

driLED Setup and testing (Duckiebot and Traffic Lights)

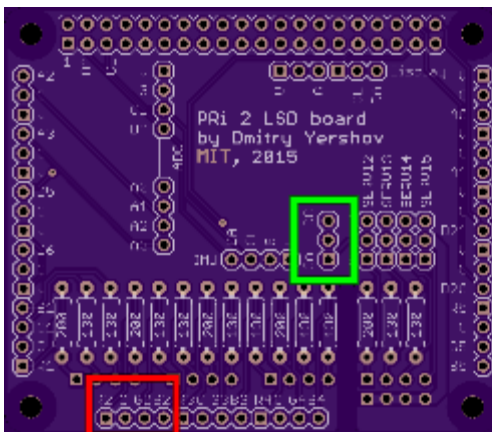
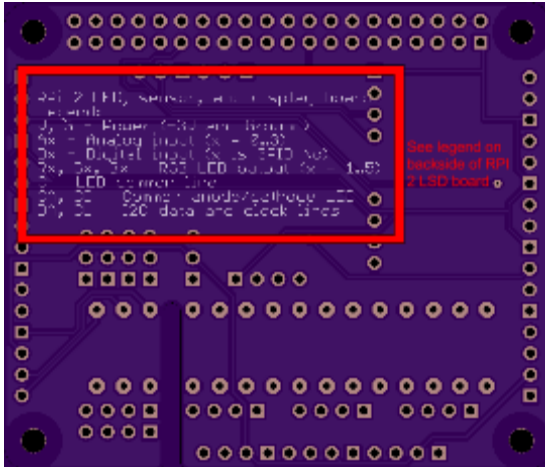


Step 1 - Assembling the LSD hat



Instructions:

1. Attach LEDs to PRi 2 LSD Board using jumpers
 - a. Connect LED accordingly to silkscreen indication on PRi 2 LSD board
 - b. silkscreen legend: Rx, Gx, Bx are red, green, and blue channels, accordingly, where x is the LED number; C is a common line (either common anode or common cathode).



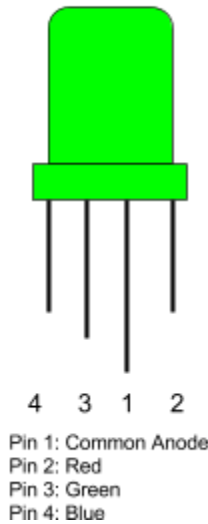
Both common anode and common cathode type LEDs are supported. For common cathode, a shunt jumper should be placed between CC and the middle pin of the 3-pin male header (green box). For common anode, use CA.

LEDs connect to Rx, Gx, Bx, and C. The C header is the common anode or common cathode pin.

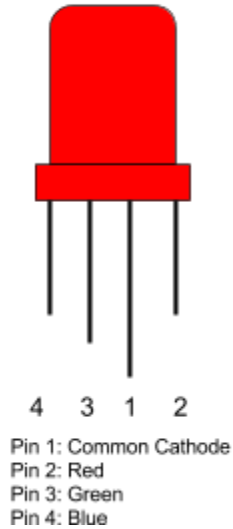
common anode

For Adafruit, LEDs are common anode type. The longest pin is . Single pin on the side of common is red channel. The two other pins are Green and Blue channels, with the blue furthest from the common pin.

Common Anode LED Pinout



Common Cathode LED Pinout



Both types of LEDs are supported. Use shunt jumper to select either common anode (CA) or common cathode (CC) on 3-pin male header (green box). Note, however, that all LEDs on the board must be of the same type.

To test LEDs use the Diode mode on a multimeter between the common (long) pin and any other pin. If the LED lights up with the positive lead on the common pin, it is common anode. If it lights with the negative lead on the common pin, it is common cathode.

