

Assignment 1.

1. The default launch files included are

- `spawn_turtlebot3.launch.py` from package `turtlebot3_gazebo`
- `robot_state_publisher.launch.py` from `turtlebot3_gazebo`
- `gzclient.launch.py` from `gazebo_ros`
- `gzserver.launch.py` from `gazebo_ros`

The launch files excluded are

- `flaky_door_opener.launch.py` from `prob_rob_labs`
- `video_processor.launch.py` from `prob_rob_vision`
- `image_mean_feature_x.launch.py` from `prob_rob_labs`

2. `flaky_door_opener.py` from `prob_rob_labs` will be included if `run_door_opener:=true` is included
3. `x=-1.5 y=0.0`
4. `ros2 launch prob_rob_labs turtlebot3_and_door.launch.py x_pose:=-5.0 y_pose:=1.0`

Assignment 2.

1. Line 132 defines the joint named `hinge`, and it is a revolute joint.
2. The name of the child link that hangs off the joint is `door`, and its mass is 41.3265
3. The name of the topic to publish in order to open/close the door is `/hinged_glass_door/torque` and its type is `Float64`.
4. The command used was:

```
ros2 topic pub --rate 1 /hinged_glass_door/torque std_msgs/msg/Float64 "{data:1.01}"
```
5. Through trial and error analysis we found the minimal value of torque to open the door very slowly was 1.01

Assignment 3.

[Assignment 3 Commit Link](#)
[Assignment 3 Screencast Link](#)

Assignment 4.

[Assignment 4 Commit Link](#)

Assignment 5.

The maximum speed was observed to be 3.60400. The output of the `echo` command is as below (left side terminal screen). Image on next page.

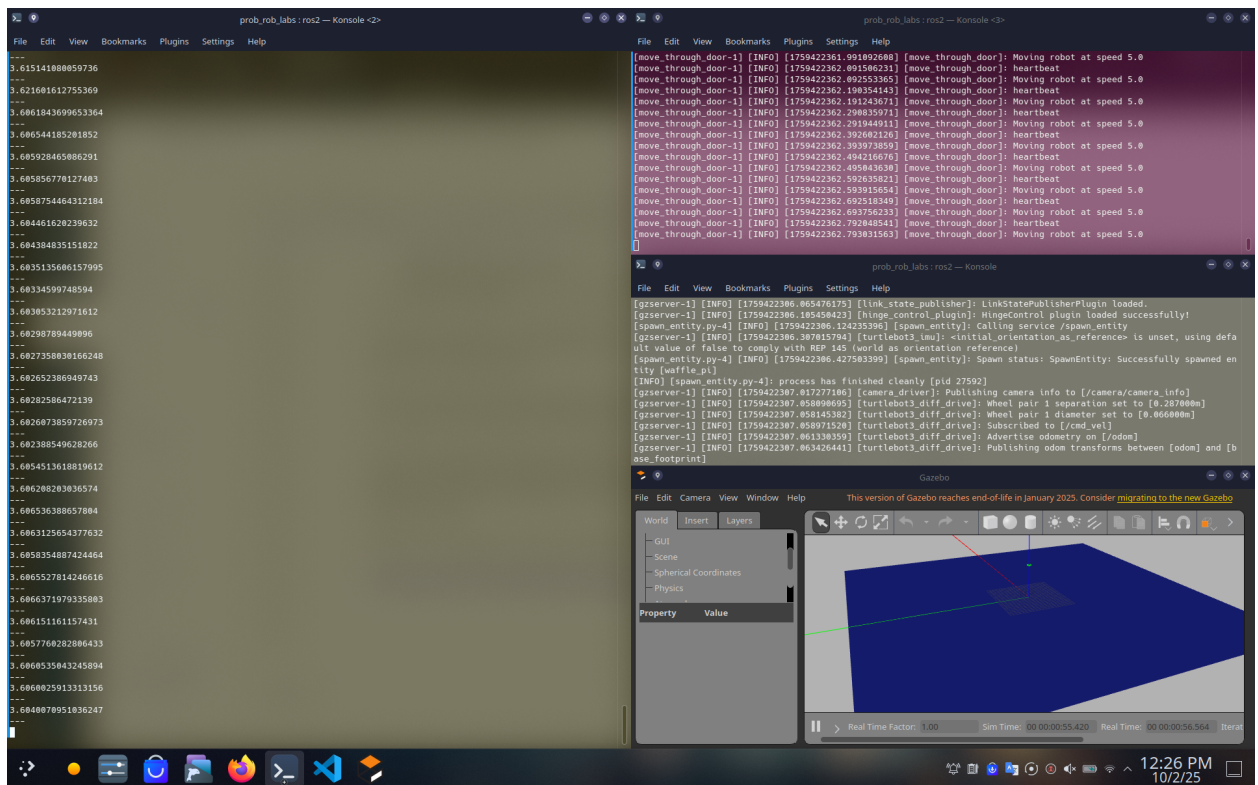


Figure 1: Terminal output of odom topic's Linear X field on left hand side terminal