ROBOCUP RESCUE –
BETTER LINE FOLLOWING

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To have the robot move in a more fluid manner a different approach can be used. The program below achieves this more fluid action by checking both sides of the line before deciding which direction it should turn. This line follower will also have some idea of the direction it needs to turn and continue to turn when introduced with tight turns. This means that this Line Follower is less likely to lose the line.

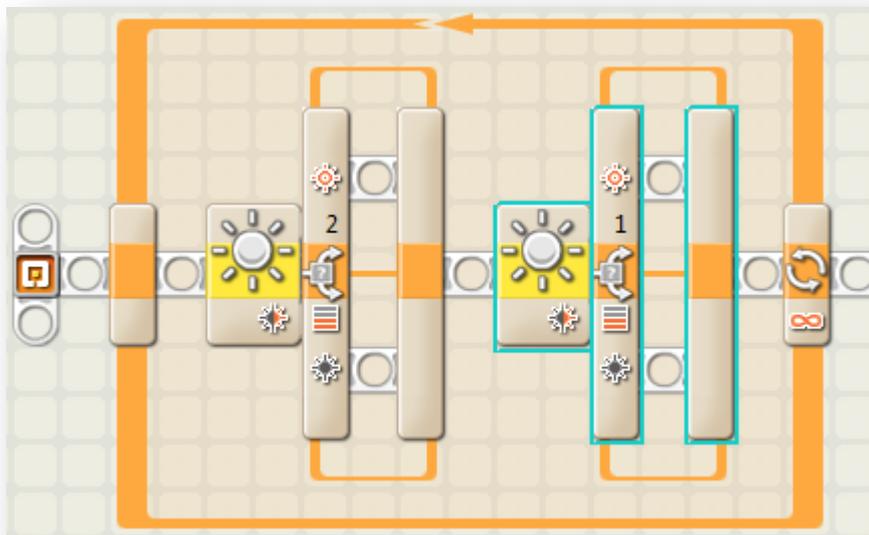# ROBOCUP RESCUE – BETTER LINE FOLLOWING (CONT...)

In this lesson we will program a better line follower using nested Loop Blocks.

Before you start you need to gather the reading of the two light sensors. Collect readings for White and Black on the Rescue Board.

Example:

|	White	Black
Light Sensor 1	62	30
Light Sensor 2	53	26

1. To program the above Line Follower start by placing a Loop Block from the Flow Palette onto the Sequence Bar. Also, place two Switch Blocks from the Flow Palette within the Loop Block as shown below. Change the properties of the Switch Blocks to Light Sensors, with the first one on Port 2 and the second on Port 1.

