PRIME LESSONS

By the Makers of EV3Lessons

INTRODUCTION TO DISTANCE SENSOR

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This lesson uses SPIKE 3 software

LESSON OBJECTIVES

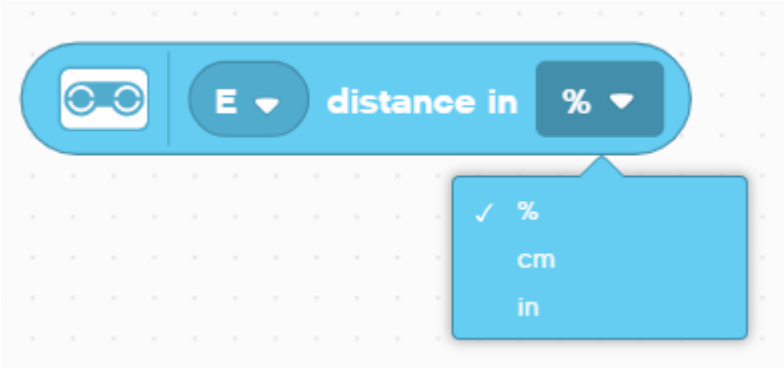
- Learn how to use the Distance Sensor
- Learn how to use the Wait Until Block
- Note: Although images in this lessons may show a SPIKE Prime, the code blocks are the same for Robot Inventor

WHAT IS A DISTANCE SENSOR?

- Measures the distance to an object or surface using ultrasonic technology
- There are also lights around the ultrasonic sensor (4 segments) that can be programmed individually (see Lights Lesson)
- The sensor can sense distances from 50-2000mm
- There is a fast sensing capability from 50-300mm

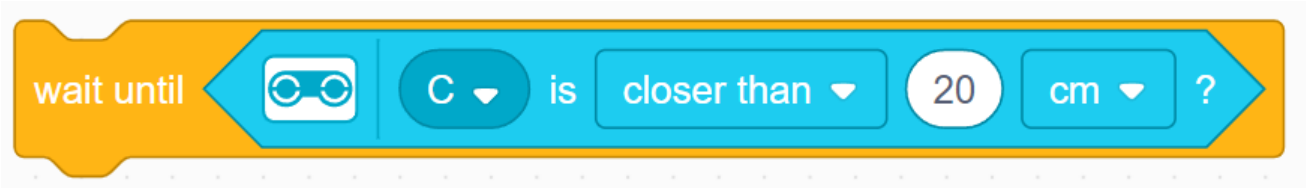
HOW DO YOU PROGRAM WITH A DISTANCE SENSOR

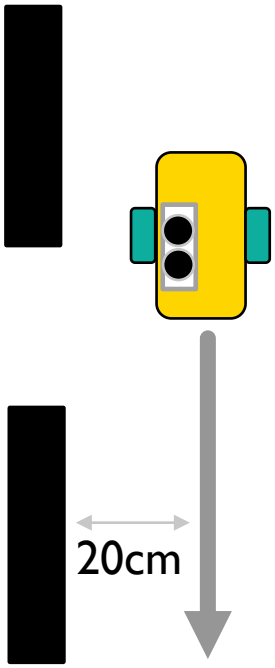
- The Distance Sensor can measure the distance to an object or surface using ultrasonic
- You can also program the lights around the sensor. This is covered in a different lesson.
- Units can be measured in Percent, Centimeters, or Inches



CHALLENGE: AWAY FROM THE WALL

- You want to find the opening. Use your Distance Sensor (mounted on the side of the robot like Droid Bot IV) to locate the gap
- Program your robot to move forward until it is less than 20cm from the wall
- You will need to use the Wait For block and the Boolean block of the Distance Center



