# Hybrid Intelligence for aDvanced collective awareness and Decision making in complex urban Environments

Introduction for KMOU. Busan


Alice Rollwagen

Funded by
the European Union

# HIDDEN Facts

- **Full Title:** HYBRID INTELLIGENCE FOR ADVANCED COLLECTIVE AWARENESS AND DECISION MAKING IN COMPLEX URBAN ENVIRONMENTS (HIDDEN)
- **Call:** HORIZON-CL5-2024-D6-01
- **Topic:** HORIZON-CL5-2024-D6-01-04
- **Type of Action:** Research & Innovation Action
- **Starting date:** 1st July 2025


- **Duration:** 36 months
- **EU Funding:** 5M euros
- **Consortium:** 14 partners and 2 affiliated partners from 7 countries
- **Project Coordinator:** Institute of Communication and Computer Systems (ICCS)

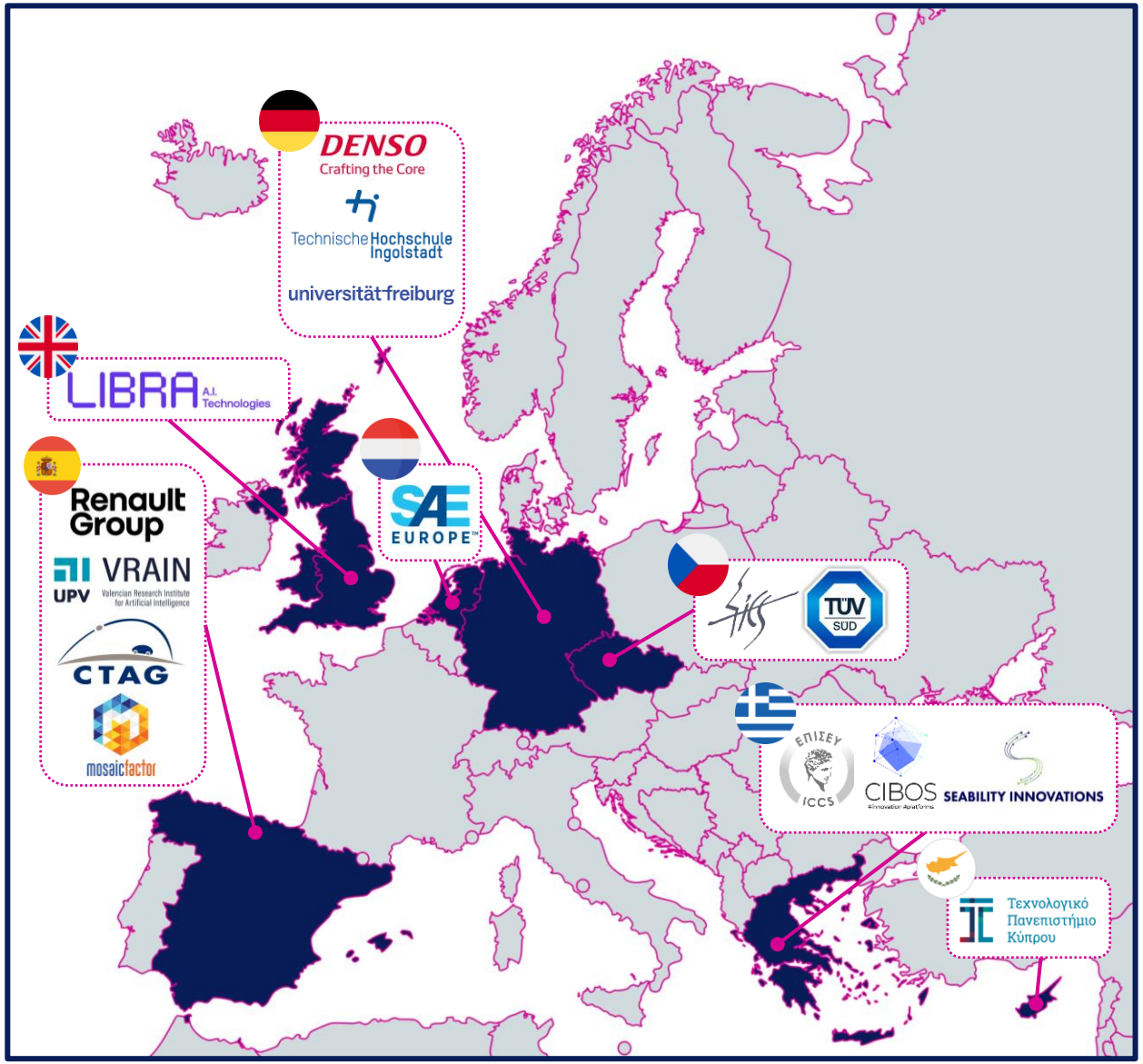
*HIDDEN project is funded by the European Union, under grant agreement No 101202228. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the granting authority can be held responsible for them.*

