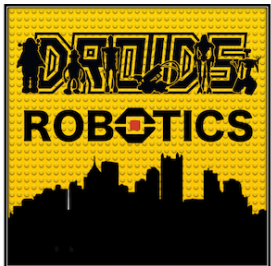


INTERMEDIATE EV3 PROGRAMMING LESSON



SIMPLE & OPTIMIZED ULTRASONIC WALL FOLLOW



By Droids Robotics

Objectives

Learn how to use the ultrasonic sensor to follow walls

Learn how to optimize code

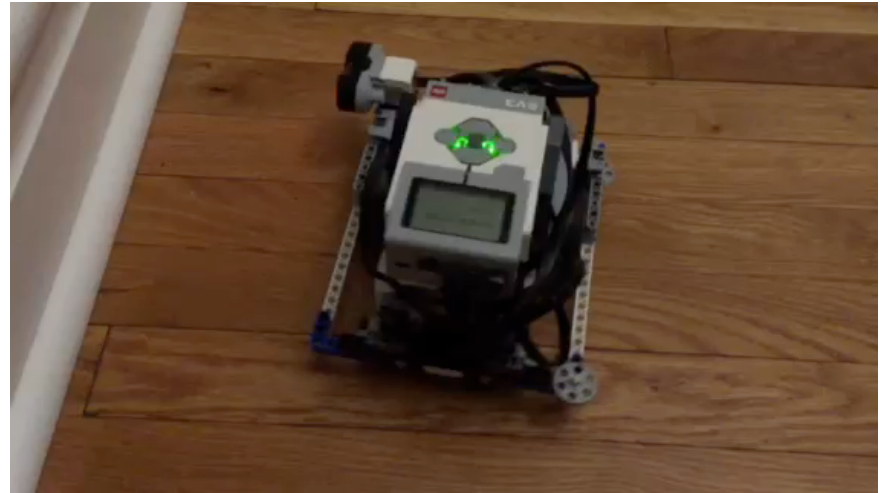
Prerequisites: Loops, Switches, Ultrasonic Sensor

Challenge 1: Simple Wall Follow

Challenge: Can you write a program to have a robot follow the wall (always staying 15cm away from the wall) using an ultrasonic sensor?

STEP 1: In a Switch Block, turn Left or Right based on whether the robot is too close to the wall or too far from the wall

