

Your opinion on sound interfaces in automated driving systems

Instructions ▲

You are invited to participate in a survey entitled **"Your opinion on sound interfaces in automated driving systems"**.

The survey is being conducted by:

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from the Department of BioMechanical Engineering, Delft University of Technology, The Netherlands.

The purpose of this survey is to explore the public opinion on the use of auditory interfaces during car driving. You are free to contact any of the investigators at the above e-mail addresses to discuss the study. You must be at least 18 years old to participate. The survey will take approximately 10 minutes of your time.

In case you previously completed a survey entitled "Your opinion on automated driving systems" or "self-reported driving behavior" (conducted by the same investigators; Kyriakidis and De Winter), your responses will be combined.

No personally identifiable information (such as name or address) will be collected from you. If you agree to participate and understand your participation is voluntary, then continue. If you would not like to participate, then please close this page.

Have you read and understood the above instructions?

- ☐ Yes
- ☐ No

What is your gender?

- ☐ Male
- ☐ Female
- ☐ I prefer not to respond

What is your age?

On average, how often did you drive a vehicle in the last 12 months?

- ☐ Every day
- ☐ 4 to 6 days a week
- ☐ 1 to 3 days a week
- ☐ Once a month to once a week
- ☐ Less than once a month
- ☐ Never
- ☐ I prefer not to respond

About how many kilometres (miles) did you drive in the last 12 months?

- ☐ 0 km / mi
- ☐ 1 - 1,000 km (1 - 621 mi)
- ☐ 1,001 - 5,000 km (622 - 3,107 mi)
- ☐ 5,001 - 15,000 km (3,108 - 9,321 mi)
- ☐ 15,001 - 20,000 km (9,322 - 12,427 mi)
- ☐ 20,001 - 25,000 km (12,428 - 15,534 mi)
- ☐ 25,001 - 35,000 km (15,535 - 21,748 mi)
- ☐ 35,001 - 50,000 km (21,749 - 31,069 mi)
- ☐ 50,001 - 100,000 km (31,070 - 62,137 mi)
- ☐ More than 100,000 km (more than 62,137 mi)
- ☐ I prefer not to respond

How many accidents were you involved in when driving a car in the last 3 years? (please include all accidents, regardless of how they were caused, how slight they were, or where they happened)?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ More than 5
- ☐ I prefer not to respond

How often do you do the following?: Becoming angered by a particular type of driver, and indicate your hostility by whatever means you can.

- ☐ 0 times per month
- ☐ 1 to 3 times per month
- ☐ 4 to 6 times per month
- ☐ 7 to 9 times per month
- ☐ 10 or more times per month
- ☐ I prefer not to respond

How often do you do the following?: Disregarding the speed limit on a motorway.

- ☐ 0 times per month
- ☐ 1 to 3 times per month
- ☐ 4 to 6 times per month
- ☐ 7 to 9 times per month
- ☐ 10 or more times per month
- ☐ I prefer not to respond

How often do you do the following?: Disregarding the speed limit on a residential road.

- ☐ 0 times per month
- ☐ 1 to 3 times per month
- ☐ 4 to 6 times per month
- ☐ 7 to 9 times per month
- ☐ 10 or more times per month
- ☐ I prefer not to respond

How often do you do the following?: Driving so close to the car in front that it would be difficult to stop in an emergency.

- ☐ 0 times per month
- ☐ 1 to 3 times per month
- ☐ 4 to 6 times per month
- ☐ 7 to 9 times per month
- ☐ 10 or more times per month
- ☐ I prefer not to respond

How often do you do the following?: Racing away from traffic lights with the intention of beating the driver next to you.

- ☐ 0 times per month
- ☐ 1 to 3 times per month
- ☐ 4 to 6 times per month
- ☐ 7 to 9 times per month
- ☐ 10 or more times per month
- ☐ I prefer not to respond

How often do you do the following?: Sounding your horn to indicate your annoyance with another road user.

