Name: _____ Date: _____

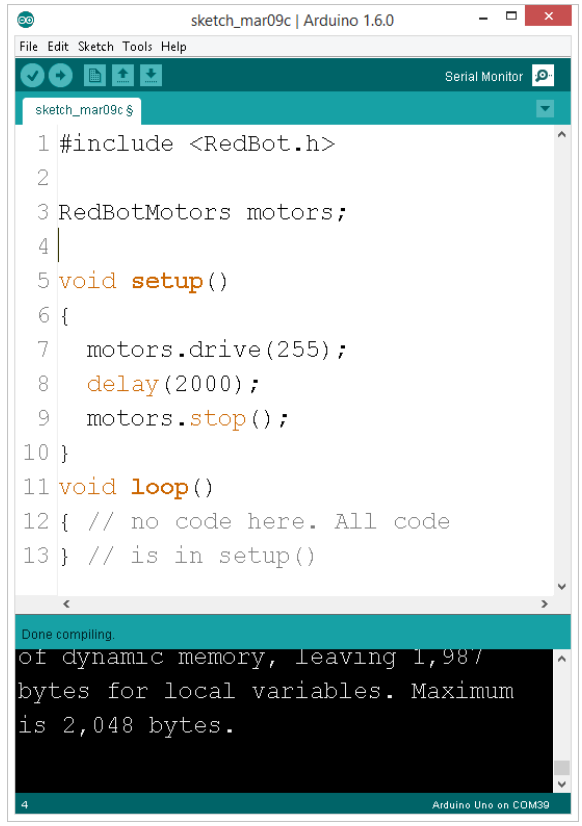
Characterizing `motors.drive()` part II

Introduction

In the last investigation, we characterized the speed of the RedBot as it pertains to the `drivePower`. You came up with a relationship between robot Speed and `drivePower`.

We make the assumption that the redBot drives at the same speed during the entire 2 seconds it drives. Let's test this!

Keeping the RedBot driving straight may be a challenge. Be creative. What kinds of things can you find in your classroom that will help keep the RedBot "on the rails"?



Testing and Experimentation

Given the relationship you calculated in your previous lab, predict how far the redBot should drive in 0.5 seconds, 1 second, 1.5 second, 2 seconds, 5 seconds, and 10 seconds.

Now that we are varying the time, we must keep another variable static. Which variable will this be?

If you graph this prediction as a function of time, what is the shape of this graph? Generalize this to a single equation:

_____

Task: Devise an experiment to find a relationship between position of your robot vs time. Be sure to write down all of your assumptions, controlled variables, as well as your independent and dependant variables.

As with all previous labs, be sure to start with a data table. What variables are you going to change? What will be your independent variable and what will be your dependant variable?

Going Further / Analysis

Pick two additional values for `drivePower` -- one faster and one slower and test these. Do you notice a difference? Are there drivePower settings that the RedBot easier to characterize? Plot all three data sets on one graph. Be sure to include a best-fit line and equation for each line in your submission.

As you test the robot, be sure to take notes about how the robot behaves. How can you use these graphs and / or equations to predict the behavior of the robot?