# HIDDEN Consortium

**14 partners &**

**2 affiliated partners**

**7 European countries**

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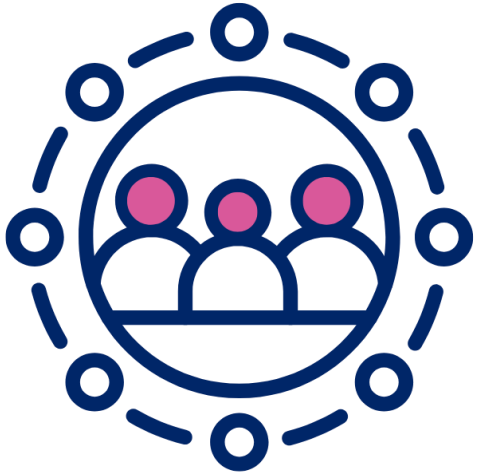
# HIDDEN's Concept



To advance **collective awareness** & **decision-making** for CCAM systems in complex urban scenarios, with or without road infrastructure support, focusing on timely detection of occluded vehicles and Vulnerable Road Users (VRUs) and prediction of their trajectories.

HIDDEN deploys **Hybrid Intelligence** tools and techniques promising increased performance of AVs, reaping the benefits of combining human with machine intelligence.


HIDDEN is developing CCAM systems which are not just **technologically advanced** but also deeply **aligned with human driving styles, ethical principles and regulation**s, setting a new benchmark for the future of AVs technology.

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# HIDDEN Objectives

1. Design, develop and test **failsafe AI-based collective awareness** systems, focusing on detection of **occluded objects**, including VRUs, in **complex urban** settings.

2. Design, develop and test **predictive decision-making** agents that **utilise collective awareness** output and which are **explainable** and aligned with **human driving styles** and **ethical principles.**

3. Embed **human intelligence** in both perception and decision-making layers, while considering AI-related **ethical and societal aspects**, via the development of a dedicated toolset.

4. Reach out to **CCAM stakeholders**, in EU and beyond, concerning HIDDEN developments, engage in a continuous discussion with EU **type approval authorities** and **UNECE** working groups and promote mature results to standardization.

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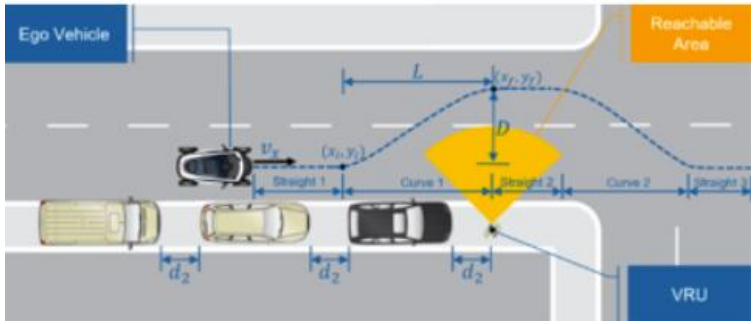
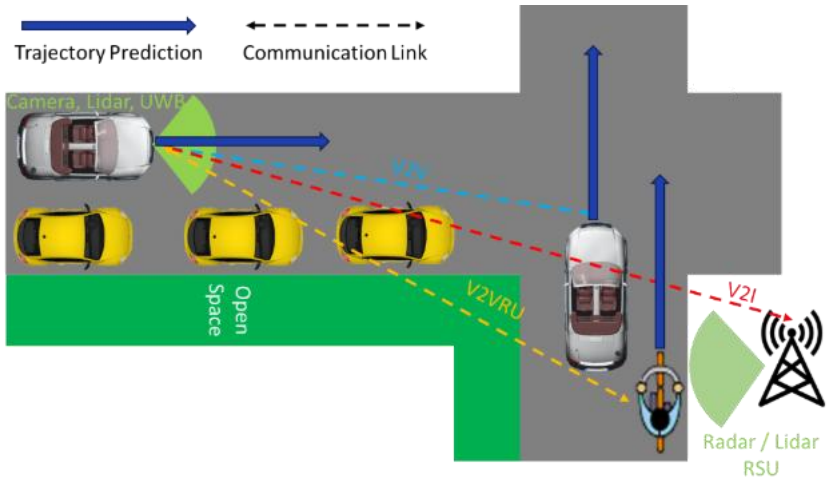
# HIDDEN Use Cases

