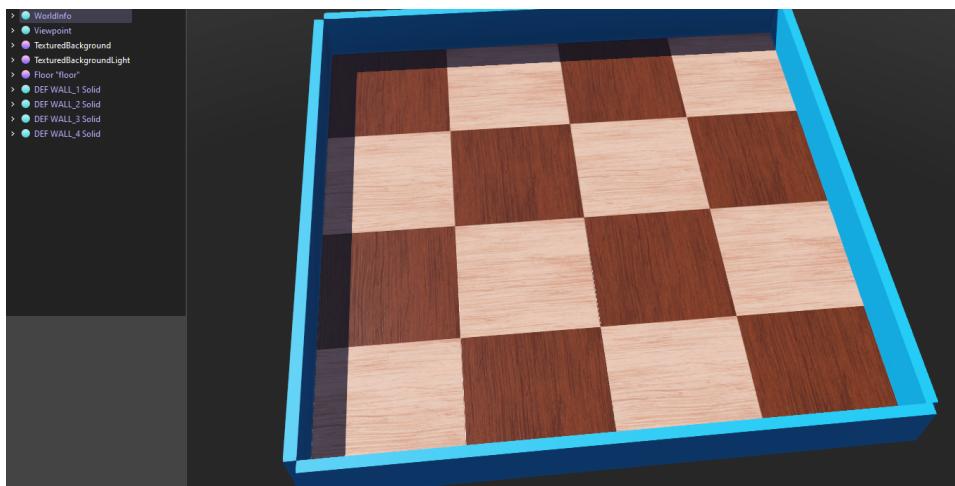
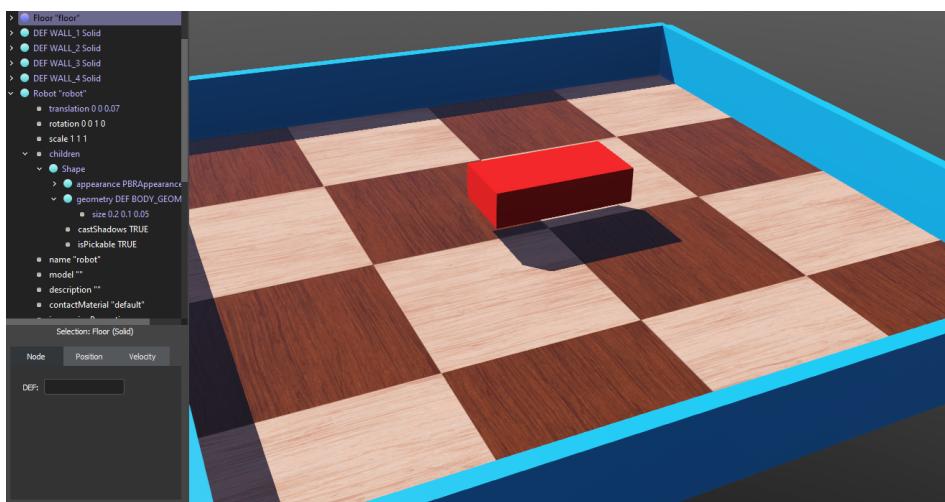