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With this Robot, we will use MotorA and MotorC, Light Sensor 1 on Port 1 and Light Sensor 2 on Port 2.
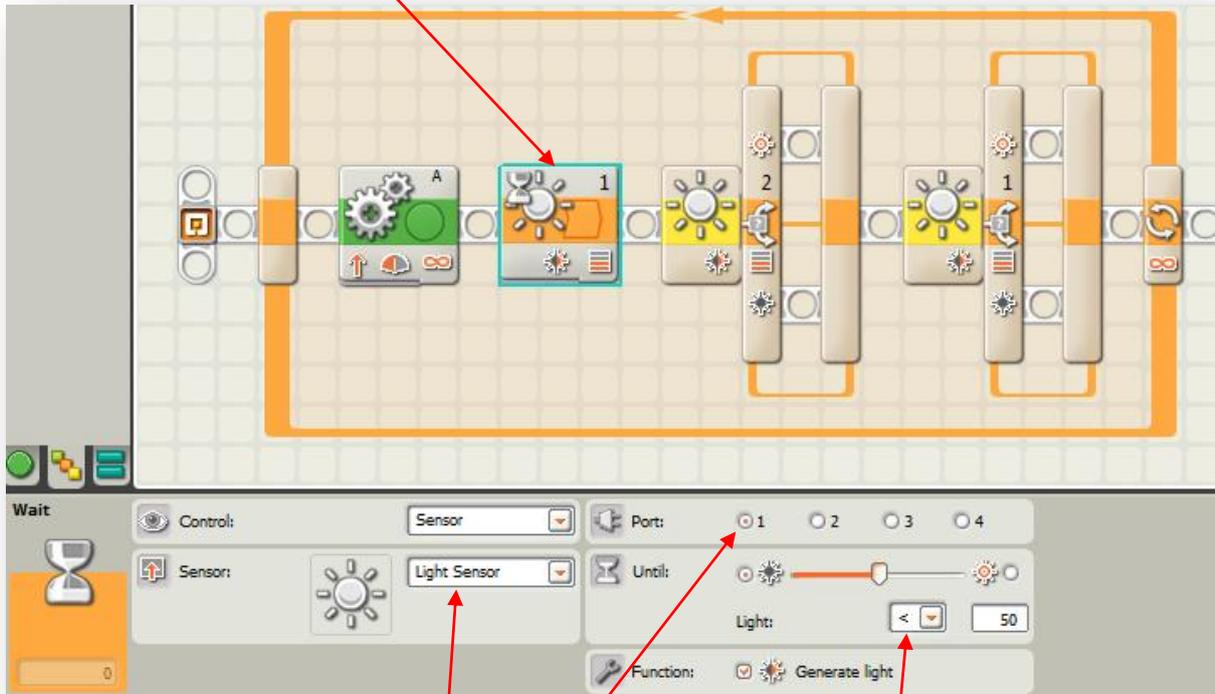
2.   Now place a Move Block from the Common Palette as shown below.
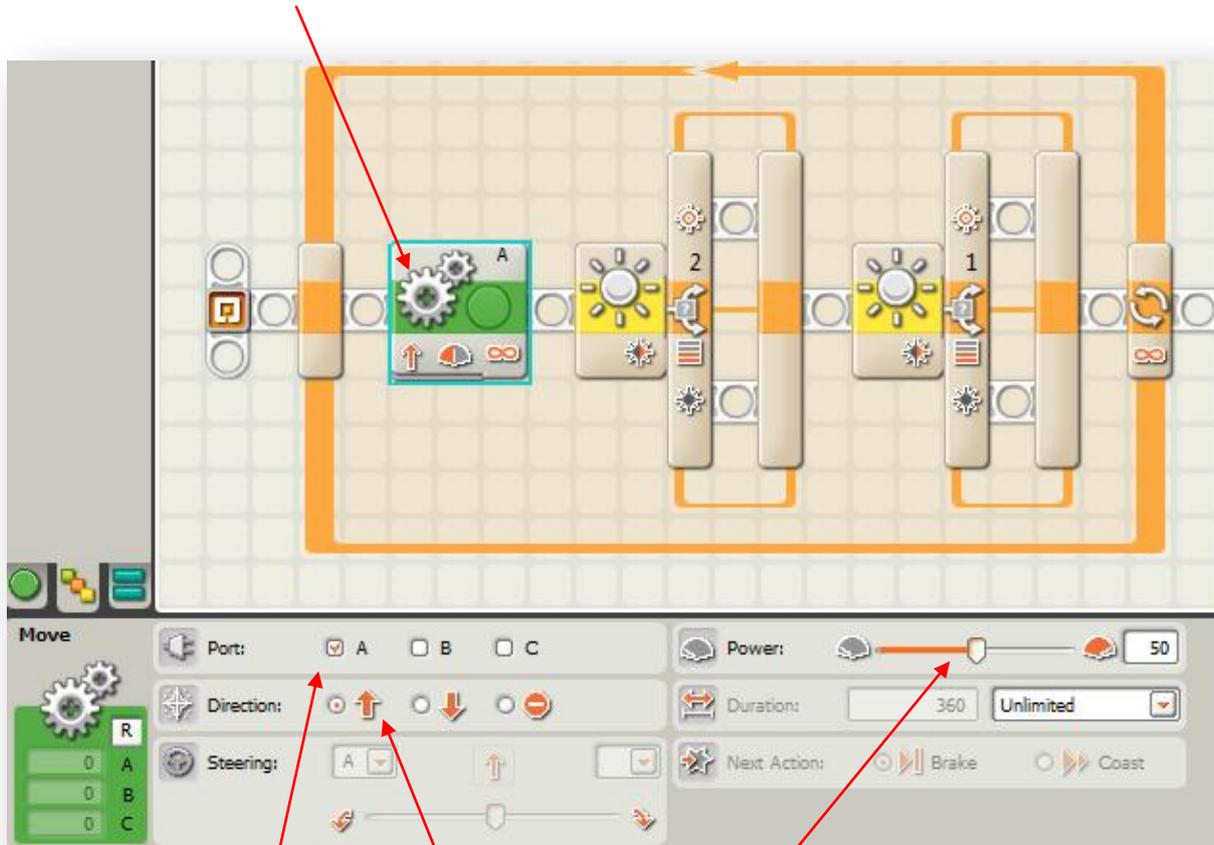
**2a.** Set the Port to A only. Direction is forward, Power is 50%.

