Meeting 1 - 2019-04-29

First group meeting, mostly used for figuring out Ubuntu and the installations, and setting up correct requirements and functions.

Requirements

- PICO may not bump into walls
- PICO may not stay stationary for more than 30 seconds
- PICO must have exited the room in under 5 minutes
- PICO may not move at more than 0.5m/s in translational directions and 1.2rad/s rotational

Functions

- PICO should be able to scan the room
- PICO should be able to recognize an exit
- PICO should be able to drive toward the exit
- PICO should be able to drive through the exit
- PICO should be able to stop after driving through the exit

Additional functions

- PICO should be able to remember what he has seen
- PICO should function in an arbitrary environment
- PICO should be able to keep a safe distance from walls

Error is present on wheel encoders.

Don't look at individual points, but at sets of points. Laser data is relatively high-quality. Record data for future reference.

Figure out what datastructures are generated and required by different functionalities.

Steps:

- Look for exit
- Recognize exit
- Move to exit
- Move through exit
- Stop at end of exit

Check emc::speak or emc.speak, SSH into PICO, log console output

Homework Assignments

- Vision: Martijn, Marcel, Ruben
    - Recognize door
    - Move to different point if not recognized
    - Output: corner points of exit
- Trajectory planning: Bram, Jeroen

    - Input: corner points of exit
    - Determine optimal trajectory (linear, spline, other)
    - Line up with exit
    - Incorporate collision avoidance?
- Information architecture: all
    - Think of how information should flow, see lecture slides 20190501