



Robotics Lesson Plan

Finding a Nearby Object

Demonstration

Put an object such as a bottle or a book on the floor, and place a Lego Mindstorms NXT robot about 4 ft away. The robot should be modified to turn around and use the ultrasonic sensor to find which direction the object is. After locating the object, the robot should slowly approach the object and stop right in front of it.

Engineering Concept(s) Walkthrough

Computer Programming

- *Computer Programming* is the process of writing, testing, debugging/troubleshooting, and maintaining the source code of computer programs.¹

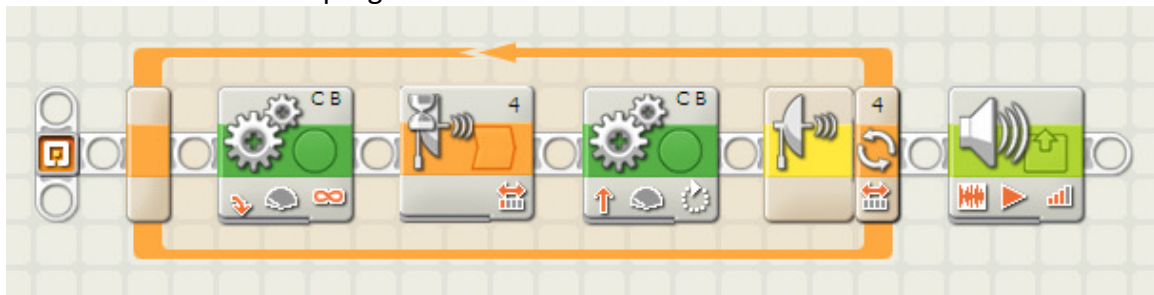
Application to the Real World


iRobot Vacuum Cleaning Robot

- iRobot Vacuum Cleaning Robot can find the way back to its base charger when it needs to be charged

Sample Code

This is what the finished program should look like:



1. Place a motor block  on the block diagram:

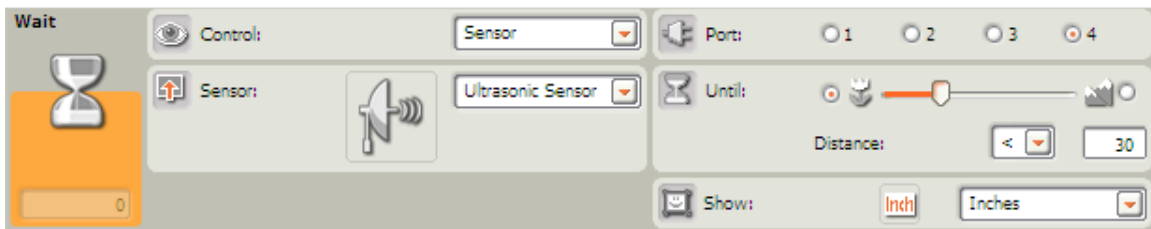
¹ Wikipedia, "Computer programming", <http://en.wikipedia.org/wiki/Programming>

- Lower the Power to level 20
- Change the Duration to Unlimited
- Make sure that the Direction is pointing forward
- Make sure that the Steering slider bar is in the middle in order to travel straight forward



2. Place a wait block for the light sensor as the second command on the block diagram:

- Change the Until slider to <30
- Set Units to Inches



3. Place another motor block on the block diagram:

- Lower the Power to level 20
- Change the Duration to 5 Degrees
- Make sure that the Direction is pointing forward





4. Place a loop  onto the block diagram

- Set Control to Sensor
- Chose Ultrasonic Sensor as the type of sensor to be used
- Change the Until slider to <8
- Set Units to Inches
- Drag the previous three blocks into the loop in order to repeat them indefinitely



5. Finally, place a sound block  onto the block diagram

- Choose the words for robot to speak (e.g., Good morning)

