Exercise Session 5

Theory

- Service calls

Exercise

Use the node you implemented in Exercise 2 & 3 and add a service server that can start/stop the robot. This functionality could be used as an emergency stop.

1. Implement a service server (Lecture 4, Slide 8) that can start and stop the robot. Use the `std_srvs/SetBool` service type for this task.

2. Run the simulation and call the service you have implemented from the terminal using `rosservice call` to start and stop the robot (Lecture 4, Slide 4/7).

OPTIONAL

A. Create a *separate node* that stops the robot if it is *too close to an obstacle* using the laser measurements. Use the service you have implemented above.

B. Create a *separate node* that stops the robot *after a crash has occurred* with the stop service you have implemented above. For this, plot and analyse the data of the IMU under the topic `/imu/data` with `rqt_multiplot` and develop a method to detect a crash.

Evaluation

❏ Stop Husky using the service call. [50%]
❏ Start Husky using the service call. [50%]

OPTIONAL
❏ Automatically triggered emergency stop when too close to an obstacle [Bonus 25%]
❏ Automatically triggered emergency stop after crashing with an obstacle [Bonus 25%]