

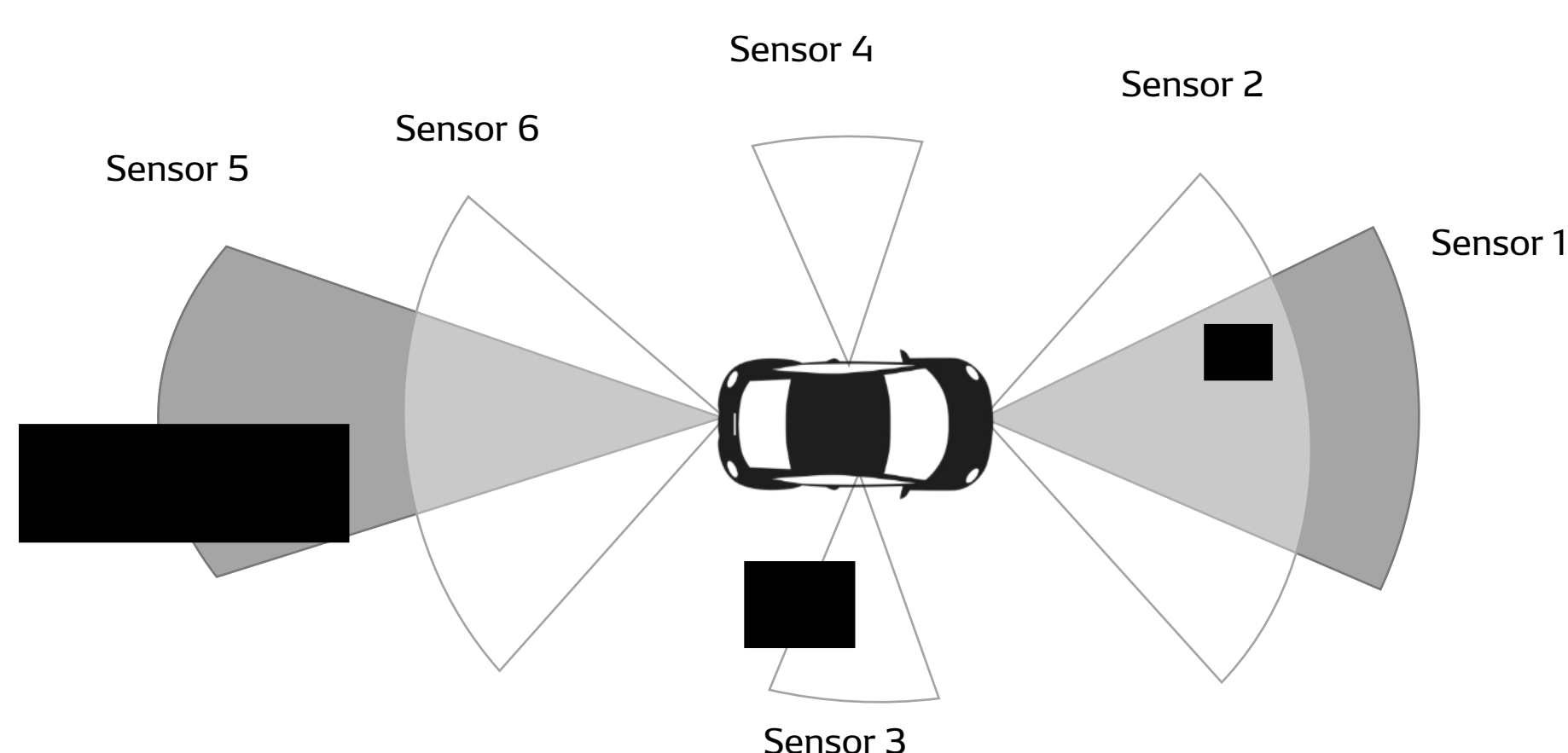
CPM Significance Index for Redundancy Mitigation