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3. Now place a Wait Block from the Flow Palette in the position shown.

3a. Set the properties, Sensor to Light Sensor, Port to Port 1 and the Until to Less Than (a value midway between the Sensor 1 White/Black values) fir this robot, 50.

4. Now insert a Move Block in position shown and Stop All motors.
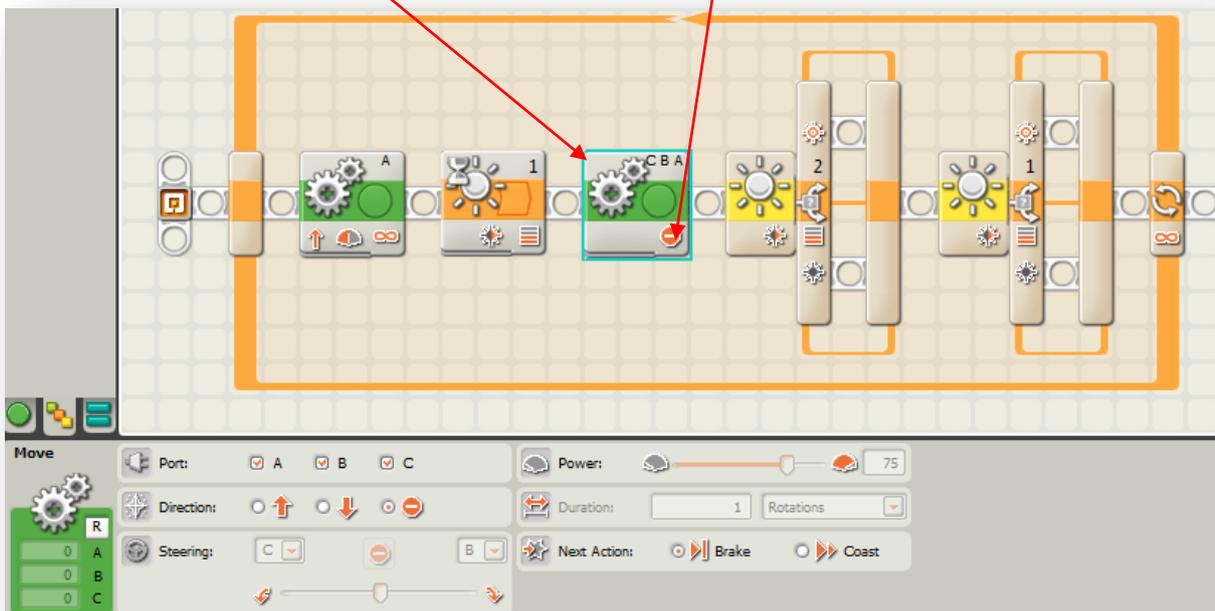
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5.   Now insert a Move Block from the Common Palette into the top half of the first Switch Block.
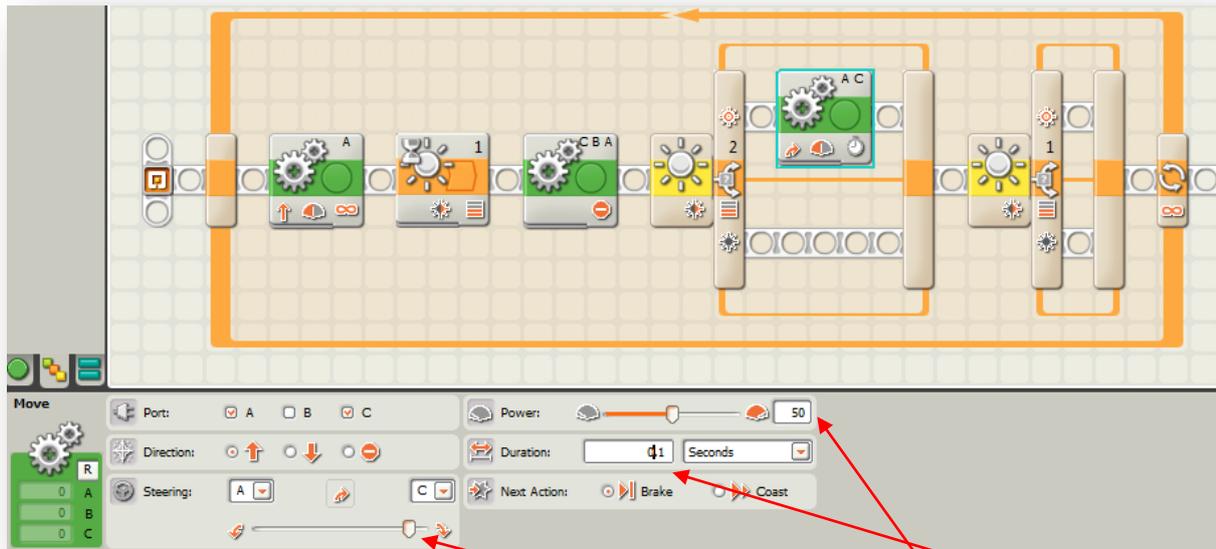
5a. Set the properties to Ports A and C, Direction Forward, Swinging turn right, Power to 50% and Duration to 0.1 seconds.

