

Building & Programming Robotics Workshop

for Parents and Teachers



October 25, 2014
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Resources available at <http://smithlearning.com/robotics>
Shocker Mindstorms Challenge information at <http://www.wichita.edu/shockermindstorms>

GOING STRAIGHT

Test:

Test your basic RileyRover Bot to see just how straight it goes over a distance of 70 inches.

Improve:

Programming Considerations:

Building Considerations:

ACCURATE TURNING

Test:

Find the number of degrees it takes for your bot to make a perfect 90° turn. Record that here. Then write a program to drive in a perfect square.

Improve:

Programming Considerations:

Building Considerations:

WALL FOLLOWING

Prepare:

Decide the distance you want your robot to stay away from the wall. Record that here. Using PSEUDO-CODE, write what you want your robot to do.

Execute:

Add the necessary sensors to your bot. Create and test the program to stay a fixed distance away from the wall.

Improve:

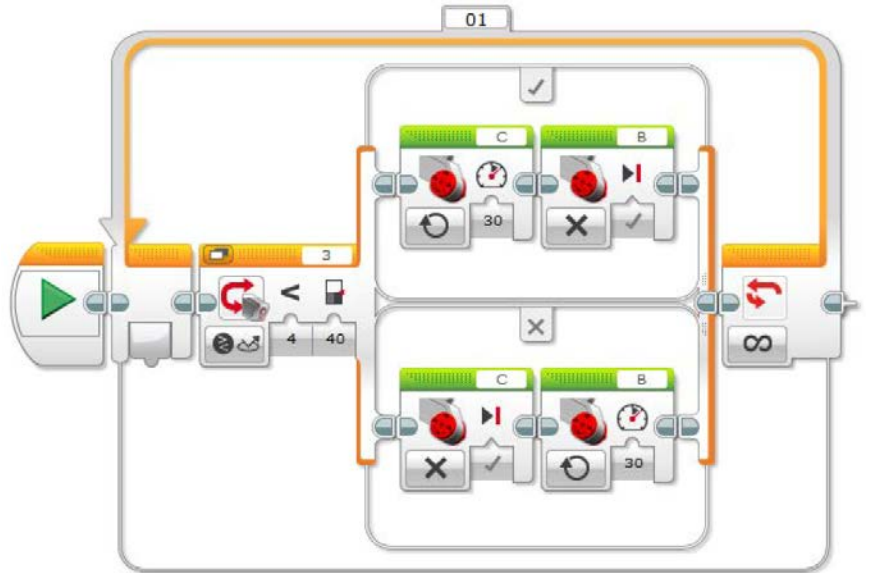
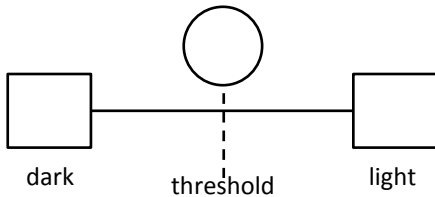
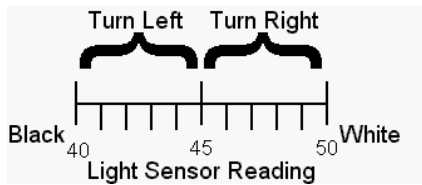
Programming Considerations:

Building Considerations:

BETTER LINE FOLLOWING

Basic Line Following (one sensor, 2-state):

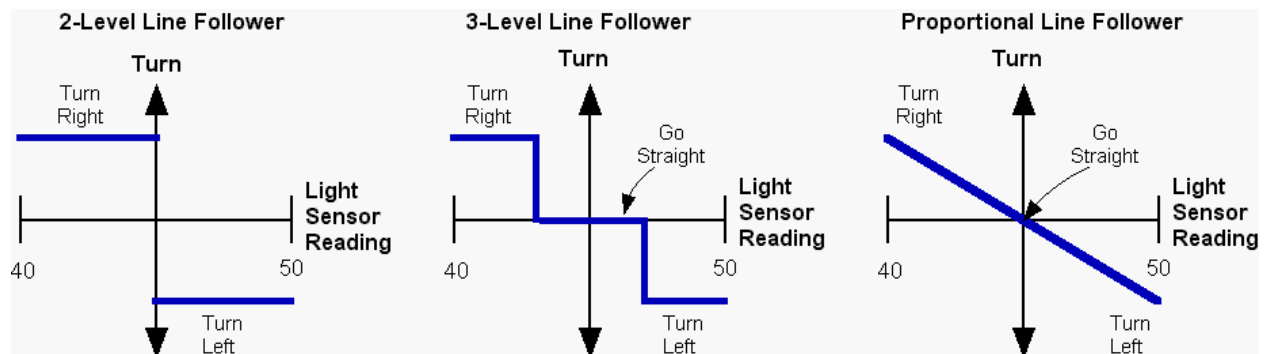
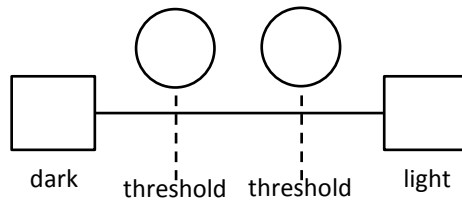
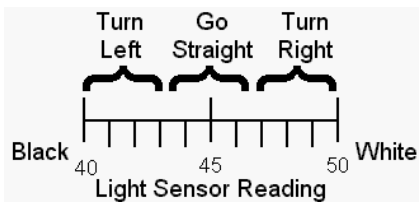
Write the program, and run it.
Record the time needed to finish the course.



