

CS 1301

Homework 6– Scribbler Line Sensing

Due: Friday March 13th, before 11:55pm PM EST.

Out of 130 points

Files to submit: hw6.py

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.

Mission:

With your team, you will need to satisfy the following problem: Your robot will randomly be shown a page with a printout of a vertical line, a horizontal line, or a plus sign. **The page will be completely white except for the line/plus sign which will be black.** (You can print your own pages by looking at the last three pages of this document.) The black lines will be thick and they will span the entire width/height of the page. The page will be held close enough to your robot so that the page fills the entire image frame. You need to write a program to get your robot to determine if the page it is looking at contains a vertical line, horizontal line, or a plus sign. Once the robot has determined what it looking at, it should move like so:

- If it sees a vertical line, it should move forward and backward.
- If it sees a horizontal line, it should spin left and right.
- If it sees a plus sign, it should move forward, backward, and then spin left and right.

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, bring next page to your demo)	75 pt
File named correctly	5 pt
Demonstrates correct use of iteration	5 pt
Correctly detects vertical lines	10 pt
Correctly detects horizontal lines	10 pt
Correctly detects plus signs	10 pt
Robot moves correctly based on lines detected	15 pt

Scribbler Line Sensing Assignment TA Demonstration Grading Sheet

Group Members: _____

Demo TA: _____

Grading TA (if different): _____

15 pts _____ Robot detects vertical line and moves accordingly.

15 pts _____ Robot detects horizontal line and moves accordingly.

15 pts _____ Robot detects plus sign and moves accordingly.

30 pts _____ All group members can explain how the code works.

Total: _____ / 75