CHECK POINT

This completes the first half of the line follower. You should now be able to build up the second half. Remember that everything will be turning the other way and getting feedback from the opposite sensors.

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6. The complete Line Follower is shown below
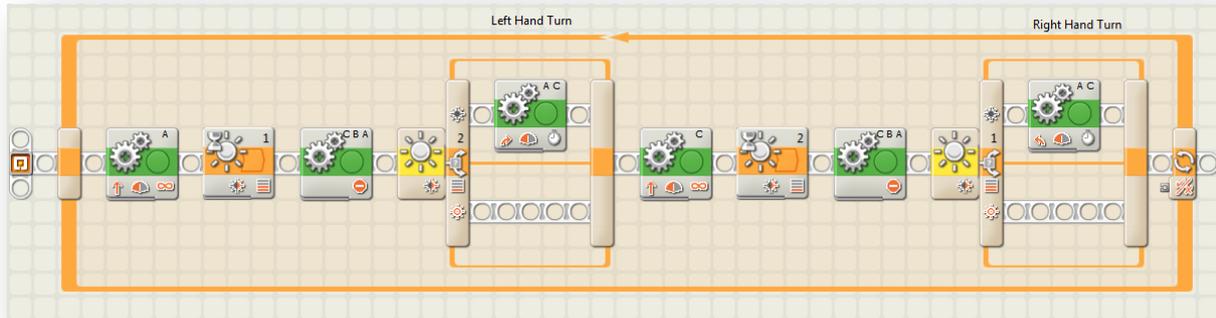
7. Make sure that you have plugged the motors into the correct ports on the NXT brick before downloading and running the program.

8. Make sure your robot is on and that the robot is plugged into the USB cable, then go to the NXT Control and select the Download button.

9. Once the program has downloaded to your robot you have the choice of unplugging your robot and navigating to your program and running it, or you can keep it connected and use the Run button to control your robot from the computer.

END OF SECTION

Experiment with you Sensor settings until your robot follows the line without losing the line.