## Use Case 1

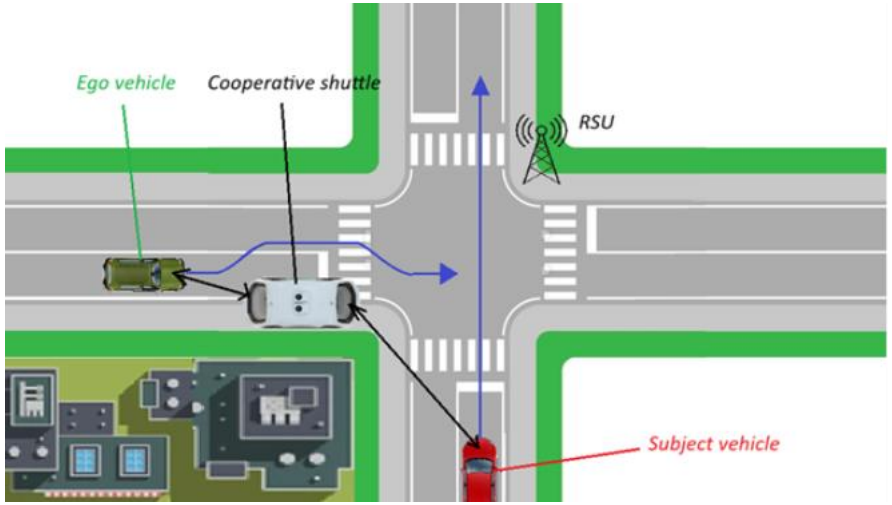



## Use Case 2




## Use Case 3

## Use Case 4

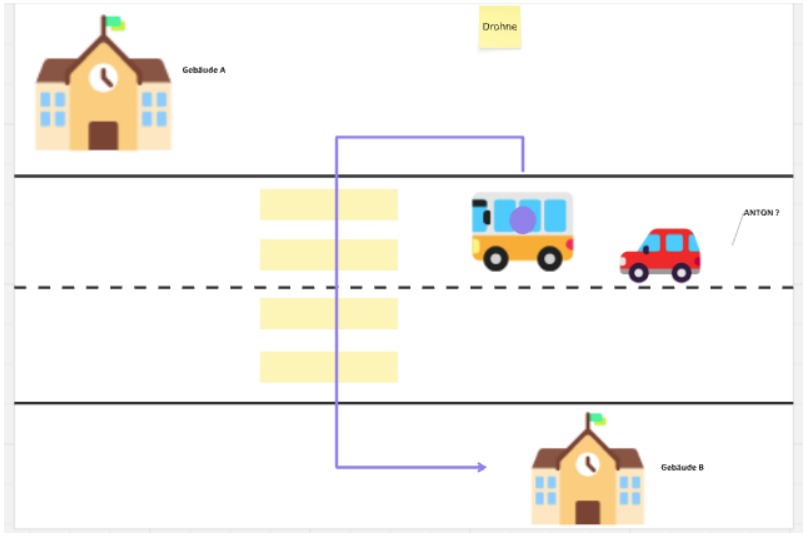


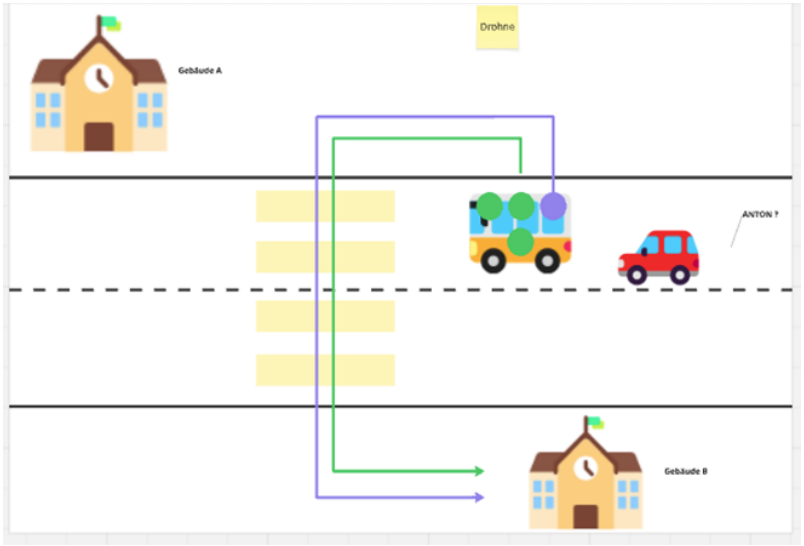
# Study – School Zone: Road Crossing

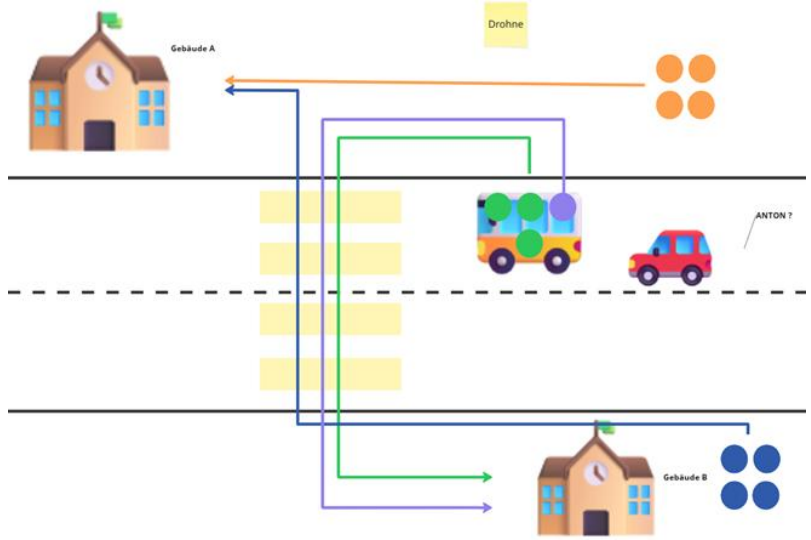
# School Zone: Road Crossing

- First, the children receive a brief introduction, followed by the collection of demographic data.
- Next, a volunteer child is fitted with the motion tracking suit (Rokoko).
