

LAB 2: GO-TO-BALL

Due: Thursday, February 2nd 4:30pm

The objective of this lab is to program Cozmo to locate and go to the ball. You will use the ball recognition algorithm you developed in Lab1 to find the ball in Cozmo's camera image, then give Cozmo wheel commands to go to that location. The robot should be running inside the arena box. You are provided the following file to assist with this assignment:

`goto_ball.py` – this is the main file where you will enter your solution. When Cozmo runs, the code will open a viewer that will display the robot's camera data. Two viewer annotators are provided, `BatteryAnnotator()` and `BallAnnotator()`, that display the battery and ball information, respectively. Feel free to add your own annotators if you find that helpful. The main functionality of the code resides in `run()`, which you should extend to have the robot look around for and go to the ball.

Lab Checkpoint [15 points] (complete individually): Complete the installation of the [Cozmo SDK and cozmo sdk examples](#) on your laptop, then demonstrate that you can run one of the example tutorials (e.g., `01_hello_world.py`). Check on Piazza for troubleshooting suggestions if you have trouble with the install.

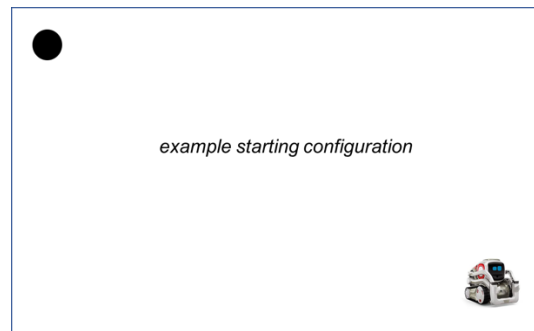
Evaluation: By the due date listed above, show a member of the course staff during class (on January 26th) or in office hours that you are able to execute the above code on your machine. We will record your grade at that time.

Main Lab [85 points] (complete with partner): Complete the code to enable the robot to search for, then go to, and hit the ball. There are a variety of behaviors you can program to have the robot search, including turning or driving around. The hit can be an existing Cozmo animation or lifting/lowering of the arm. Feel free to integrate animations, sounds and the display into your code. You can find a description of the Cozmo API [here](#).

Evaluation: The following grading rubric will be used to grade the assignment:

20 points	The robot executes a search behavior until the ball is in view
20 points	The robot takes no more than 15 seconds to find the ball when the robot is started at the opposite end of the arena facing away from the robot (see example image below)

15 points	The robot moves toward the ball
15 points	The robot touches the ball
15 points	When the ball is close enough, the robot moves its arm to hit the ball



You will demo your code for grading during class on the day the assignment is due.

Submission: Rename your copy of `goto_ball.py` to `Last1First1_Last2First2.py` (the first and last names of partner 1 and 2, respectively). Also make sure you enter the names of both partners in a comment at the top of the file. Make sure your code is entirely contained within the file being submitted. Upload the file to T-Square by the time listed at the top of the assignment. If you relied significantly on any external resources to complete the lab, please reference these in the submission comments.