

Homework 8: *Getting Started on the Scribbler*

Assigned: Tuesday, November 11
Due: Tuesday, November 18, 2014 at the beginning of class (11:10AM)

This assignment is a “precursor” to your last homework (which will be Homework 10). For your last homework, you will be demonstrating something “cool” with your Scribbler. For this homework (#8), you will demonstrate that you have gotten your Scribbler robot running, and can do something basic with it, using at least one sensor.

First, a note about Homework 10 – that homework will require your Scribbler to move “intelligently” in response to at least one of its sensors. The exact behavior is up to you. However, the behavior must require some “smart” connection of sensing to action, and it needs to be clear from watching the robot what it is doing. *One behavior that is not allowed for HW 10, however, is a simple line following behavior (using the sensors underneath the robot). You need to do something more creative than that.* Extra credit points will be allocated in HW 10 for the creativity and difficulty of what your robot shows.

For now (this homework #8), we need to simply see that you have your robot operational, and you can make use of at least one sensor. You are encouraged to think about what you want to show for HW 10, and develop code under this homework (#8) that you can re-use for HW 10.

Robot behavior:

This is an open-ended assignment. Your robot’s behavior can be anything that shows you can actively control its motion, and can make use of (at least) one of its sensors.

Video:

Create a video showing your robot’s behavior. The video should be a minimum of 5 seconds long, and no longer than 1 minute. 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. HW 10 will also be an optional team assignment, so you can keep the same team as for this homework, if you like.

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*] Write up a discussion of what you implemented on your Scribbler, including a description of the sensor(s) used, and a discussion of the algorithm you implemented. Give your robot's behavior a "Title" (e.g., "Cat Herding Scribbler"), and use this as the title for your document. This should be a single pdf file, named "*team-members-last-names-HW-8.pdf*"
- b) [*People working as individuals, or "lead" team members*] Robot's control code, called "*team-members-last-names-HW-8.<appropriate extension>*" if you worked as a group, or "*Your-last-name-HW-8.<appropriate extension>*" if you worked alone.
- 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-8.<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 must submit their own individual statement. In this document, state the name of the "lead" person who is submitting the team project, along with the names of the other team members. (Only that "lead" person should submit the other parts of this assignment.) This should be in a single pdf file, named "*Your-last-name-Group-summary-HW-8.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.