Avoiding loss of safety-relevant information

Highlights

- Improving Collective Perception to avoid communication channel overload
- Distributed and collaborative approach for prioritizing sharing of sensor-detected objects to avoid loss of safety-relevant information

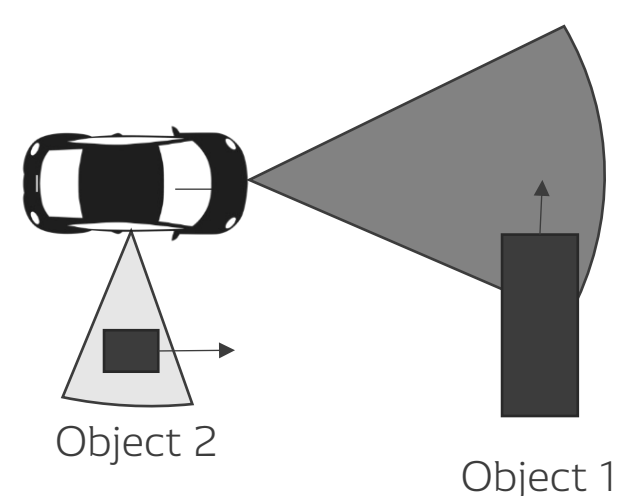
Configuration



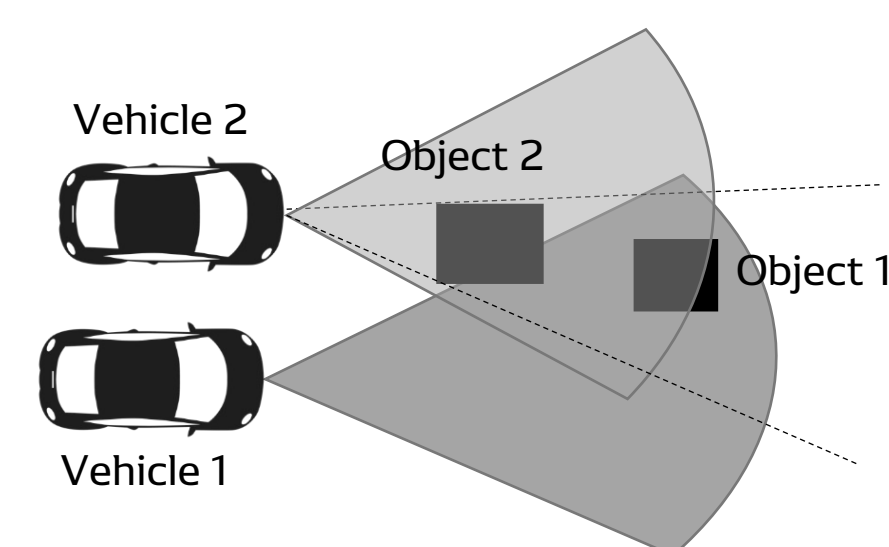
- Collective Perception Messages (CPMs) might contain a large number of detected objects
- Repetitive transmission of large CPMs would result in channel overload
- Channel overload is avoided by dropping packets indiscriminately, i.e. without any intelligence about their content or the significance of the information within
- As a result, CPMs with significant information (e.g. objects with high relevance to the safety of another vehicle) might be dropped



- Idea: adapting the Collective Perception Service (CPS) to include only the most significant objects (from a safety point of view) within a CPM
- Solution: basing the significance of a CPM on the 'significance index (SI)' of the object information within
- Object significance determination examples:



a) Kinematics based:
Object 1 is more significant than Object 2 due to a potential collision path with the vehicle



b) Occlusion based:
Object 1 is more significant than Object 2 for vehicle 2 due to occlusion by Object 1

Result

- The CPM Significance Index (CSI) addresses the issue of potential loss (i.e. non-transmission) of safety relevant objects in Collective Perception Messages (CPMs), especially in situations with high communication channel load