Should automated vehicles signal their status and their intended actions to other road users?

The position of the International Federation of Pedestrians

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The International Federation of Pedestrians

• network of non-profit associations and individuals from all over the world
• represents nearly 50 NGOs (national and local pedestrian associations) in around 40 countries in 5 continents
• Activities:
  • represents the interests of pedestrians in international forums shaping road safety and transport policies
  • works to increase the global awareness about the benefits of walking for a sustainable future

www.pedestrians-int.org
Signals indicating intended actions

• Several studies on AV interactions with pedestrians
• Typical situation studied: signal indicating if the car is yielding or not
• Different interfaces tested
  • Texts
  • Coloured lights
  • Symbols (hands, smiley, arrows)
  • Projected colours, arrows, texts etc. on the road

Is it possible to develop a perfectly intuitive and universal signal?

• We do not think so….

• Shortcomings with texts
  • not all pedestrians can read (e.g. children, blind people)
  • There is no universal language or alphabet

• Shortcomings with colours
  • green for “go” and red for “stop” can be confusing (who is to go and who is to stop?)
  • Several colours are not available/allowed (e.g. red is used for rear lights; headlamps must be white in the EU,…)

Signals are being tested in simple and/or artificial conditions

Test environment: one lane, one vehicle, one pedestrian. Dead-end street on a university campus


Test environment: virtual reality

What about real-life settings and complex traffic environments?

- Several pedestrians interact with several vehicles
- Pedestrians need to cross several lanes
- Vehicles going straight and others turning right and left

Several dynamically-changing intent signals to decipher => the complexity increases
What about real-life settings and complex traffic environments?

Risks for pedestrians with AVs’ intent signals

- Increased cognitive burden
- Difficulties for children, elderly people and people with physical, mental or sensory disabilities
- “You can proceed” formulated by an AV can bring pedestrians to believe that it is safe for them to cross, while vehicles in an adjacent lane might still be moving
Is it fair?

The introduction of AV in traffic should improve road safety for all, not create further complications for some to handle.
IFP’s position

• The IFP is opposed to the introduction of signals (optical or audible) indicating AVs’ intended actions to pedestrians

• The IFP is not opposed to signals indicating the status of the vehicle (whether the autonomous mode is on or not) as long as pedestrians are not expected to change their behaviour in the presence of this signal
Thank you for your attention