

Final Project Environment Setup Tutorial

Install Package

1. Clone the motion_imitation repository. We need to refer to and use the mpc_controller code.

```
git clone https://github.com/erwincoumans/motion_imitation.git
```

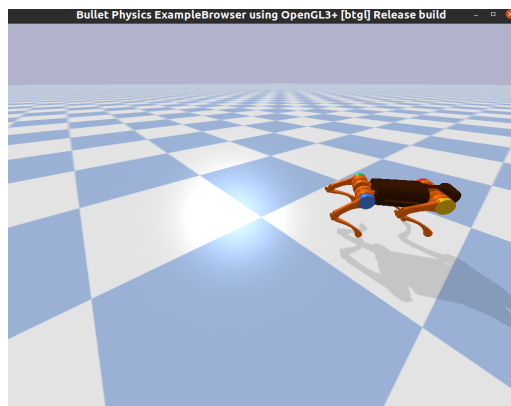
2. We use this repository with Python 3.7 or Python 3.8 on Ubuntu. We need to install dependency for the mpc controller module.

- Install MPI: `sudo apt install libopenmpi-dev`

- Install requirements: `pip3 install -r requirements.txt`

3. Test whether the mpc controller works properly

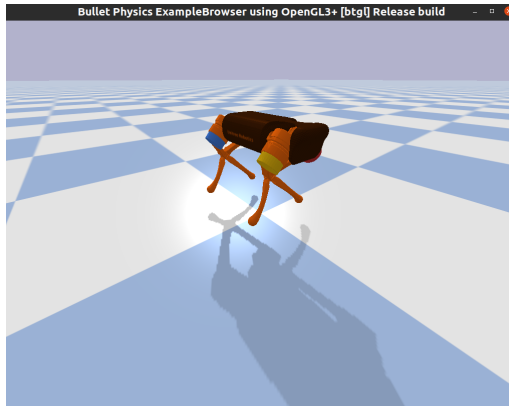
```
python ./mpc_controller/locomotion_controller_example.py
```



Fix Torso Position

To suspend the robot in mid-air, you can create a constraint in PyBullet.

```
# Load the quadruped robot model
robot_uid = p.loadURDF(robot_sim.URDF_NAME, robot_sim.START_POS)
# Suspend the robot in mid-air
basePosition, baseOrientation = p.getBasePositionAndOrientation(robot_uid)
childFramePosition = [0, 0, 0.3]
fixtorso = p.createConstraint(robot_uid, -1, -1, -1, p.JOINT_FIXED, basePosition, baseOrientation, childFramePosition)
```



Other Reference

- Pybullet document:
<https://docs.google.com/document/d/10sXEhzFRSnvFcl3XxNGhnD4N2SedqwdAvK3dsihxVUA/edit#>