Step 2a - Assembling the lights on the traffic light

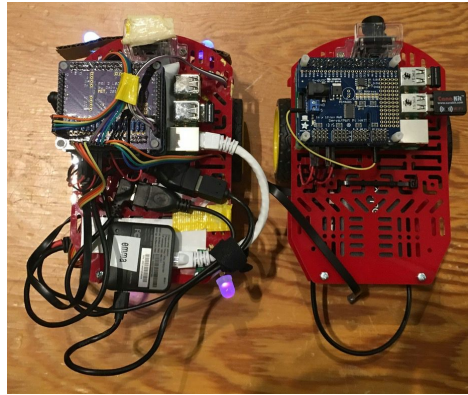
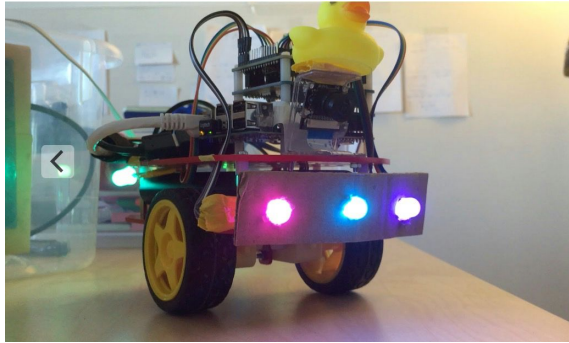
To write

CS?: You have to make up conventions and write clear documentation as in 2b.

Step 2b - Assembling the lights on the Duckiebot

Define the following names for the lights:

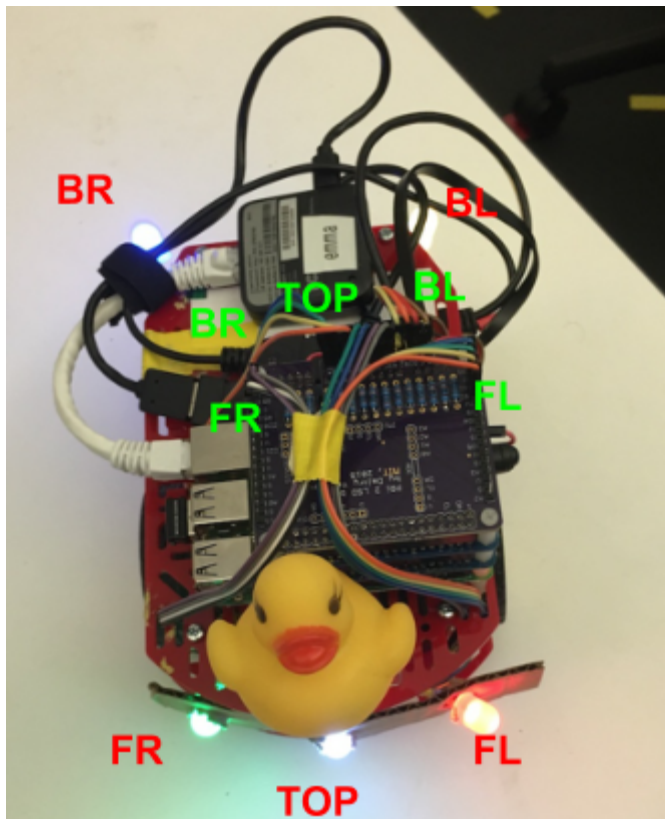
```
“top” = top light - the “top” light is now at the bottom  
fl = front left  
fr = front right  
br = back right  
bl = back left
```



Step 3a - Testing the LED on the traffic light

To write

CS?: You have to make up conventions and write clear documentation as in 3b.



Mappings from the numbers on the LED hats to the positions shown (TOP is now the one in the middle at the front)

FR - 5
BR - 4
TOP - 3
BL - 2
FL - 1

Step 3b - Testing the LED on the Duckiebot

Run

```
make test-led
```

which is equivalent to

```
source environment.sh  
roslaunch rgb_led blink test_all_1
```

The expected result is at this link:

https://www.dropbox.com/s/h17zc1uw4i47ooe/1603-test%20pattern%20%28test_all_1%29.mov?dl=0

Visually:

- **All lights blink red, once** (1 hz).
- **All lights blink green, twice** (2 hz).
- **All lights blink blue, three times** (3 hz).
- This configuration is held constant for a few seconds:

```
front left red  
"top" white  
front right green  
back right blue  
back left yellow
```

What to do if the colors are different

Chances are that you inverted the order of the connections.

LED Library Guide

Other fancy patterns

Fancy test patterns:

```
roslaunch rgb_led fancy1
```

```
roslaunch rgb_led fancy2
```

Predefined blinking patterns

In general, you can use:

```
roslaunch rgb_led blink <which>-<color>-<frequency>
```

Which: "all", "top", "fl", "fr", "br", "bl"

Color: "blue", "red", "green"

Frequency = "1.0", "2.0", etc.

Note: not all frequencies are supported.

Look at the code in `rgb_led` to create new patterns.