Information Brief

Measuring perceived safety and experiences with safety warnings

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Introduction & background

We would like to invite to you to our research project. Our project is about understanding how you experience our speed warnings. Before you participate, there is some important information to share with you.

The goal of investigating these warnings is to develop intervention systems and measurement approaches that make cycling more safe and attractive. To achieve this goal, we would like to ask you to ride three rounds on a predefined route. During each route, measurements will be taken. Analyzing these measurements helps us to analyze the effects of the warnings on your riding experience. Our study is part of the Smart Connected Bicycle project, which is a collaboration between the University of Twente, Accell Group, TNO, Delft University of Technology and Saxion University of Applied Science. More information can be found at this link https://www.smartconnectedbikes.nl/.

Participation

Your participation in the study is voluntary. You may withdraw at any time, for any reason, and without consequences. The participation will take maximum 2 hours. You are eligible to participate if you are or have:

1. Age 18 or older
2. Not under influence of illicit drugs
3. Not on medication that is issued with an advice against, or prohibition against, participating in traffic
4. Has been cycling on average at least once per month in past 6 months

The Experiment

When you arrive on the experiment day, we will follow a procedure with multiple steps. We would like to ask you to ride three rounds on a pre-defined route. You will be guided through the route via a navigation app on a smartphone on the bicycle handlebar. We would like to collect data in multiple ways, including sensors and a questionnaire. The procedure will be as follows:

Nr.	Step
1	Welcome & Briefing
2	Pre-ride questionnaire
3	Bike ride 1
4	Questionnaire
5	Bike ride 2
6	Questionnaire
7	Bike ride 3
8	Post-ride questionnaire and wrap-up

We would like to collect data in multiple ways. The table below describes the measurement instruments with their position and purpose.

Hardware	Measurements	Position	Purpose
3 push buttons	Emotion ratings	Bicycle handlebar	Collect self-reports
Chest belt	Electrocardiogram	Chest on cyclist's body	Investigate value of electrocardiograms
Wrist band	Electrodermal activity, skin temperature, accelerometer data, gyroscope data	Wrist on cyclist's body	Investigate value of physiological and movement data
Movement sensors	Pedaling frequency, head movement, handlebar movement, frame movement	In bicycle and on helmet	Investigate value of movement data
Forward-facing Action Camera	Environment conditions	Bicycle handlebar	Collect data about environmental conditions
Smartphone	GPS, accelerometer data, gyroscope data	Bicycle handlebar	Collect motion data
Intercept survey	Emotion ratings	Next to the cycling path	Collect data about which emotions are experienced.

Data and privacy

We will only register your name on your consent form. These forms will be stored in an encrypted file on the UT's internal storage systems, separated from the collected data. Data will be collected and stored in GDPR-Compliant ways. At any time, you can request to correct, receive, or delete your data. The experiment and data collection have been reviewed and approved by the UT's ethics committee, privacy officer, and data steward.

Risks

The warning system or data collection systems may distract you during your ride. We mitigate this risk in multiple ways. We ask you to ride one round without any warnings, to familiarize you with the experiment. We ask you to prioritize your own wellbeing and safety, and to only attend to the warnings and button presses if you feel comfortable doing so. If at any time before, during or after the ride you need to take a break, please do so. Also, we ask you to wear a helmet during the rides.

University of Twente is responsible for the participant briefing, obtaining informed consent, data collection and data management. If there is any damage to the bicycle or sensor systems, that will be on the UT's expense. You are responsible for personal injury, and for your own healthcare insurance.

☐ **I am aware of the information I read above and I agree to participate in this study.**

Participant's signature:

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Contact information

If you have any questions or concerns about the study, please don't hesitate to contact us using the contact information below. If you are not satisfied with the researcher's response, you can also contact the involved supervisors.

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