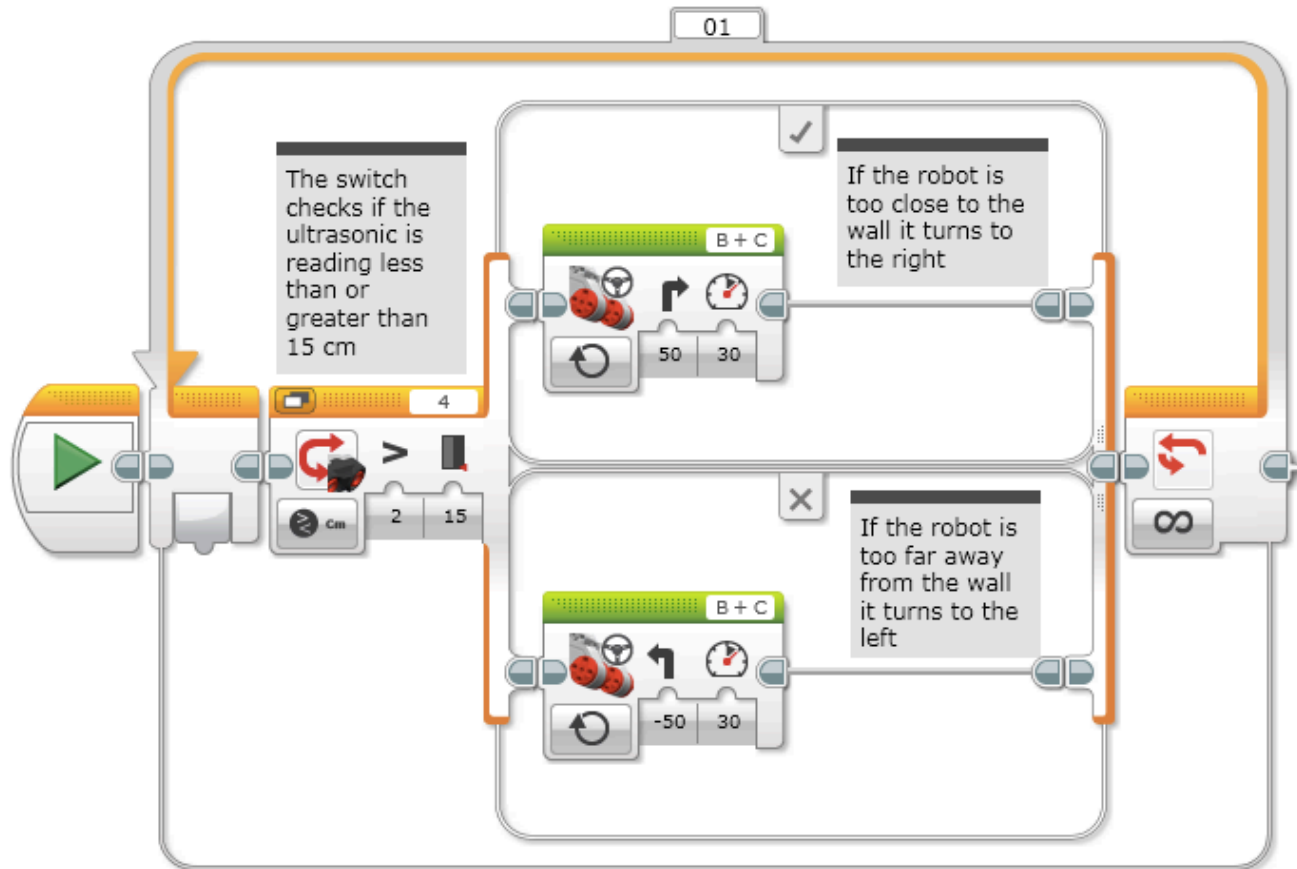
STEP 2: Repeat everything in a loop that runs forever (you can change the exit condition of the loop if you wish)



Play the video to see how the robot should move

Challenge 1 Solution

The goal of this program is to make a simple wall follower

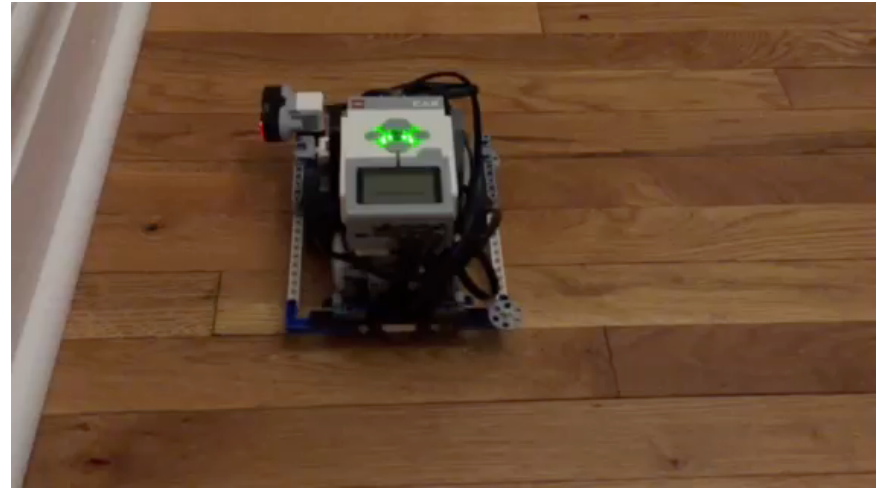


Challenge 2: Optimizing the Code

The code for the Simple Ultrasonic Wall Follow Challenge was slow and the robot wiggles back and forth a lot.