- ☐ 0 times per month
- ☐ 1 to 3 times per month
- ☐ 4 to 6 times per month
- ☐ 7 to 9 times per month
- ☐ 10 or more times per month
- ☐ I prefer not to respond

How often do you do the following?: Using a mobile phone without a hands free kit.

- ☐ 0 times per month
- ☐ 1 to 3 times per month
- ☐ 4 to 6 times per month
- ☐ 7 to 9 times per month
- ☐ 10 or more times per month
- ☐ I prefer not to respond

In the following set of questions please indicate your opinion on two advanced driver assistance systems.

Parking assistant.

A parking assistant is a system that produces warning sounds (beeps) when the car gets too close to a nearby object while parking.



In the past month, did you drive a car with a parking assistant?

- ☐ Yes
- ☐ No
- ☐ I do not know
- ☐ I prefer not to respond

A parking assistant is helpful.

- ☐ Disagree strongly
- ☐ Disagree a little
- ☐ Neither agree nor disagree
- ☐ Agree a little
- ☐ Agree strongly
- ☐ I prefer not to respond

A parking assistant is annoying.

- ☐ Disagree strongly
- ☐ Disagree a little
- ☐ Neither agree nor disagree
- ☐ Agree a little
- ☐ Agree strongly
- ☐ I prefer not to respond

What do you think are the disadvantages of a parking assistant?

I would like to have a system in my car that can park the car automatically, just by pressing a button.

- ☐ Disagree strongly
- ☐ Disagree a little
- ☐ Neither agree nor disagree
- ☐ Agree a little
- ☐ Agree strongly
- ☐ I prefer not to respond

Forward collision warning system.

A forward collision warning system is a system that provides a warning sound when your car is rapidly approaching another car in front of you.



In the past month, did you drive a car with a forward collision warning system?

- ☐ Yes
- ☐ No
- ☐ I do not know
- ☐ I prefer not to respond

A forward collision warning system is helpful.

- ☐ Disagree strongly
- ☐ Disagree a little
- ☐ Neither agree nor disagree
- ☐ Agree a little
- ☐ Agree strongly
- ☐ I prefer not to respond

A forward collision warning system is annoying.

- ☐ Disagree strongly
- ☐ Disagree a little
- ☐ Neither agree nor disagree
- ☐ Agree a little
- ☐ Agree strongly
- ☐ I prefer not to respond

What do you think are the disadvantages of a forward collision warning system?

I would you like to have a system in my car that brakes automatically to avoid collisions (Autonomous Emergency Braking).

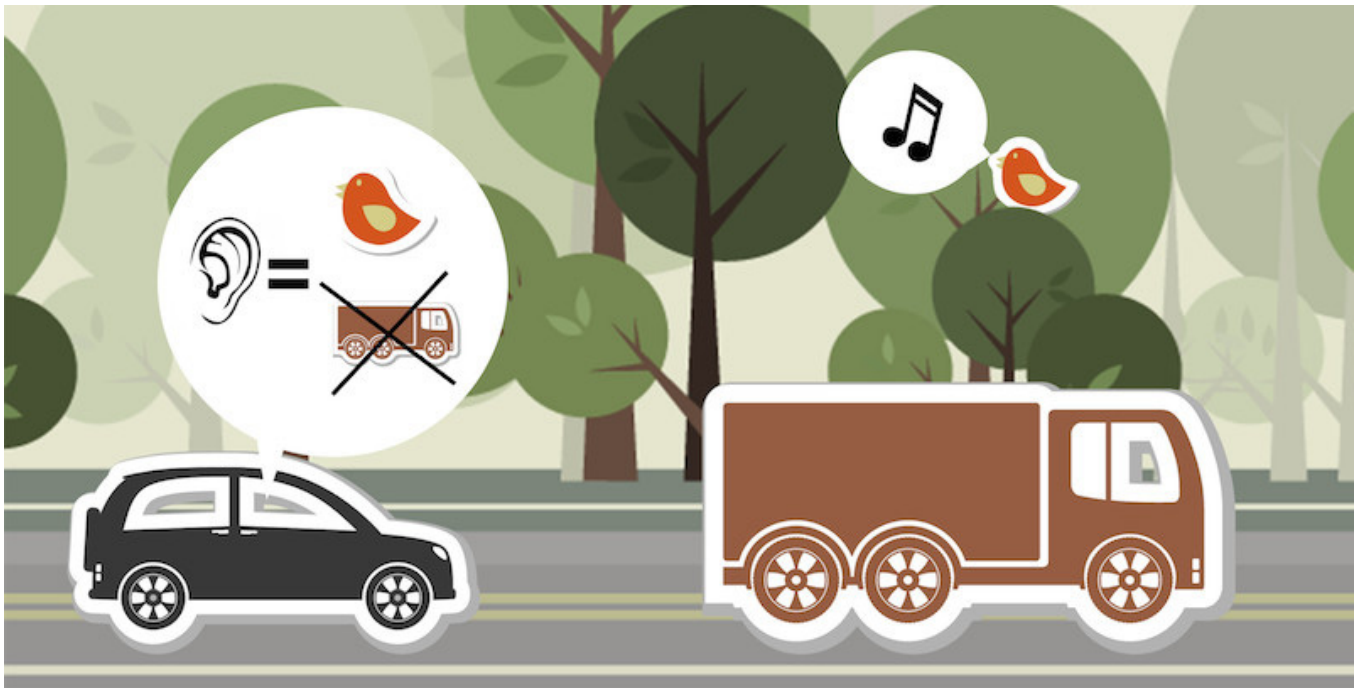
- ☐ Disagree strongly
- ☐ Disagree a little
- ☐ Neither agree nor disagree
- ☐ Agree a little
- ☐ Agree strongly
- ☐ I prefer not to respond