- We then carry out various use cases in which the children are assigned to different groups.
- Each group has its own starting point and destination.Data collection via drone, possibly Lidar

# School Zone: Road Crossing



# School Zone: Road Crossing

# Our research institutes and measurement methods

# 4.1 - Trajectory prediction based on advanced behavioral models




Source:https://www.thi.de/forschung/carissma/labore/outdoor-freiversuchsgelaende/

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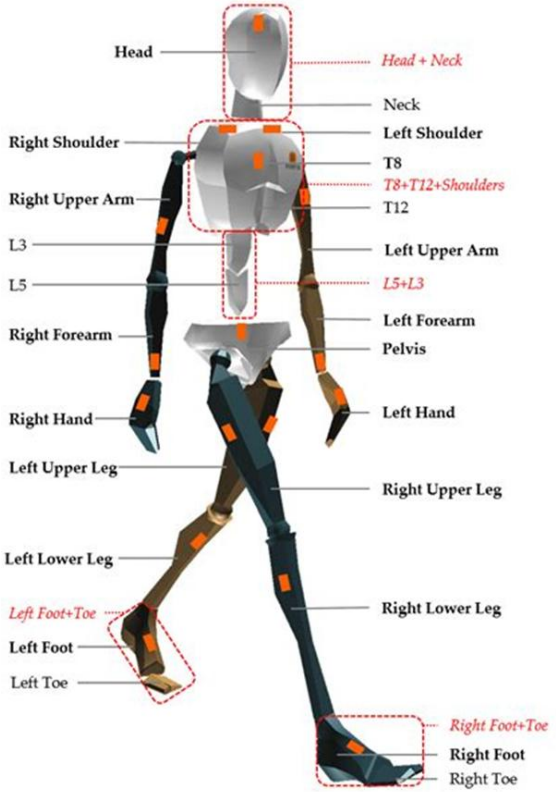


