Safety of Pedestrians and Cyclists when Interacting with Self-Driving Vehicles: A Case Study of the WEpods

J. Pablo Núñez Velasco
*PhD-candidate*

Paola Rodriguez, Haneen Farah, Marjan Hagenzieker

Delft University of Technology
Introduction
Vulnerable road users

- Interactions
- Motorized vehicles as threat
- Will always be around..
WEpods

Camera
Radar
IBEO laser
SICK laser

(WEpods.nl, 2016)
Main research question

How is road safety perceived by vulnerable road users, such as pedestrians and cyclists, in their interaction with the WEpod during their test phase?
Methods

• Face-to-face interview (N= 22)

• Focus group (One group of 8)

• Online survey (N= 196)

  – Perceived safety
  – Traditional vs Automated
  – Familiarity?
  – Interactions?
  – Communication
Results Interviews & Focus group

• Majority → eye contact is important
  – Low speed
• Steward present?
  – Majority → did not know
• Communication
  – Visual & auditory
• Expected WEpod to stop in all instances
Results online survey (1)

Knowledge WEpod

- Excellent
- Good
- Fair
- No

- Fewer concerns
- Crossing behaviour

- Stated vs Revealed (depending on mode)
  - Fewer concerns
  - Shared space

But no difference:
- Unsignalised intersections
- Crossing behaviour
Results online survey (2)

- Comparison vehicles
  WEpod:
  - perceived as safer in ‘shared space’
  Depending on mode:
  - ‘Safer’ crossing behaviour
  - More concerns at Unsign. intersections

- Communication
Conclusion

• Knowledge of the WEpods increases the perceived safety.
• Experience leads to more perceived safety.
• Mixed results when comparing with traditional vehicles.
• Information whether: stopping & turning
Future research

• Long term effects of AV on VRUs?

• Empirical studies

• Let me know!
Tack för din tid.

CIT 2016, Stockholm
J.P.Nunezvelasco-1@tudelft.nl