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DISPLAY OF FOREIGN TURNING INTENTIONS

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DISPLAY OF FOREIGN TURNING INTENTIONS

Technical task:

A turn request is indicated by "flashing".

During many trips, a navigation system is used. This often happens when the driver knows the route, e.g. to avoid traffic jams. Autonomous vehicles generally use a navigation system to determine the turning processes.

Initial situation:

Human drivers often do not indicate a turn or do so very late. If a turn signal is set on multi-lane roads, it is sometimes not clear whether this is to indicate a turn request or only a lane change. Occasionally it is also not clear for which junction the desired turn is intended. The turn signal can also be obscured by obstacles (e.g. a vehicle immediately ahead).

Solution:

A driver of a vehicle is informed about turn requests of vehicles in the vicinity (i.e. relevant are especially vehicles in front).

This can happen, for example, via a screen on which the road, one's own vehicle and surrounding vehicles are displayed as symbols (e.g. from a bird's eye view). The expected short-term routes or turn requests of the respective vehicles are then also displayed. This can be done using polylines, which is advantageous (for the sake of clarity), but using symbols assigned to the vehicles (e.g. an arrow to the left is shown on the screen on the roof of a vehicle if this vehicle is likely to turn left).

Other possibilities are also conceivable, e.g. the display of the turn symbols on the windscreen "floating" above the roof of the vehicle in question ("Augmented Reality").

The turn request is known from one or more of these sources:

1. The other vehicle reports a turn request via direct vehicle communication (e.g. WLAN, 5G). The other vehicle is aware of the request:
 - a. According to the currently set navigation route, a turn is planned.
 - b. Interior sensors detect an intention of the driver, e.g. by looking at the road sign, driving slowly or reducing speed, etc.
 - c. The driver's destination was estimated on the basis of an "intelligent assistant" (e.g. according to an appointment calendar, the driver drives to the doctor, and a turn is necessary to stay on the usual route).
2. If the other vehicle (or its driver) navigates via smartphone, this can communicate the turn request (According to the state of the art, it would be possible to establish a direct connection with this vehicle). It would then also have to know in which vehicle it is, e.g. by user input of the number plate or automatic adjustment of the movement trajectories).
3. the vehicle itself assesses this desire, e.g. by detecting the deceleration of a preceding vehicle
4. the turn request is known from a third source, e.g. buses follow a defined route, which can be stored in the vehicle, or could be interrogated via a communication interface.

The recognition security can also be taken into account, e.g. a turn request that has not been reliably recognized is indicated by a symbol with a question mark.

In addition to the turn request, the estimated time and/or the distance to be travelled before turning can also be displayed.

Advantages:

The driver can react early to the turn requests of surrounding vehicles, e.g. change lanes early. He arrives faster and safety is increased because surprises are less frequent.

Possible application:

In a further variant, the turning wishes of the vehicles in the surrounding area are taken into account in path planning. For example, on a multi-lane road, if a large number of vehicles want to turn left in the near future (and the flow of traffic in the left lane is therefore likely to slow down considerably), the driver can be advised to change to the right lane at an early stage. If the vehicle is driving, this can be done automatically in the background.