

CS 1301

Homework 6– Find the Yellow Wall, or, Scribbler, Phone Home!

Due: Monday, July 1st, before 11:55pm PM EST.

Out of 130 points

Files to submit: hw6.py

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For Help:

- TA Helpdesk – Schedule posted on class website.
- Email TAs

Notes:

PAIR PROGRAMMING Assignment: Work with your partner!

For pair programming assignments, you and your partner should turn in identical assignments. Your submission must not be substantially similar to another teams' submission. Collaboration at a reasonable level will not result in substantially similar code. Students may only collaborate with fellow students currently taking CS 1301, the TA's and the lecturer. Collaboration means talking through problems, assisting with debugging, explaining a concept, etc. You should not exchange code or write code for others.

- **Don't forget to include the required comments and collaboration statement (as outlined on the course syllabus).**
 - **Do not wait until the last minute to do this assignment in case you run into problems.**
 - **If you find a significant error in the homework assignment, please let a TA know immediately.**
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Part I --- Introduction

Well, now you've spent some time getting to know your robot. Perhaps you even gave it a name and a back story, let's get a bit more involved. This assignment is based around a previous one, so keep in mind all the methods/sensors you used in the avoid walls homework...

Mission:

With your team, you will need to satisfy the following: Your robot will be randomly placed in an arena of size 5 x 4 (Unit: 12 in) that will have one yellow wall segment (12" long). You need to write a program to get your robot to within 6" of the yellow wall segment within two (2) minutes, without hitting walls of other colors. Once the robot has **gotten to within 6" of the yellow wall**, it should celebrate. Again, how it celebrates is up to you. Your robot should move around and beep at a minimum.

Note: A small part of your demo grade will be based on how quickly the robot makes it to the yellow wall. This is to discourage, but not disallow, random-walk solutions.

HINT: The camera can detect changes in scenery.

If you need help with the move functions, go to:

http://calicoproject.org/Calico_Myro#Movement_Functions

If you need help with the image processing functions, go here:

http://calicoproject.org/Calico_Myro#Image_processing

Part Two --- Turning it in, and Demo.

Be sure to put the lines “from myro import *” and “initialize()” or “init()” at the beginning of the file (after the required comments). Be sure not to specify the port parameter in your initialize command, such as initialize(“com4”). This makes it very time consuming to grade if we have to go into your code and change the com port to the one that works on our specific system.

Reminder on collaboration statement and submission:

This is a group assignment, but each person is responsible for their own submission. **Each group member** needs to turn in hw6.py to T-square before the deadline. Please include your name, and all your group members' names in the collaboration statement.

Demo:

Each group (**All members**) needs to come to the TA's help desk or recitation to demo the program to one of the TAs, **preferably your grading TA**. You will be asked questions regarding your code as well. If one of the group members is not present for the demo, his/her grade will be based **ONLY** on the code portion (a possible 55 points) **UNTIL** they come see a TA to answer questions relating to the code. *Print out and bring a grading sheet (next page) to your demo! The TAs will likely not have copies.*

Grading Criteria:

Demo (TA's Discretion)	75 pt
File named correctly	5 pt
Demonstrates correct use of iteration	5 pt
Detects/avoids obstacles	20 pt
Detects/identifies surroundings	10 pt
Celebration in the end	15 pt

Robot Navigation Assignment TA Demonstration Grading Sheet

Group Members: _____

Demo TA: _____

Grading TA (if different): _____

10pts _____ Speed (10pts for 0-30sec, 8pts for 30-45 sec, 6 pts for 45-60sec, 4 pts for 60-90 sec, 2pt for 90-120 seconds)

15 pts _____ Robot navigated *without hitting other walls!*

20 pts _____ Robot located/approached the yellow wall segment!

30 pts _____ All group members understood and could explain the code.

Total: _____ / 75