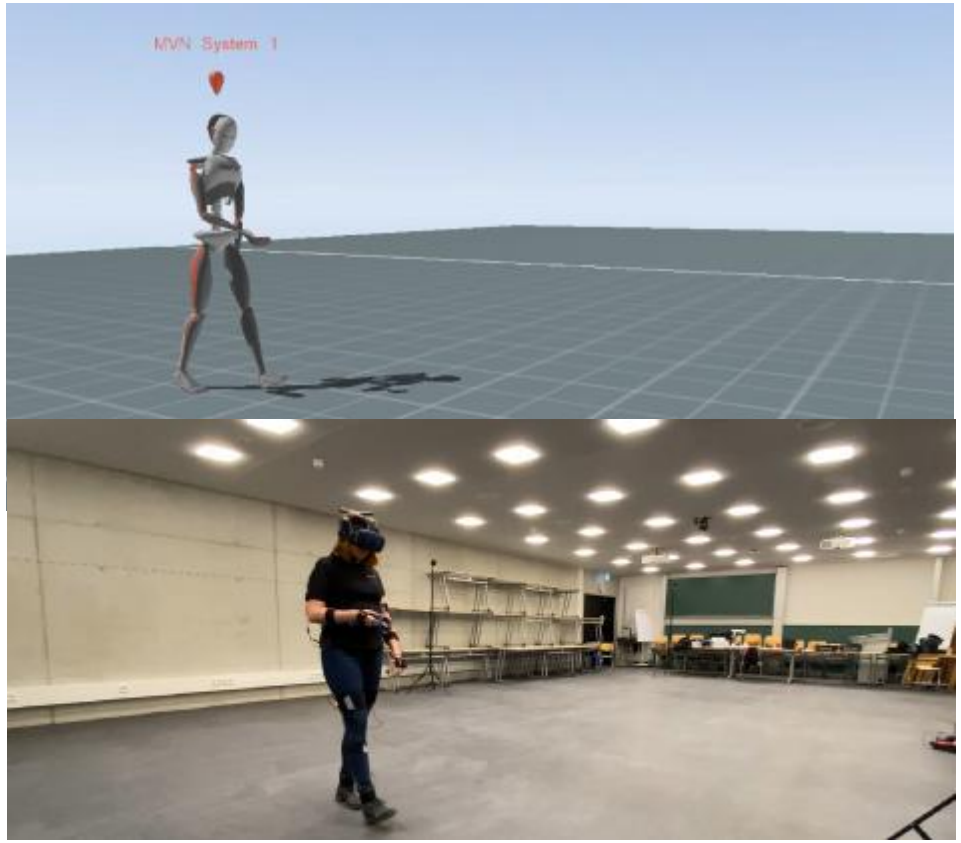




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