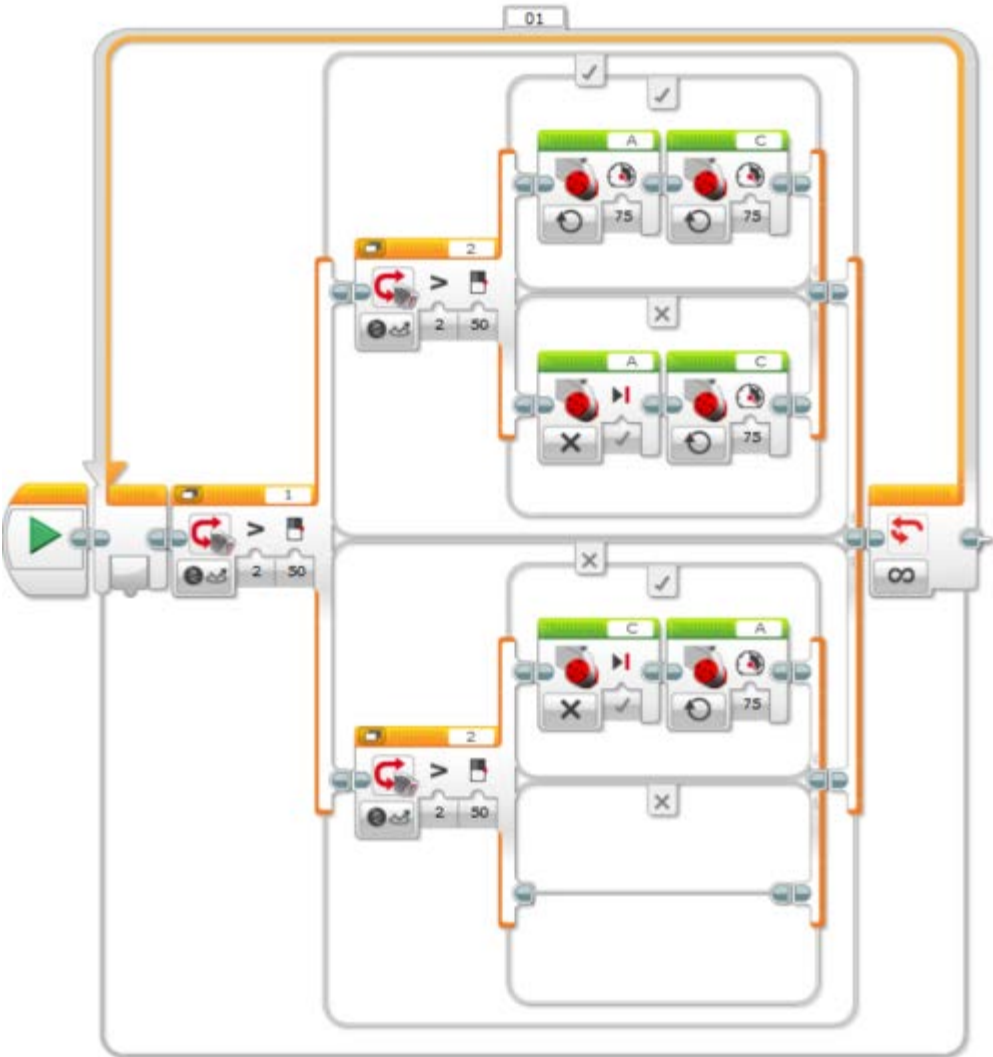
Improve:

Change program from a “pivot” turn to a “slow” turn.

Change to a one sensor, 3-state (or even 4-state) program.



Change bot and program to use two sensors.



GRABBING

Prepare:

Build the “Gripper” attachment for your RileyRover bot.

Execute:

Experiment with how far you turn the motor to open and close the claw. Record the amount here. Now write a program to move the can out of the circle.

Improve:

Programming Considerations:

Building Considerations:

TROUBLESHOOTING & FEEDBACK

<i>Problem:</i>	<i>Possible Solutions:</i>
Robot is not “working”.	
Students don’t know where they are in the program.	

NOTES