remote cae machine connection

```
ssh -L 5900:localhost:5900 rfeng34@tux-101.cae.wisc.edu
```

code for raspberry

```
mkdir -p catkin_ws/src
```

maake a directory

```
source /opt/ros/noetic/setup.bash
```

```
catkin_make
```

```
cd ~/catkin_ws/src
```

```
catkin_create_pkg basic_motors_and_sensors std_msgs geometry_msgs rospy roscpp message_generation messa
```

motor_node.py

```python
import rospy
from std_msgs.msg import Float32 # message type
from pololu_drv8835_rpi import motors, MAX_SPEED # MAX_SPEED is 480


rospy.init_node('motor_node', anonymous = False)



def listener():
    sub = rospy.Subscriber('/wheel_command_left', Float32, set_wheel_command_left)
    rospy.spin()  # keep the program running

#Callback function
def set_wheel_command_left(msg_in):
    wheel_command_left = int(msg_in.data)
    motors.motor1.setSpeed(wheel_command_left)

#section to start the execution, with Exception handling

if __name__ == "__main__":
    try:
        listener()
        except rospy.ROSInterruptException:
            motors.motor1.setSpeed(0)
            motors.motor2.setSpeed(0)
        motors.motor1.setSpeed(0)
        motors.motor2.setSpeed(0)
```

motor_command_node.py

```python
import rospy
from std_msgs.msg import Float32

rospy.init_node('motor_command_node', anonymous = False)

def talker_for_wheel_commands():
    pub_wheel_command_left = rospy.Publisher('wheel_command_left', Float32,queue_size=1)
    wheel_command_left_msg = Float32()

    while not rospy.is_shutdown():
        wheel_command_left = int(input('Enter wheel command left (-480 to +480)\n'))
        wheel_command_left_msg.data = wheel_command_left
        pub_wheel_command_left.publish(wheel_command_left_msg)

if __name__ == "__main__":
    try:
        talker_for_wheel_commands()
    except rospy.ROSInterruptException:
        pass
```

rosbag

remember to close turtlesim_node and teleop_key and start a new turtlesim_node before playing

```
cd ~/bagfiles
rosbag record -a
rosbag play 2022....bag
```

roslaunch

tutorials

```
gedit conversation.launch
roslaunch packagename launch file name
```