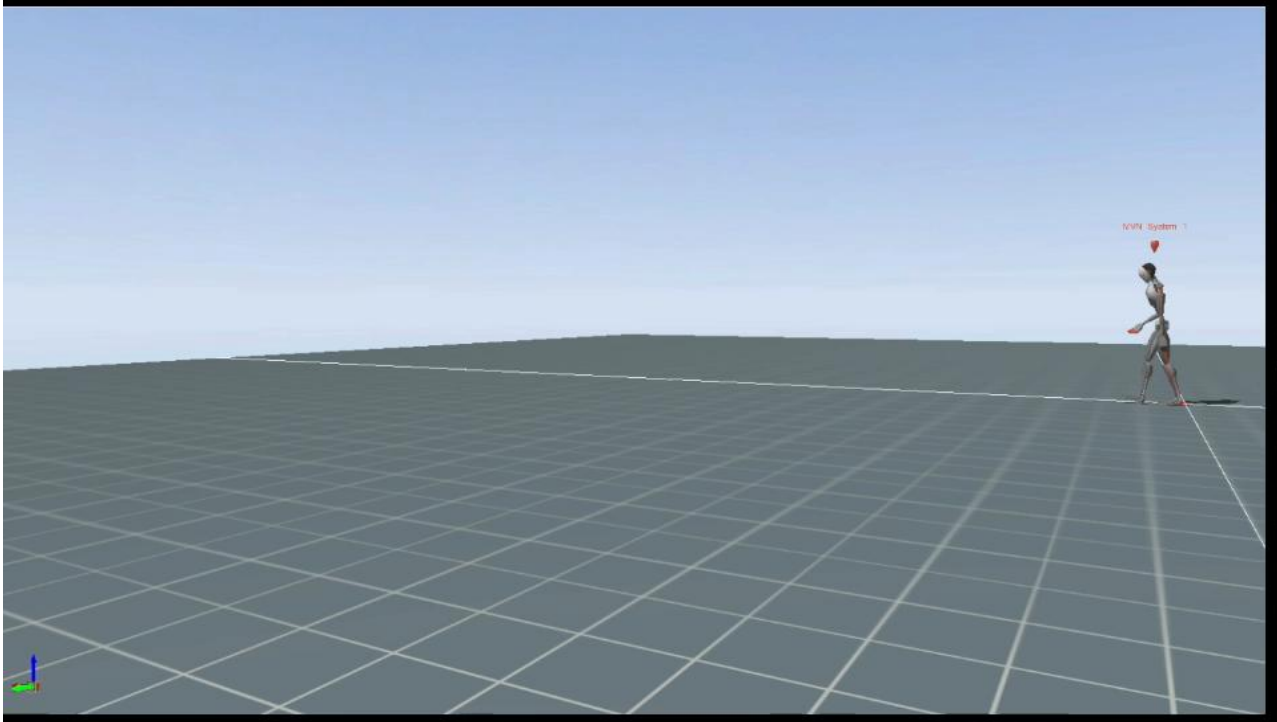
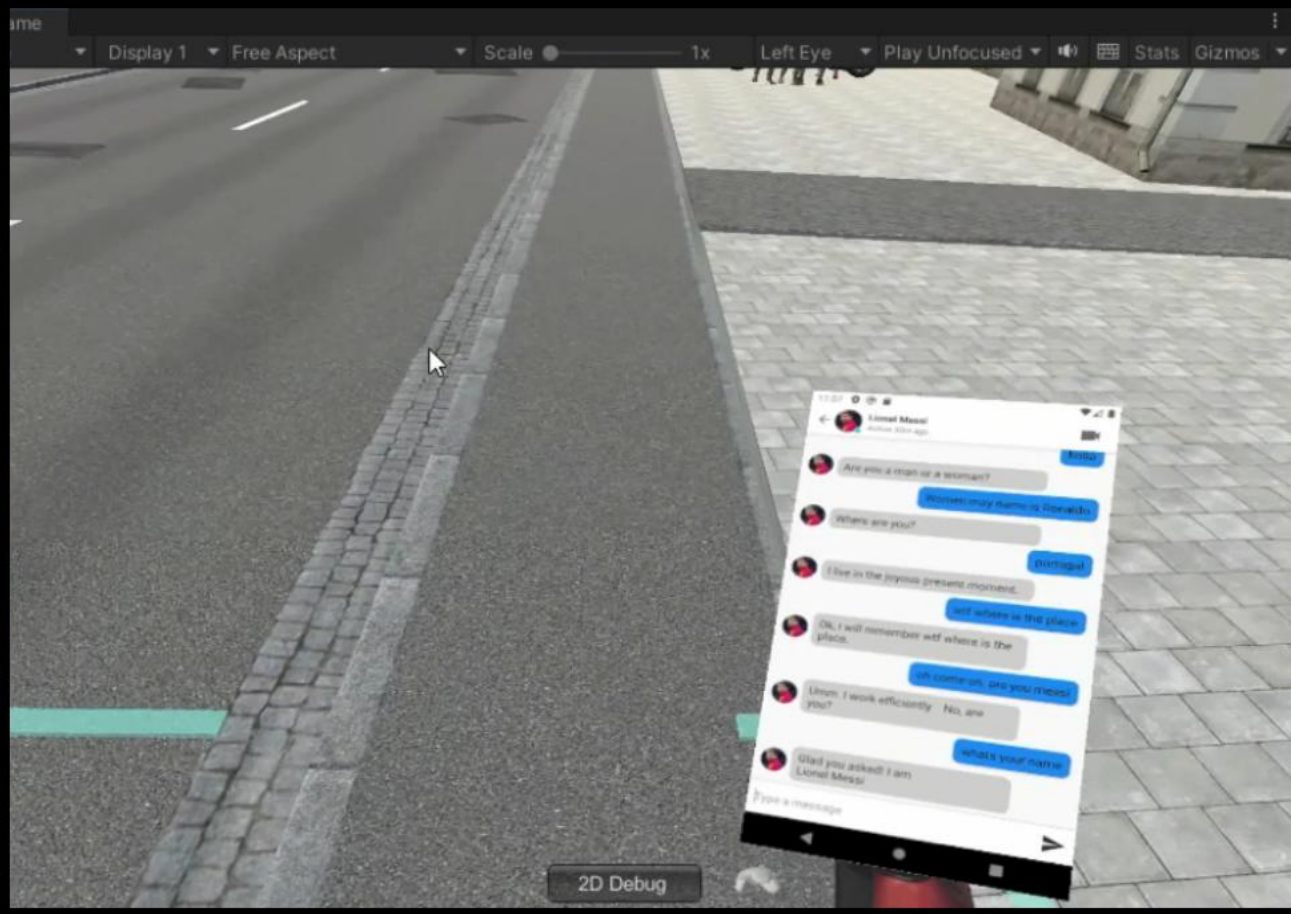
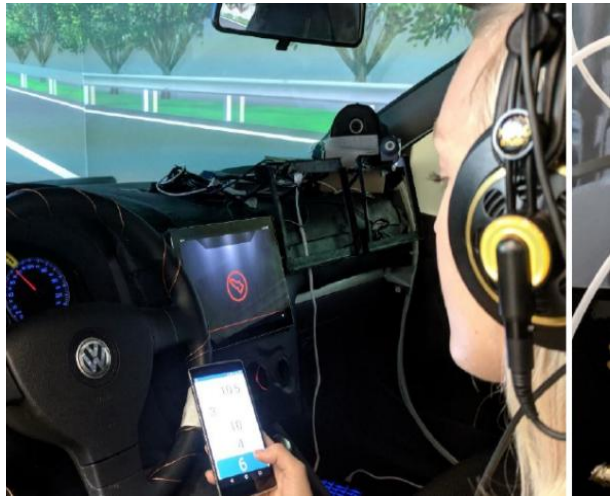



