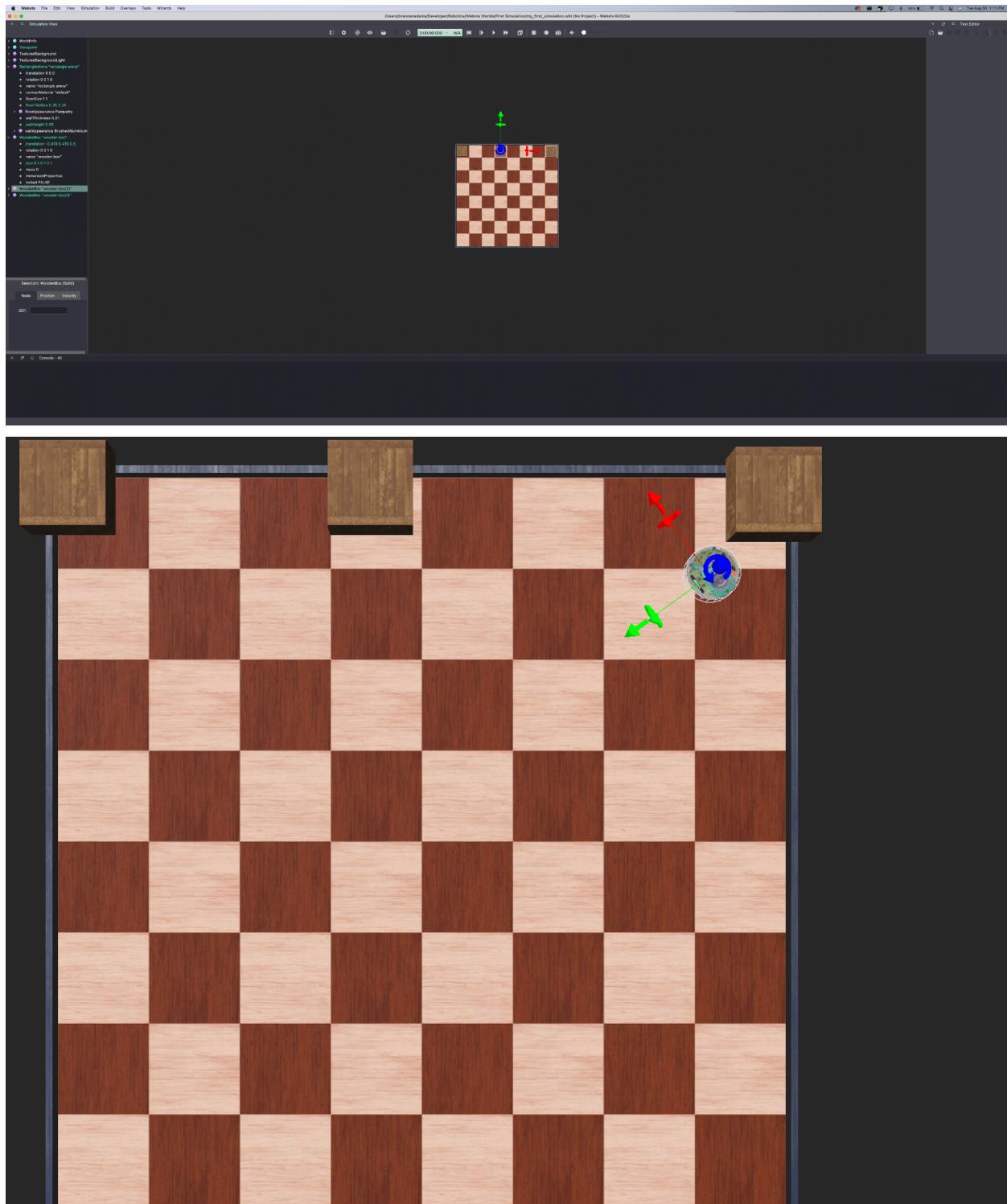
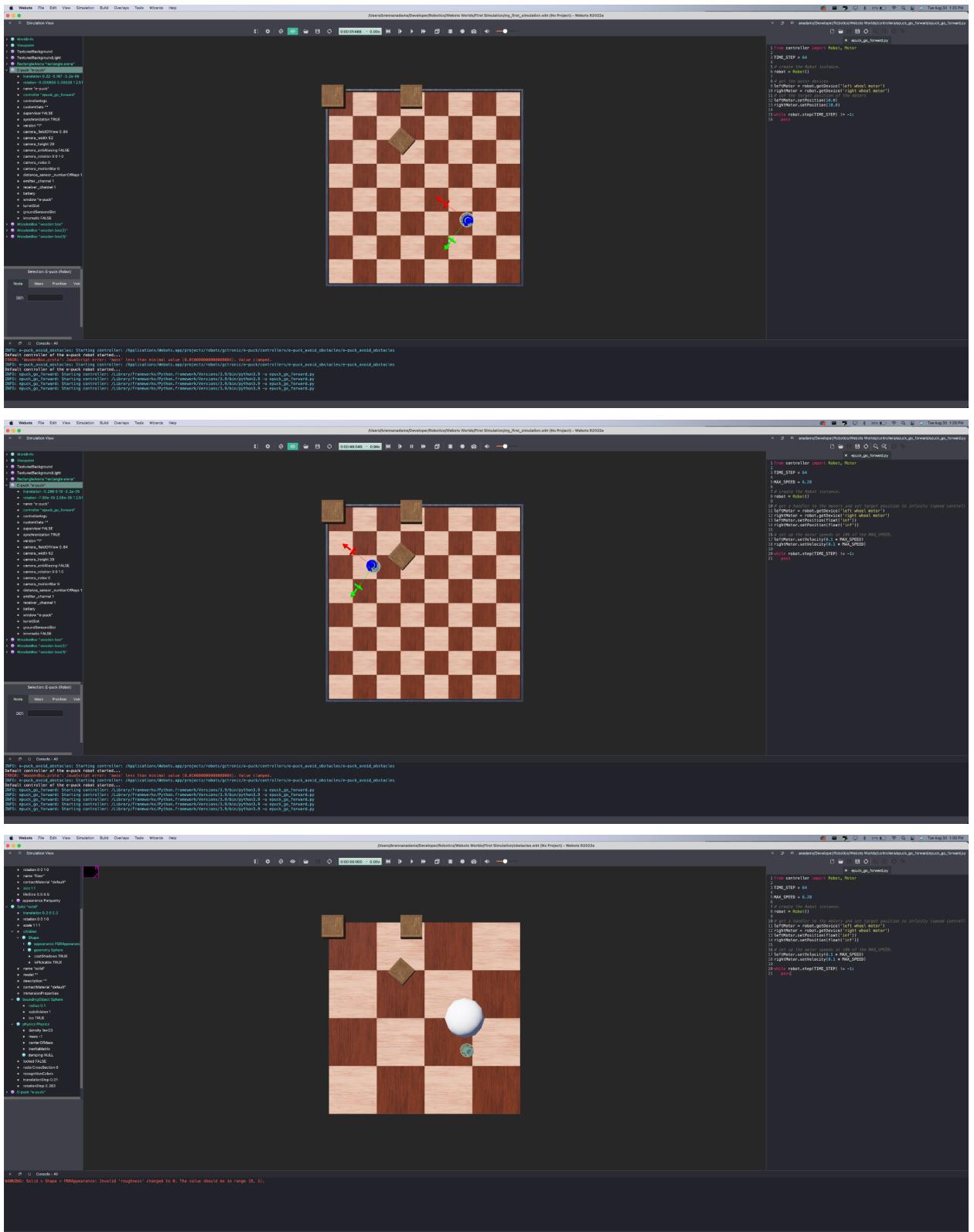
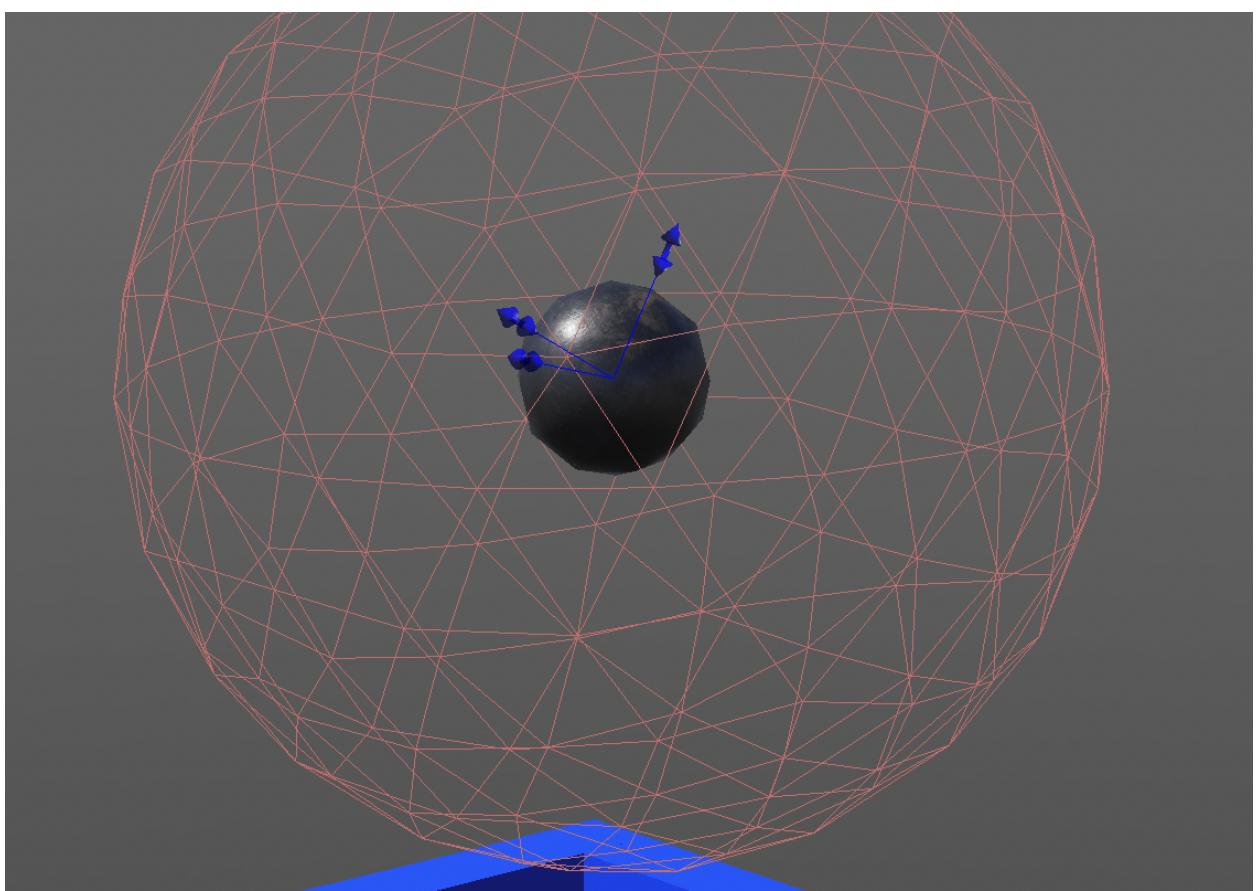
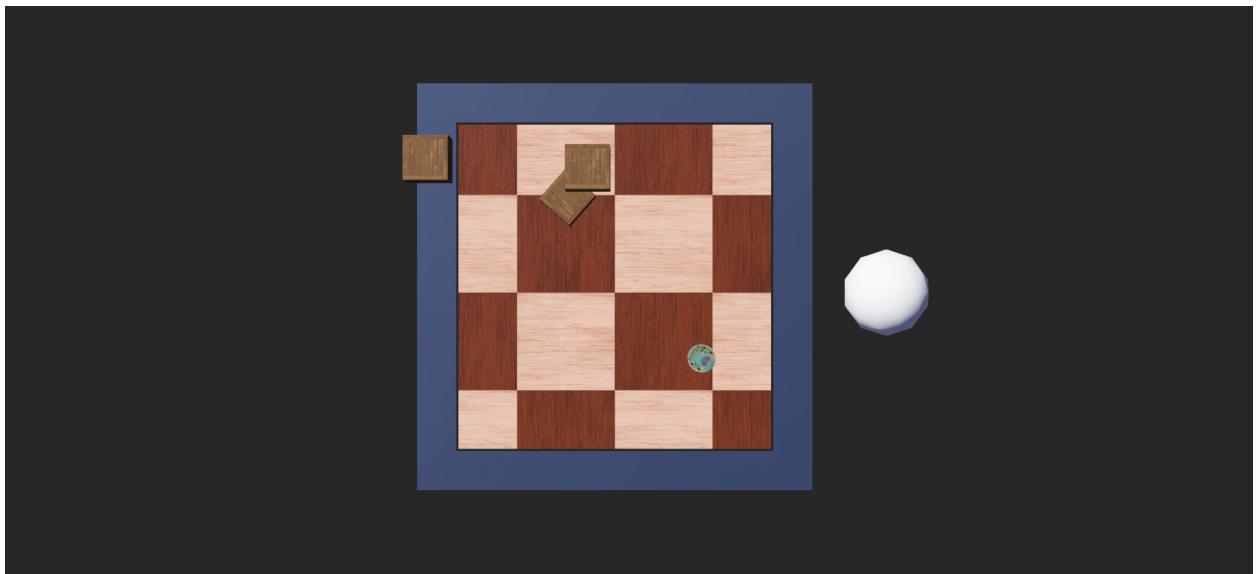


1. The names of everyone in your group, and your team's name
  - Brennan Adams, Nathan Ovadia, and Timothy Wilson on Team Frogs
