

CS 309

Autonomous Intelligent Robotics (FRI I)

HW 5: Following the AR Tag Due: April 16, 2019

You can find the latest version of this PDF at
http://justinhart.net/teaching/2019_spring_cs309/homework/HW5/hw5.pdf

For this homework you will work with your final projects groups. I have provided code on my website which can act as a starting point here: http://justinhart.net/teaching/2019_spring_cs309/homework/HW5/hw5_pkg.tar.gz

You can launch alvar running the Kinect camera with the included launch file as “roslaunch hw5_pkg kinect_alvar.launch”.¹ You should make 3 things happen.

- Publish a tf frame that is offset 1 meter in front of ar_marker_0, facing in the same orientation. Call it “offset_frame”. Verify this in rviz.
- Publish a tf frame that is the same position as “offset_frame” but rotated 180 degrees so it is now facing the robot.
- Make the robot move to this position in a continuous loop such that the robot will follow the marker. For this, use the connect on the base or the Xtion camera at the top, depending on which BWIBot you use.

You may use the Kinect camera in the lab to test your solutions. My recommendation is that you record a rosbag from the kinect camera as a starting point into your work and work from that. You may share this rosbag with your classmates, but not your code (except within your group).

Good luck!

¹When directly connected to a computer. You will need to modify the launch file for the BWIBot.