COPPLAR

A Platform for Research on Self-Driving Functionality for Inner-City-like Environments

![TEST VEHICLE]
Vision - Cooperative Self-Driving Vehicles

- Chalmers Johanneberg – Chalmers Lindholmen
  - Multi-lane traffic
  - Pedestrian / cyclist crossings
  - Complex intersection and roundabouts
  - Merging / crossing with trams and busses

- Envisioned solution
  - Safely and efficiently navigate inner-city traffic
  - Interact with cooperative and non-cooperative road users and infrastructure
  - Robust (cooperative) situational awareness
  - Safety guarantees through design
Scope of COPPLAR

- First steps towards the vision
  1. Analyze and select most potential scenarios
  2. Research and develop needed building blocks to solve these scenarios
  3. Build demonstrator cars addressing selected scenarios
  4. Continuously test, verify, and demonstrate at AstaZero
Research / Problem formulation

- Building on previous projects we focus on
  - (Cooperative) self-localization in complex and changing traffic scenarios
  - (Cooperative) situational awareness
  - (Cooperative) path planning and control
  - Communication system requirements
  - Multi-domain software and system architecture
Sensor Configuration

- Rear side radar
- Front side radar
- Long range radar
- Front stereo camera
- Radar / Camera
- Laser scanner
- GPS

Additional sensors:
- GNSS
- IMU
- Wheel speed encoders
- V2X communication
- Map database
Sensor Configuration

- Laser scanner
- Rear side radar
- Front side radar
- Stereo camera
- Front radar
- Rear side radar
- Front side radar
System Architecture