2. Screenshots of tutorials 1, 2, 3, and 4



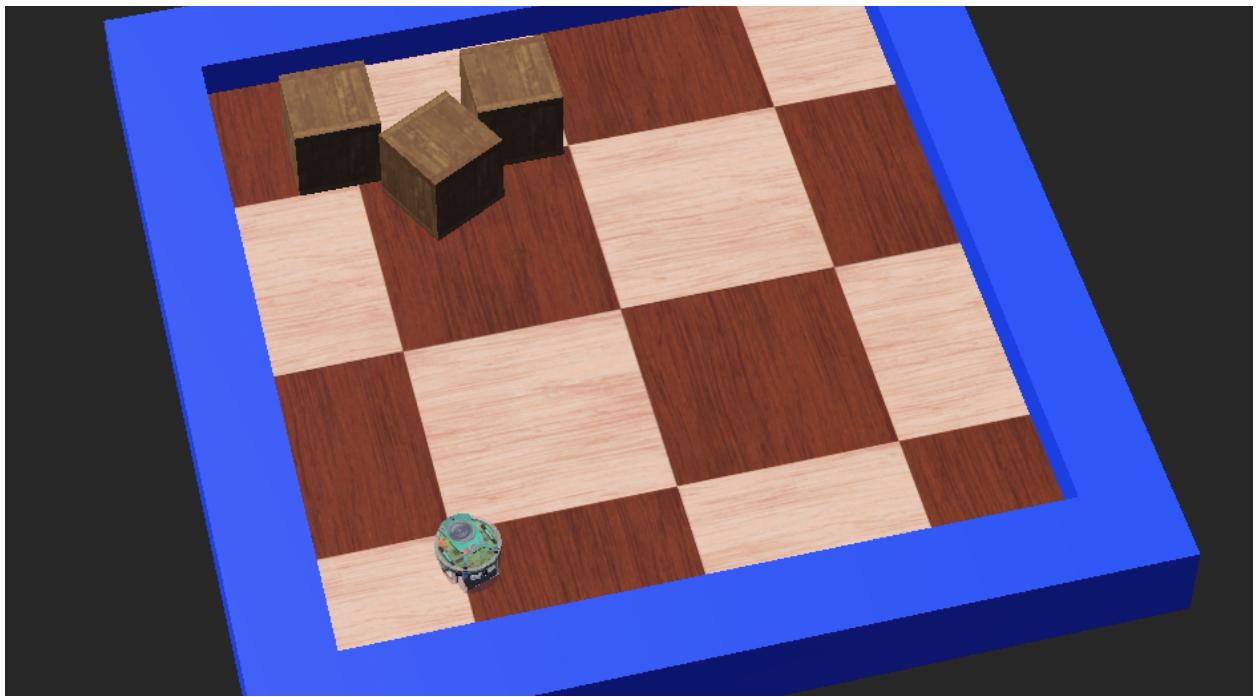




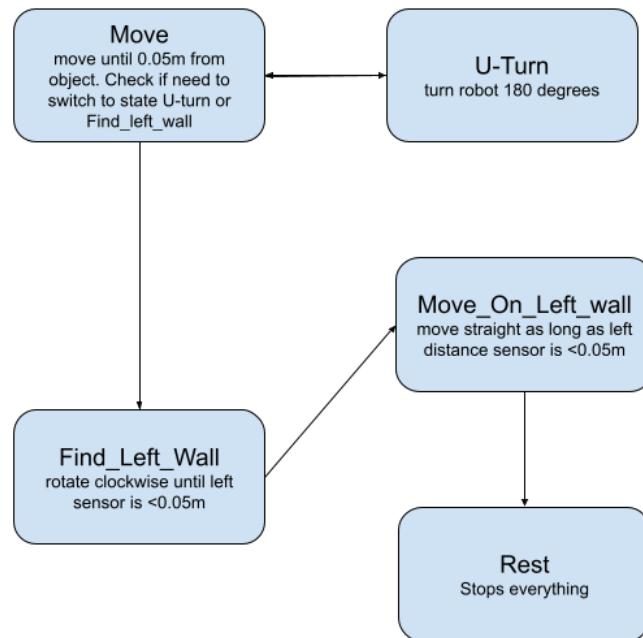
```

1 from controller import Robot, DistanceSensor, Motor
2
3 # time in [ms] of a simulation step
4 TIME_STEP = 64
5
6 MAX_SPEED = 6.28
7
8 # create the Robot instance.
9 robot = Robot()
10
11 # initialize devices
12 ps = []
13 psNames = [
14     'ps0', 'ps1', 'ps2', 'ps3',
15     'ps4', 'ps5', 'ps6', 'ps7'
16 ]
17
18 for i in range(8):
19     ps.append(robot.getDevice(psNames[i]))
20     ps[i].enable(TIME_STEP)
21
22 leftMotor = robot.getDevice('left wheel motor')
23 rightMotor = robot.getDevice('right wheel motor')
24 leftMotor.setPosition(float('inf'))
25 rightMotor.setPosition(float('inf'))
26 leftMotor.setVelocity(0.0)
27 rightMotor.setVelocity(0.0)
28
29 # feedback loop: step simulation until receiving an exit event
30 while robot.step(TIME_STEP) != -1:
31     # read sensors outputs
32     psValues = []
33     for i in range(8):
34         psValues.append(ps[i].getValue())
35
36     # detect obstacles
37     right_obstacle = psValues[0] > 80.0 or psValues[1] > 80.0 or psValues[2] > 80.0
38     left_obstacle = psValues[5] > 80.0 or psValues[6] > 80.0 or psValues[7] > 80.0
39
40     # initialize motor speeds at 50% of MAX_SPEED.