Future scenario: surround sound system in an automated car.

Imagine a fully automated car (no steering wheel) that drives completely on its own with no manual interaction.

Now imagine that this fully automated car records what is happening outside and plays it via speakers inside the car, informing the occupants about the outside environment. In

other words, those who sit in the car can hear what is happening outside even when their windows are closed. Sound volume in such system could be adjusted; particular noise (for example sound coming from another vehicle) could be filtered out. Such system could, for example, be used during a leisure drive through a park on a hot day.



I believe that this type of surround sound system would be annoying.

- ☐ Disagree strongly
- ☐ Disagree a little
- ☐ Neither agree nor disagree
- ☐ Agree a little
- ☐ Agree strongly
- ☐ I prefer not to respond

I would prefer to use such a sound system instead of opening the window, when driving through a scenic place (for example, a national park).

- ☐ Disagree strongly
- ☐ Disagree a little
- ☐ Neither agree nor disagree
- ☐ Agree a little
- ☐ Agree strongly
- ☐ I prefer not to respond

What would be the advantages and the disadvantages of such sound system?

Now imagine again that you are driving in an automated car (that can perform certain tasks without any interaction from the humans in the car). However, the automation cannot handle all possible situations, and you sometimes have to take over control. What type of warning signal would you like to receive in case manual take over is required?

- ☐ Warning sound: one beep
- ☐ Warning sound: two beeps
- ☐ Warning sound: horn sound
- ☐ Warning sound: bell sound
- ☐ Warning light
- ☐ Visual warning message projected on windscreen "Take over please"
- ☐ Vibrations in your seat
- ☐ Vibrations in your steering wheel
- ☐ Vibrations in your seatbelt
- ☐ Vibrations in the floor
- ☐ Female voice: "Take over please"
- ☐ Male voice: "Take over please"
- ☐ Other
- ☐ None of the above

Please tick as many boxes as you want.

If you answered "Other" in the previous questions, please specify what type of warning signal you would like to receive in the described scenario.

I would prefer to drive in a fully automated car rather than a normal (non automated) car.

- ☐ Disagree strongly
- ☐ Disagree a little
- ☐ Neither agree nor disagree
- ☐ Agree a little
- ☐ Agree strongly
- ☐ I prefer not to respond

In which year do you think that most cars will be able to drive fully automatically in your country of residence?

Please provide any suggestions which could help engineers to build safe and enjoyable automated cars.

Test Validators