

Homework 9: *Experimenting with Camera on Scribbler*

Assigned: Tuesday, November 18
Due: Tuesday, November 25, 2014, at 11:10 AM

Let's test out your creativity by experimenting more with the Scribbler. This is another open-ended assignment similar to Homework 8, except now you (hopefully) have your robot working. In this assignment, you should experiment with the camera and create a "smart" behavior for the robot (such as following an object, searching for an object (and eventually finding it), etc.). If you already used the camera in Homework 8, then for this homework, you need to implement a different behavior with the camera.

Your robot's behavior should clearly demonstrate that it is making use of the camera in its behavior.

You can re-use code for this assignment in Homework 10, if you like. (But you are not required to do so.)

Robot behavior:

This is an open-ended assignment. Your robot's behavior can be anything that shows you can actively control its motion using the camera. (But it should be a different behavior if you already used a camera for Homework 8.)

Video:

Create a video showing your robot's behavior. The video should be a minimum of 10 seconds long, and no longer than 2 minutes. The video should include some uniquely identifying information (such as a closeup of the Scribbler number on your robot, or you as you start the robot, or your cat, or whatever, so that it is clear that this is your unique Scribbler control software that you are running). The video format must be something that can be viewed using VLC media player (<http://www.videolan.org/vlc/index.html>).

Individual or Teams:

This can be a team assignment, if you like. Teams can be no more than 4 students, and must all be at the same level (i.e., only undergrad students or only grad students). (See below for further instructions for teams.) Each team member will be required to state (individually) what each team member contributed. If there are team members who do not contribute, then their grade will be reduced.

What you'll turn in:

What you turn in will be a description of what your robot is doing, the code that generates the robot's behavior, and a video of your robot executing the control code. Additionally, if you worked as a team, you must turn in a description of what each team member contributed to the task.

Writeup:

- a) [*People working as individuals, or “lead” team members*] A discussion of what you implemented on your Scribbler, including a description of how you used the camera, and a discussion of the algorithm you implemented. This should be a single pdf file, named “*team-members-last-names-HW-9.pdf*”.
- b) [*People working as individuals, or “lead” team members*] Robot’s control code, called “*team-members-last-names-HW-9.<appropriate extension>*” if you worked as a group, or “*Your-last-name-HW-9.<appropriate extension>*” if you worked along.
- c) [*People working as individuals, or “lead” team members*] The video of your robot running and using at least one sensor. Name the video “*Team-members-last-names-HW-9.<appropriate extension>*”.
- d) [*If you worked as team*] Each team member must generate an individual statement that outlines what each team member did. This must be in your own individual words, and must be submitted to Blackboard individually, as a separate document. All team members submit their own individual statement. In this document, state the name of the “lead” person who is submitting the team project. Only that “lead” person should submit the remainder of this assignment. This should be in a single pdf file, named “*Your-last-name-Group-summary-HW-9.pdf*”.

SUBMITTING YOUR HOMEWORK:

[*For people working as individuals*]:

Submit parts a, b, c, as a single tar or zip file (compressed if needed).

[*For people working as “lead” team members*]:

Submit parts a, b, c, as a single tar or zip file (compressed if needed). Submit part d as a separate pdf file.

[*For people working on a team, but not the “lead” team member*];

Submit part d as a single pdf file.