AuE 8230: Sp'23: Autonomy Science and Systems

Department of Automotive Engineering

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ASSIGNMENT 2B

(Due: Thursday, 23rd February 2023. 12:59PM)

Create a new ROS package called `assignment2B_turtlebotteleop` .

In Assignment 1C, you began the process of developing a Turtlebot simulation – you developed simulation code in Python to move the turtlebot along a circle and a square. In this assignment, we will extend and reuse this developed code to now move the physical bot initially in keyboard teleoperation mode and subsequently in open loop automated mode along specified trajectories (circle/square) at multiple speeds

Create a `scripts` folder in your new package.

1. Complete the setup in the ERobotis manual and do a teleop task (https://emanual.robotis.com/docs/en/platform/turtlebot3/quick-start/). Upload a video on github.
2. Copy and modify the code (`circle.py`) to publish a simple twist message to make the TurtleBot3 Burger move in a circle in a similar fashion to the 1C homework. Run it at slow, medium and fast speeds. Analyze and report it in a readme on git.
3. Copy and modify the code (square.py) to publish a simple twist message to make the TurtleBot3 Burger move in a square of size 1m X 1m in a similar fashion (open loop) to the 1C homework. Run it at slow, medium and fast speeds. Analyze and report it in a readme on git.

```
$ roslaunch assignment2B_turtlebot3 move.launch code:=circle

$ roslaunch assignment2B_turtlebot3 move.launch code:=square
```

SUBMISSION:

1. Record this implementation on your screen.
2. Save the video in your workspace in a folder called `/videos` . (You will be graded for the video submission).
3. Create a README.md with a brief explanation of the launch file and what the launch file implements. The README file should also clearly contain the command the TA should enter into the terminal to run each part of the homework!
4. Push this to your GitHub repo. Submit the link to the repo on Canvas. This is a group assignment so only one person in the group will submit the link to the common repo.
5. The assignment is due on 23rd February, Thursday, before the class.