41     leftSpeed = 0.5 * MAX_SPEED
42     rightSpeed = 0.5 * MAX_SPEED
43     # modify speeds according to obstacles
44     if left_obstacle:
45         # turn right
46         leftSpeed = 0.5 * MAX_SPEED
47         rightSpeed = -0.5 * MAX_SPEED
48     elif right_obstacle:
49         # turn left
50         leftSpeed = -0.5 * MAX_SPEED
51         rightSpeed = 0.5 * MAX_SPEED
52     # write actuators inputs
53     leftMotor.setVelocity(leftSpeed)
54     rightMotor.setVelocity(rightSpeed)

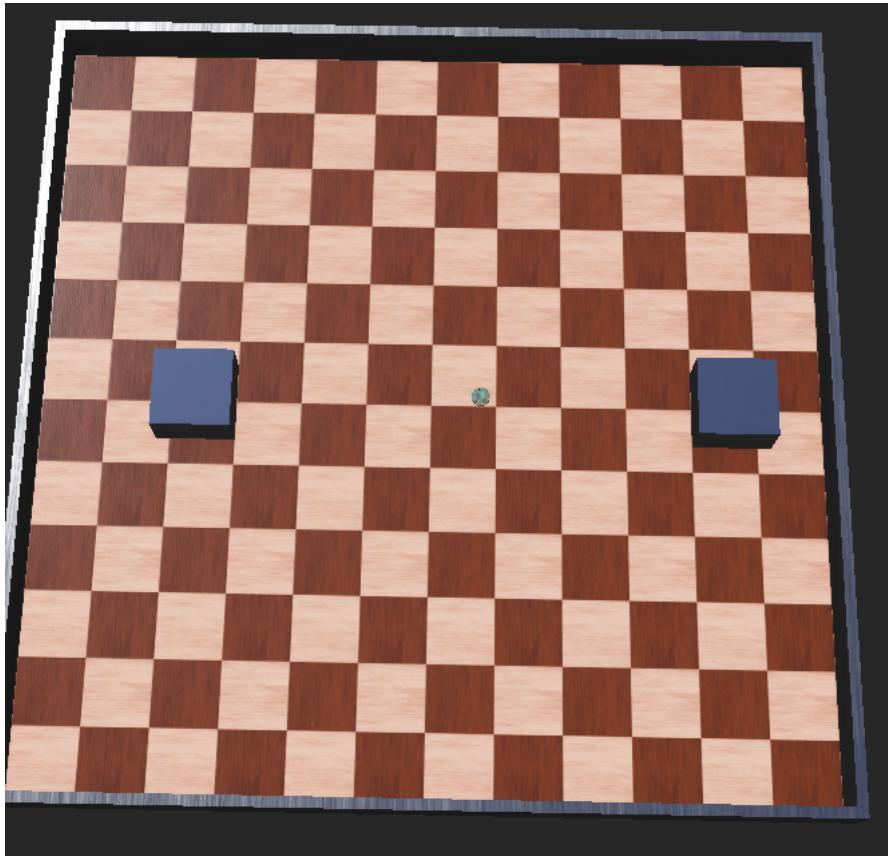
```



3. A drawing of your state machine



4. Screenshot of the world you created with the obstacles clearly visible.



5. Were you able to get your controller to complete the task? If not, which parts failed? Why?
  - We were able to get the controller to work partially, the robot does a U turn which is probably a bit closer to 178 degrees. Other than that the robot detects obstacles, turns, and stops when its tasks are complete.
6. A statement indicating whether you have worked with Python before, and if so, describe your experience.
  - Everyone in Frogs has experience with Python through school or work
7. How much time did you spend programming Part 2 of this lab?
  - We spend around 4-5 hours programming for part 2 of this lab.