Line Follower Programming Guide (LabVIEW™ for LEGO® MINDSTORMS®): Part 2

Introduction:

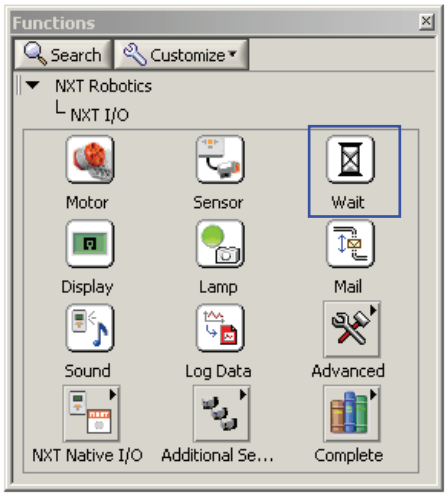
In this guide, the Ranger Bot will be programmed to move forward until it senses a black line. Upon sensing the black line, it will pause and then turn until it is off the line. This guide is for use with the LabVIEW™ for LEGO® MINDSTORMS® programming language.

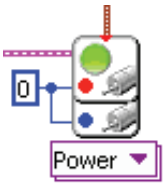
Getting Started:

1. Open the Line Follower Program created in Part 1.
    a. First, open the **Line Follower.lvrbt** Robot Project file.
    b. Open **line follower program.vi**.
    c. Additional code will be added to this program.
2. To review the basic principles of programming in LabVIEW for LEGO MINDSTORMS, review the Programming Guide and Video Tutorial for Part 1 of the Line Follower Extension.

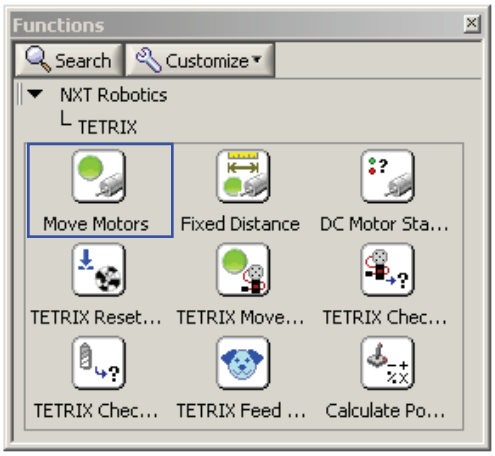
Delay and Turn Code:

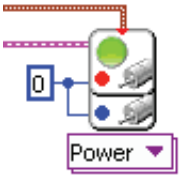
3. Place a **Wait for Time** function onto the block diagram to add a delay on the program.
    a. Right-click the **block diagram** and go to the **NXT I/O** sub-palette.
    b. Click the **Wait** function.





    c. Place the function by clicking the **block diagram**.
4. Place a **Move Motors** function on to the block diagram to control the motors.
    a. Right-click the block diagram.
    b. Go to the **TETRIX®** sub-palette.
    c. Click the **Move Motors** function.





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d. Click the **block diagram**.

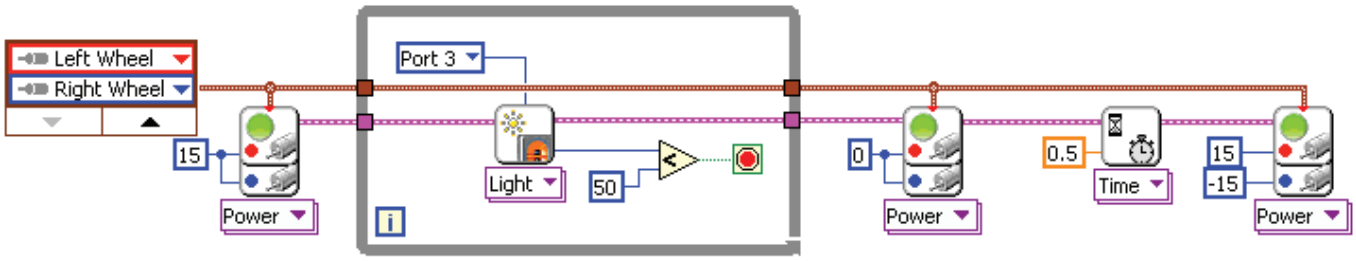
Wire Functions and Add Constants:

5. Add the necessary wires and constants:

a. Wire the NXT terminals and the Motors input to the **Move Motors** function.

b. Create a 0.5 constant on the input to the **Wait for Time** function and power constants of 15 and -15 on the power inputs of the **Move Motors** function.

c. The code should now appear as shown:



Wait Until Off the Line, then Stop:

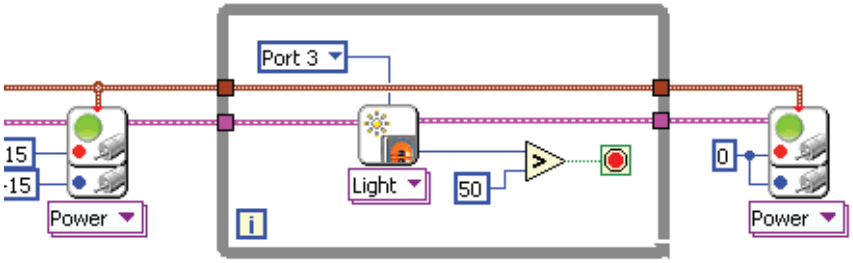
6. Next, place a **Read Light** function onto the Block Diagram, inside a While Loop, that stops when the value is above a threshold.

a. Place the **Read Light (LED On)** function and create a While Loop around it.

b. Use a **Greater?** comparison function connected to the loop end condition terminal to stop the loop when the robot is off the line.

c. Finally, to the right of the While Loop, use a **Move Motors** function to set the power to zero, stopping the robot.

d. Wire the constants and NXT terminals as shown:



7. Save the VI and run this program to verify its functionality.