Challenge: For this next challenge, think about how you can improve the program so that the wall follower is smoother.

Hint: Change the angle of the turns



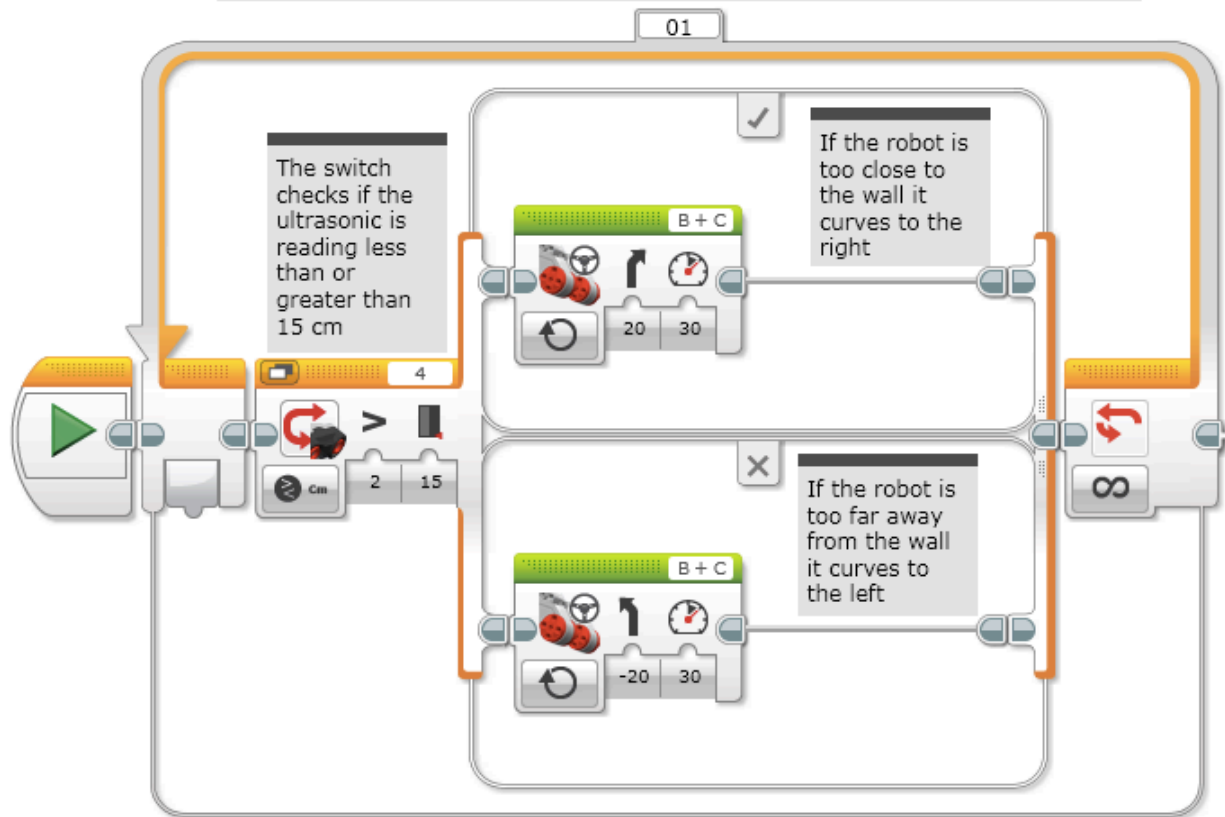
Play the video to see how the robot should move

Do you notice any differences?

Challenge 2 Solution

The goal of this program is to make an optimized wall follower that wiggles less than the simple wall follow

The steering values in the move steering blocks are set to 20 instead of 50 so that the robot makes less sharp turns



Credits

This tutorial was created by Sanjay Seshan and Arvind Seshan from Droids Robotics.

More lessons are available at www.ev3lessons.com

Author's Email: team@droidsrobotics.org



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