Display 1
Free Aspect
Scale
1x
Left Eye
Play Unfocused
Stats
Gizmos
2D Debug

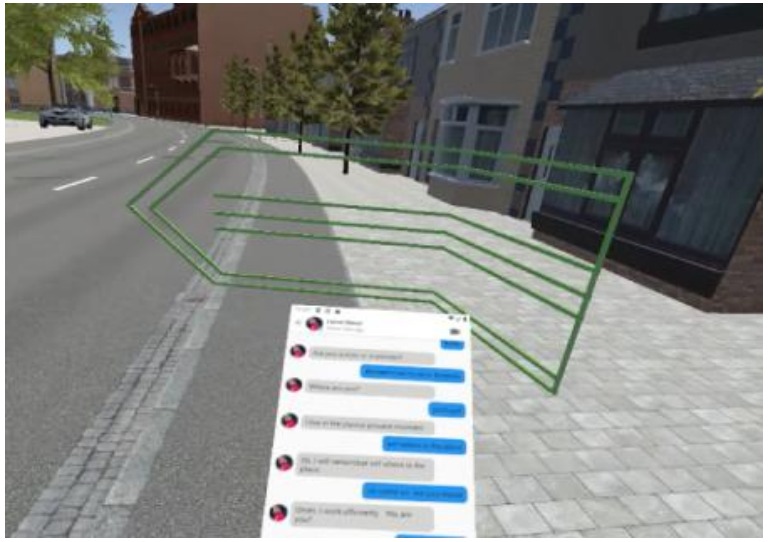
# 4.3 - Decision-making explainability & driver trust building

