

TOPIC: Development of simulation scenarios for testing self-driving cars

Goal:

The goal of the thesis is to implement simulation scenarios for a self-driving vehicle based on an existing suitable simulation environment like CARLA, Unity or Gazebo. The simulation scenarios that should be covered are a lane assistant and traffic light recognition. The programming should be performed in Python.

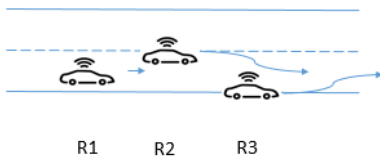
Procedure:

- Selection of a suitable simulation environment
- Implementation of the simulation scenarios
- Testing of self-driving vehicle algorithms in the simulation environment

Use Cases:

Lane Assistant

		R1	R2	R3
Conditions	Inside track	Y		
	Left outside track		Y	
	Right outside track			Y
Actions	Keep in track	X		
	Turn right onto track		X	
	Turn left onto track			X



Traffic Light Recognition

		R1	R2	R3	R4
	Traffic Light Status				
Conditions	Red	Y	Y		
	Yellow		Y		Y
	Green			Y	
Actions	Drive			X	X
	Stop	X			
	Start Engine		X		

References:

- CARLA Simulator: <https://carla.org/>, <https://github.com/carla-simulator>
- Gazebo: <http://gazebosim.org/>
- Unity: <https://unity.com/>