# Control of Mobile Robots // Homework 04

Step 01:

Lidar rays that detect the obstacles within camera projection

Step 02:

Step 03:

Camera projection of lidar rays that detect the obstacles within camera projection

# Camera-Lidar Projection
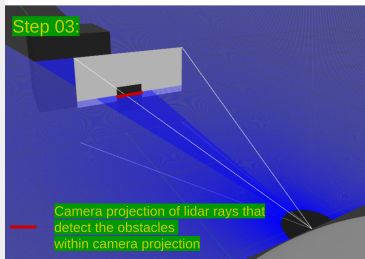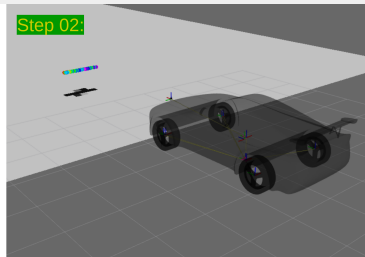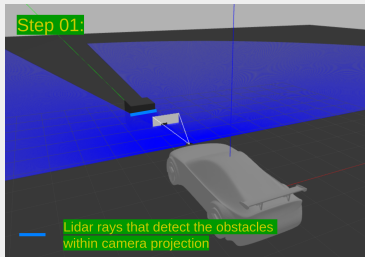
## Assumptions and needed information

- You need to use the simulated world and vehicle model provided from ros2 launch hagen_gazebo hagen_car.launch.py
- To obtain lidar data: /hagen/scan
- To obtain camera parameters: /depth_camera/camera_info
- To obtain an image from the camera: /depth_camera/image_raw
- Assume the camera and lidar are attached to the same location, i.e., there is no static transformation between them

# Camera-Lidar Projection

## Task

- Extract lidar rays that can be projected on the camera
- Project such extracted rays on the camera, i.e., projected points on the camera must be drawn by red points in the image
- Use the control strategy you developed in the Hw3, also place several obstacles in the environment and make a video how lidar-camera projection works over the time
- Your submission should include **the report**, the **source code**, and the **video** you recorded