX Sound designer, DUX Framework, 94743, VCC

Group Manager
Daniel Jungegård, DUX Framework, 94743, VCC

Aim
Analyze efficiency of different test methods for an automotive sonic interaction assessment. Focus on the comparison between virtual reality (VR) environment and real-driving scenarios. Can VR be used to assess sonic interaction with the same level of accuracy as in real-driving? Can VR tests’ results be extrapolated on real-driving?

Sub-goals/questions
- Explore pros and cons of each test in context of sonic interaction assessment.
- What are the requirements for “good” sonic user experience?
- Investigate situations when real driving scenario is the only method to be used.
- Are the results similar between the tests? Can we use efficiently VR instead of real-driving tests?
- When are listening tests appropriate?
- Etc.

Activities
- Literature review on sonic interaction assessment
- Literature review on the capabilities of different tests (listening test, VR, real-driving)
- Design of the set of foreground sounds with Volvo brand in mind (optional)
- Definition of research questions
- Design, conduction and analysis of two experiments, which will help to answer research questions

Requirements
- Skills in design and analysis of experiments
- Driving license
- Interest in sonic interaction design
Time Plan

Time plan will be established with a student depending on his/her interest in sound design activity, which is optional.