Robot Practical Course Bachelor
Assignment #4

The competition: This is the last assignment sheet for this course, but be prepared for a hell-run of exciting, mind-blowing, competitive work! Refill your coffee stock, get a last night of relaxed sleep, and join the adventure!

In the next few weeks you will prepare the Turtlebots for a "laser-tag" match. Every bot gets a number of AprilTags attached on visible parts of its body. An AprilTag is basically a QR-code that can be used to detect the position and orientation of the object it sticks on via a simple webcam (or in our case the Kinect).

You should discuss the different strategies that you could implement to play laser tag and agree on the approach you are going to take.

Rules

- You should use the `apriltag_ros` package to detect your opponent's apriltags

- You are allowed to use the `move_base` action to navigate your robot across the room

- You can also control your robot using `geometry_msgs/Twist` messages, as you did in previous exercises

- You should use the game client to interact with the game master

    - Clone the client package into your workspace:
      `https://github.com/TAMS-Group/rpc_game_client.git`
    - It offers a ROS service to score points.
    - The client will identify your player with the hostname

- The game master will control the gameplay:

    - You will not be able to move before the game started
    - You may only submit one scoring request every 10 seconds
    - After your robot was tagged, it will not be able to move for 5 seconds

- The game master will score your submissions:

    - The score will be graded on:
        * The distance to your opponent
        * The horizontal distance of the AprilTag to the center of the image
        * The rotation of the AprilTag around the vertical axis
    - It is possible to earn no points even if there is an AprilTag in the submitted image!

Cheating is prohibited and leads to bad Karma[1]!

[1]and disqualification