## Driving Experiments Lab


## Hexapod

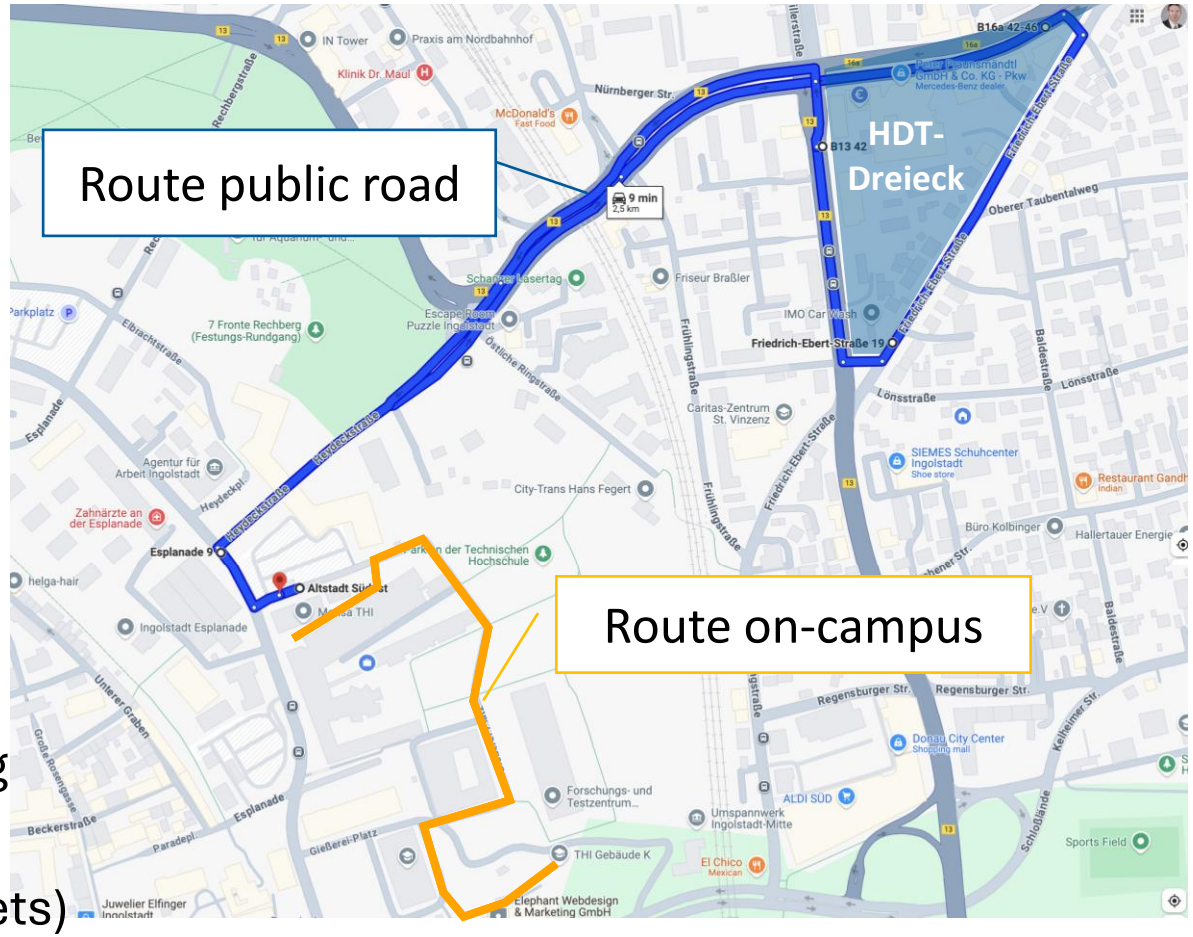


## Virtual Reality



Source:Hexapod – HCIG

# 4.3 - Decision-making explainability & driver trust building




- **NAVYA Shuttle ARMA DL3** (on THI route: cafeteria, building G, building K, and back; approx. 1,500 m).
- Sensor data fusion for object detection (including with external mobile measurement stations.
- Research on teleop. capabilities (scalable for fleets)

# 4.3 - Decision-making explainability & driver trust building

**EyeTracking**

**EEG/ EMG**



Source:g.tec Medical engineering- products for Neurotech & Research, Pupil Core - Open source eye tracking platform