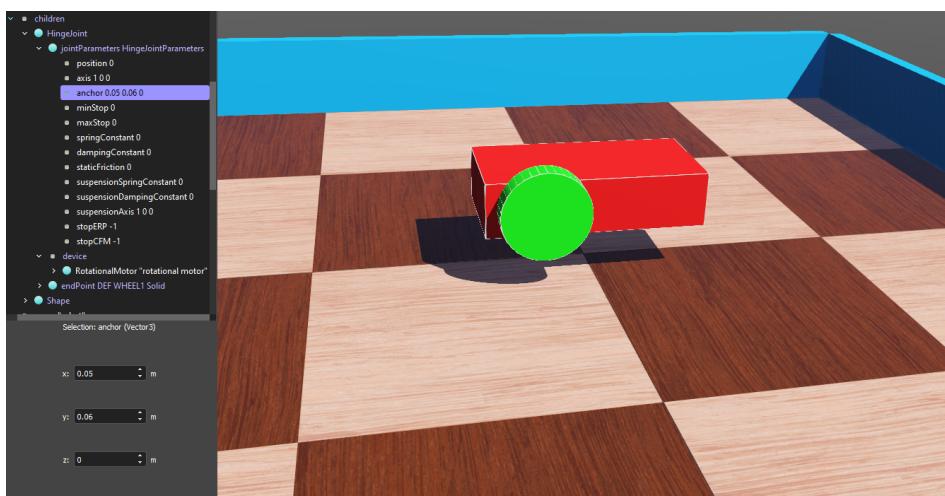
### Hands-on 1



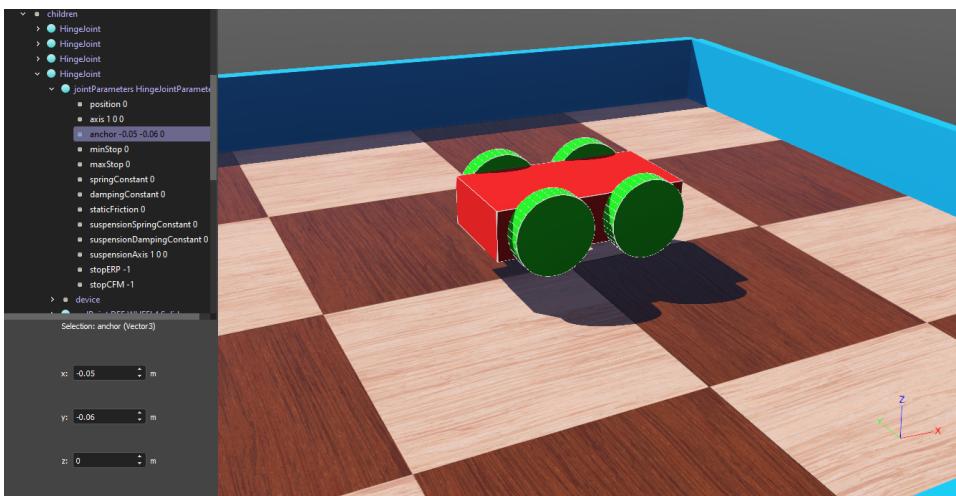
### Hands-on 2



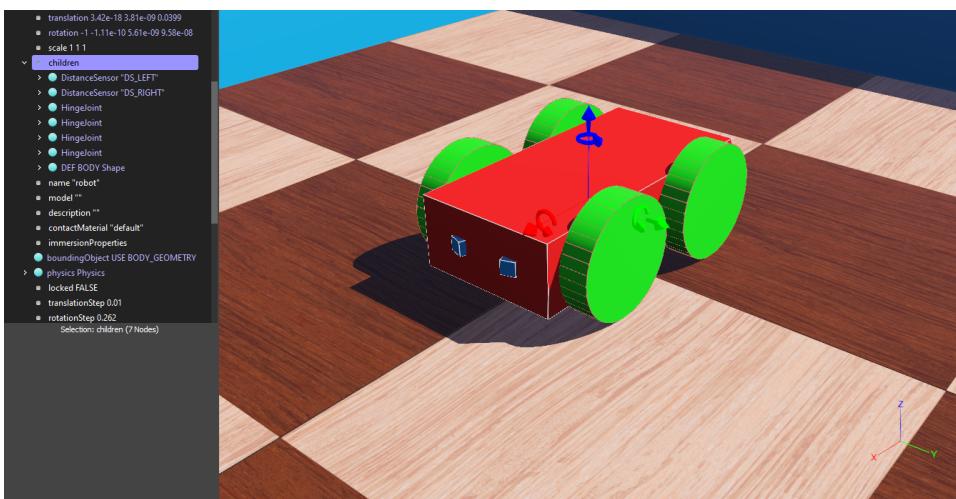
### Hands-on 3



### Hands-on 4



### Hands-on 5



### Hands-on 6

```
four_wheeled_collision_avoidance.py  X
1 from controller import Robot
2
3 TIME_STEP = 64
4 robot = Robot()
5 ds = []
6 dsNames = ['ds_right', 'ds_left']
7 for i in range(2):
8     ds.append(robot.getDevice(dsNames[i]))
9     ds[i].enable(TIME_STEP)
10 wheels = []
11 wheelsNames = ['wheel1', 'wheel2', 'wheel3', 'wheel4']
12 for i in range(4):
13     wheels.append(robot.getDevice(wheelsNames[i]))
14     wheels[i].setPosition(float('inf'))
15     wheels[i].setVelocity(0.0)
16 avoidObstacleCounter = 0
17 while robot.step(TIME_STEP) != -1:
18     leftSpeed = 1.0
19     rightSpeed = 1.0
20     if avoidObstacleCounter > 0:
21         avoidObstacleCounter -= 1
22         leftSpeed = 1.0
23         rightSpeed = -1.0
24     else: # read sensors
25         for i in range(2):
26             if ds[i].getValue() < 950.0:
27                 avoidObstacleCounter = 100
28     wheels[0].setVelocity(leftSpeed)
29     wheels[1].setVelocity(rightSpeed)
30     wheels[2].setVelocity(leftSpeed)
31     wheels[3].setVelocity(rightSpeed)
```

Hands-on 7

Hands-on 8