Line Follower Programming Guide (LabVIEW™ for LEGO® MINDSTORMS®): Part 3

Introduction:

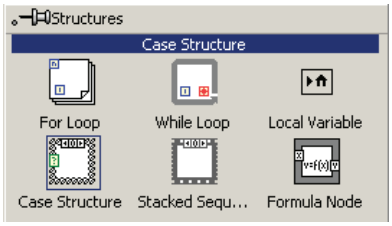
In this guide, the Ranger Bot will be programmed to move forward until it senses a black line. Upon sensing the black line, it will pause and then turn until it is off the line. It will then follow the line by continuously turning left and right. This guide is for use with the LabVIEW™ for LEGO® MINDSTORMS®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

Getting Started:

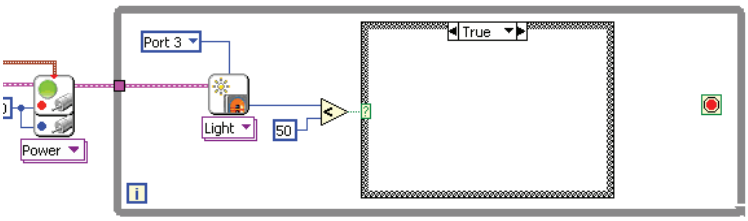
1. Open the Line Follower Program created in Part 2.
    a. First, open the **Line Follower.lvrbt** Robot Project file.
    b. Open **line follower program.vi**.
    c. Additional code will be added to the program.
2. To review the basic principles of programming in LabVIEW for LEGO MINDSTORMS, review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

Using a Case structure:

3. To follow a line, the Ranger Bot will continuously read the light sensor value, turning right when no line is detected and turning left when a line is detected. To achieve this:
    a. Place a **Read Light (LED On)** function, a **Less?** comparison function, and a constant value of 50 inside a new While Loop.



    b. Next, create a **Case Structure**, as shown. Much like While Loops, Case structures are found on the **Structures** sub-palette on the **Functions** palette. Case structures perform different actions depending on the situation. Each case can be accessed by clicking the **top of the case structure**, and case structures are created by dragging a rectangle on the block diagram.



    c. Wire the functions and structure as shown:

Line Follower Code:

4. Complete the line follower by adding the motor drive commands into the Case structure:
    a. Place **Move Motor** functions into both the True and False cases of the Case structure, as shown.
    b. To achieve the desired turning behavior, add power constants as shown below.

    Note: The constants are reversed in the two cases.

    c. Finally, use the **Read NXT Buttons** function from the **NXT Native I/O>>Input** palette to stop the While Loop when the NXT Brick's Enter key is pressed. Do this by placing a **Read Sensor** function and selecting **Read NXT Buttons**.
    d. The code is complete once all NXT terminals and functions have been wired as shown.