******Participant Information Sheet**

Before deciding to take part in this study (Ethics: 2022-0353-206) please read the following information about the experiment.

**Background to this experiment**

The study aims to understand how cognitive distraction affects takeover performance from an automated vehicle. After reading this information sheet, the researcher will explain each part of the study to you. You are free to ask any questions you might have.

**The** **University of Leeds Driving Simulator (UoLDS)**

The University of Leeds Driving Simulator (UoLDS) is a controlled and safe environment for studying drivers’ behaviour. The simulator consists of a Jaguar S-type cab housed in a 4 m-diameter spherical projection dome with a 300° field-of-view projection system. The simulator also incorporates an 8 degree-of-freedom. The total duration of the experiment will be **approximately 2 hours**. This includes pre-experimental training, briefing, safety checks, the experiment itself (which will last **approximately 90 minutes**, with a short break half-way through), and self-report measurements.

You will be observed by the researchers during the entire experiment - this is to ensure that everything is working correctly and safely, and we are not judging your driving.

Please note that a small number of people may initially feel ‘odd’ or ‘unsteady’, and for a small percentage of people, these feelings do not subside, and they may feel a little unwell. This usually manifests itself in the form of a feeling of motion sickness. **If you do feel unwell or nauseous, please do not be embarrassed to withdraw from the study. Simply inform the researcher that you are not feeling well, and we will stop the experiment immediately.** The researcher will take you back to the briefing area. You will still be compensated for your time.

**Your task**

You will first complete a practice session designed to allow you to become familiar with the equipment, virtual environment, and the experiment. The experimenter will show you the controls of the vehicle and how you can communicate with everyone from the simulator dome. The experimenter will be in the simulator dome with you to start the practice session. After the practice session, the experimenter will leave and communicate with you from the control room. You will then complete two experimental driving sessions, with each session lasting **approximately 40 minutes**. There will be a short break between each session. The instructions and the tasks of the experimental drives are the same as the practice session.  Before and following completion of the experiment, you will be asked to complete some questionnaires about your driving experience.

When you begin the drive, you will start in the left hand lane and you will control the speed and steering of the vehicle. You are asked to accelerate to 70 MPH and move into the middle lane to start the experiment. After a short period of manual driving, the automation will automatically begin (accompanied by a short auditory tone and visual indicator). Once the automation starts, both the speed and steering of the vehicle is controlled by the system and your input is no longer required. The vehicle will remain driving in the middle lane. At this point, **you are asked to take your foot off the pedals and your hands off the steering wheel**. You will still be responsible for monitoring the road environment at all times for potential hazards that may require you to take over control. For one of the driving sessions, during all automated driving periods you will begin completing the n-back task (the details of this task are explained across the page). At certain times during the automated drive, you will eventually be prompted to takeover via an auditory tone and a visual indicator. Some of these events will be critical, others will be non-critical, and you will have to resume manual control and attempt to avoid any dangerous situations within the road environment. Once the vehicle is safely under control, continue the manual drive in the middle lane up the speed of 70 MPH whereby the automation system will automatically engage. **In the event of leaving the middle lane during a takeover, please attempt to re-enter the middle lane as soon as possible.**

*2-back task*

During one of the driving sessions, you will be asked to complete a 2-back task during the automated driving periods. During the **2-back**, you will hear a list of numbers and are asked to repeat out loud the number that you have heard two numbers ago. For example, for the list shown below, you would not say anything when you hear 8, and 7, but you would say 8, when you hear 2, 7 when you hear 5 and so on. Try to be as accurate as possible, but don’t worry if you miss a number. If you do miss a number, just start again as soon as you can.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sound:** | **8** | **7** | **2** | **5** | **6** |
| **You say:** |  |  | **8** | **7** | **2** |

You will only have to complete the n-back task during the automated periods of one of the driving sessions. **Please be aware that your priority should be safe driving.** After that, you are expected to perform your best at the n-back task explained above.

**Experiment duration and payment**

The total duration of the experiment will be **approximately 2 hours** in total, including the briefing, debriefing, driving and completion of the questions. For your kind participation in this study, you will receive **£40**.

**Ethics, safety and confidentiality**

It is important for you to appreciate that we are ***not*** looking at your individual performance or judging your abilities. We are solely interested in the behaviour of a group to draw collective conclusions. Please note that this study is subject to the strict ethical guidelines and the requirements of The General Data Protection Regulations (GDPR). We would like to point out in particular:

* Your behaviour within the driving simulator (e.g. speed, gap acceptance, lateral position, safety margin), and video are recorded for research purposes in this study.
* At no time now, nor in the future, will any information you provide be published that allows you as an individual to be identified, and all data are used for research purposes only. The exception is that we would also like to ask your permission to share videos showing your face as blurred in presentations about the experiment. The videos would not disclose any other data you provided as a participant. However, if you want to withdraw your permission, you can contact the researchers.
* Taking part in this research is entirely voluntary. If you decide to take part and then change your mind, you can withdraw at any time during the experiment without giving a reason. However, once your participation in the experiment is completed, it is no longer possible to withdraw, since at that point, the recorded data will be anonymised, and we will not be able to know which data was recorded during your participation.

**If you would like more information or have any questions or concerns about the study, please contact:**

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*or*

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***Thank you for taking the time to read this information sheet.***