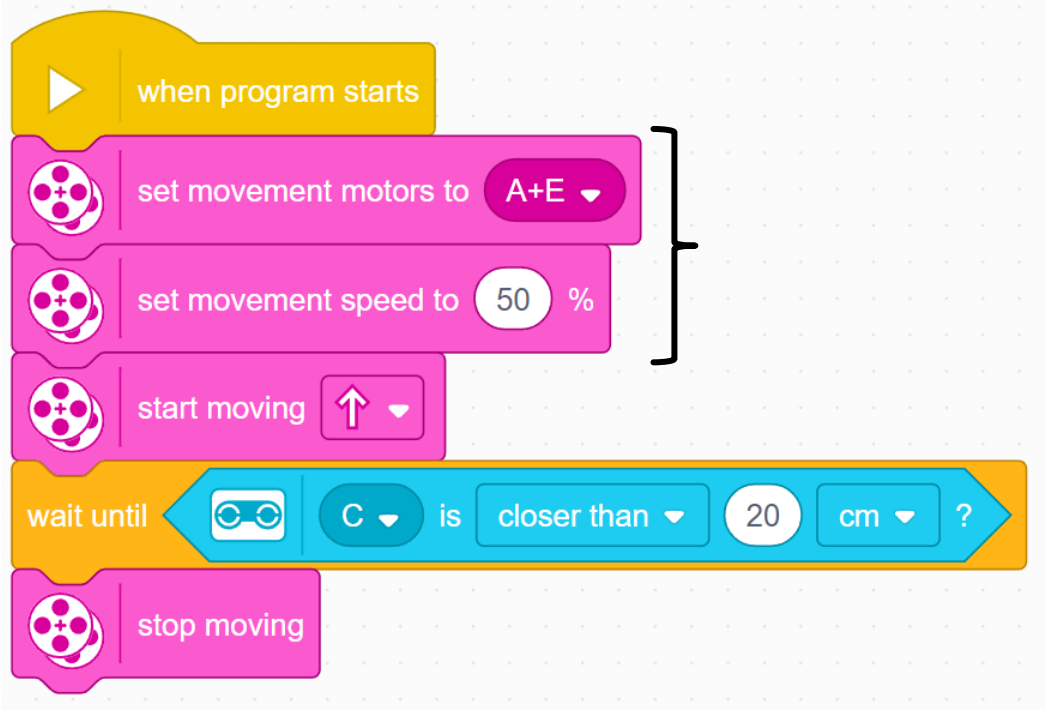


- **Pseudocode:**
  - Set the **movement motors** for your robot (A and E for ADB robot)
  - Set the **movement speed** for your robot
  - Start **moving forward**
  - Use the **wait for** block to detect that it is less than 20cm from the wall
  - **Stop moving**

CHALLENGE 1: SOLUTION

In previous lessons, you learnt how to configure your robot. The first set of blocks sets the movement motors and speed. (See Configuring Your Robot Lesson)

Note: 50% is the default speed so the set movement speed block can be omitted in this case. It is provided so you can adjust the speed as needed.



Configure robot

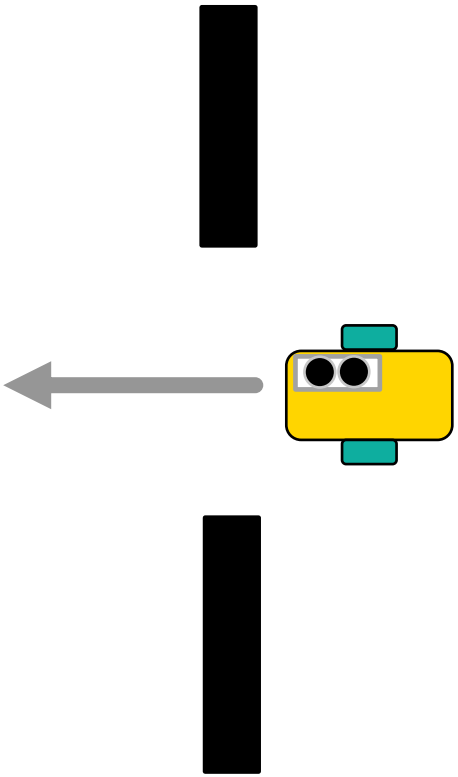
Start moving

Wait until the distance sensor reads less than 20cm

Stop moving

EXTENSION

- Once you find the wall, move the robot backwards and go through the opening



CREDITS

- This lesson was created by Sanjay Seshan and Arvind Seshan for Prime Lessons
- More lessons are available at www.primelessons.org