# Line Follower Prep Activity Rev 1.0

## Directions:

The activity is a preparation for later coding activities that use the piRover line follower sensor as an input to control the piRover Drive. In this activity you will identify the line follower inputs and associate specific drive and LED actions to specific line follower input signals. Later coding assignments will use this information to create selection structures that implement this line follower behavior.

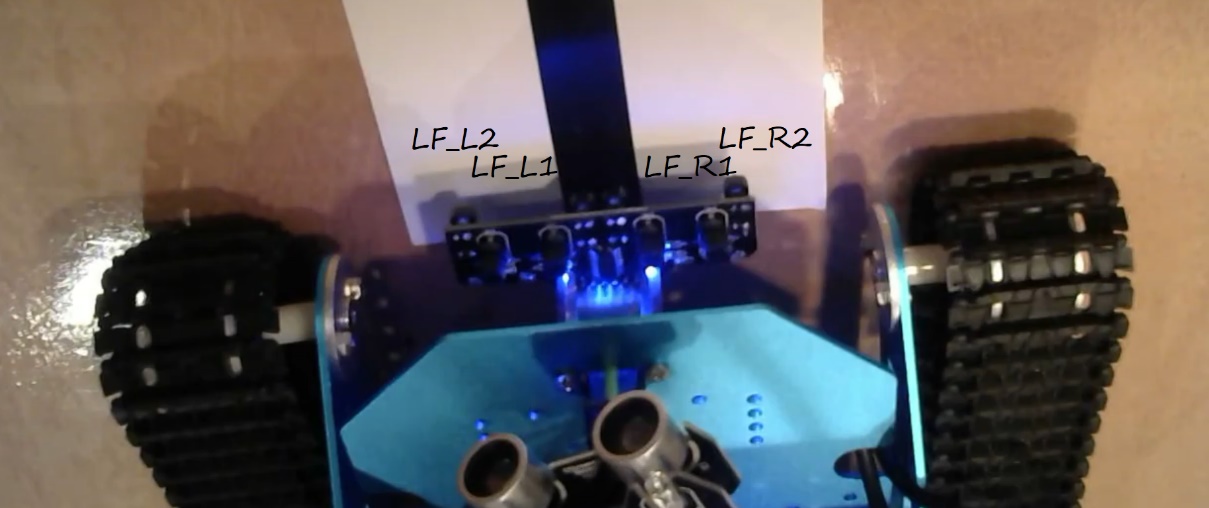
The line follower inputs will be label as follows. Review the images below to be sure that you can identify the physical position of each.

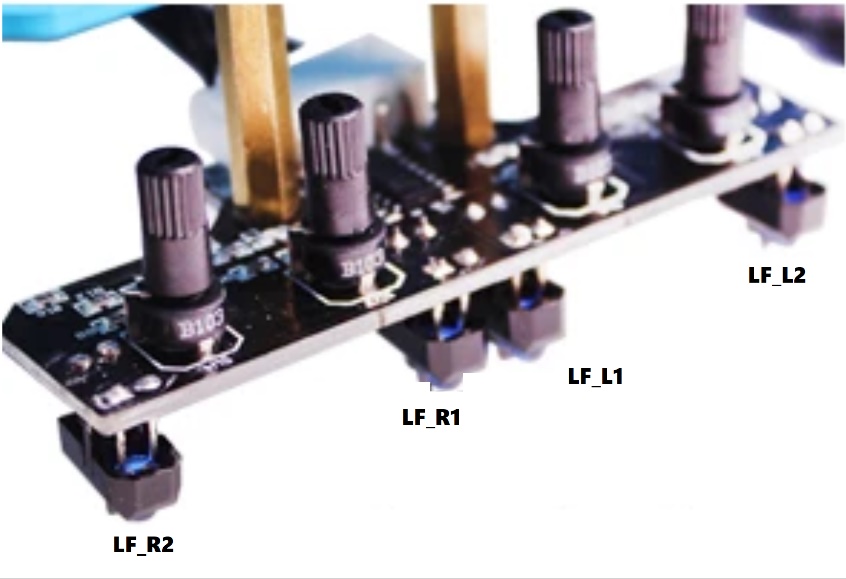
**LF\_L2 – Far left sensor**

**LF\_L1 – Near left sensor**

**LF\_R1 – Near right sensor**

**LF\_R2 – Far right sensor**





Next, review the [K2 Line Follower Video](https://www.youtube.com/watch?v=k2n6r7ibBpA&list=PLMdErdlfK4GY1BXI7GbWIMjTCYjoVWa1S&index=11) to determine the basic line following function. As you do, consider the following output states that you will implement for the drive – STOP, GO, RIGHT, LEFT, HARD\_RIGHT, HARD\_LEFT. The LEDs will also indicate drive state with Red and Green for stop and go, Blue for soft turns, and Yellow for hard turns.

The following table uses a binary progression to indicate all possible states for line follower sensors. Complete the table indicating the correct drive and LED state for each signal combination. If a specific combination is not possible or something more complex than a soft or hard turn, enter N/A in each column. Line follower sensors are active low inputs just as the Start Switch was in your push button code. A zero value indicates an on condition.

This is an NMC Critical Thinking assessment. Do your best work and do not get assistance from others. We will review all in class after this submission to NMC.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **LF\_L2** | **LF\_L1** | **LF\_R1** | **LF\_R2** | **STATE** | **DRIVE** | **LEDs** |
| 0 | 0 | 0 | 0 |  |  |  |
| 0 | 0 | 0 | 1 |  |  |  |
| 0 | 0 | 1 | 0 |  |  |  |
| 0 | 0 | 1 | 1 |  |  |  |
| 0 | 1 | 0 | 0 |  |  |  |
| 0 | 1 | 0 | 1 |  |  |  |
| 0 | 1 | 1 | 0 |  |  |  |
| 0 | 1 | 1 | 1 |  |  |  |
| 1 | 0 | 0 | 0 |  |  |  |
| 1 | 0 | 0 | 1 |  |  |  |
| 1 | 0 | 1 | 0 |  |  |  |
| 1 | 0 | 1 | 1 |  |  |  |
| 1 | 1 | 0 | 0 |  |  |  |
| 1 | 1 | 0 | 1 |  |  |  |
| 1 | 1 | 1 | 0 |  |  |  |
| 1 | 1 | 1 | 1 |  |  |  |

## Assessment:

Submit this document (LineFollowerPrepActivity.docx or LineFollowerPrep.PDF) to Moodle along with other files in this week’s zip file.