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).
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.
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)
Step 3b - Testing the LED on the Duckiebot

Run

    make test-led

which is equivalent to

    source environment.sh
    rosrun rgb_led blink test_all_1

The expected result is at this link:

[https://www.dropbox.com/s/h17zc1uw4j47oee/1603-test%20pattern%2028test_all_1%29.mov?dl=0](https://www.dropbox.com/s/h17zc1uw4j47oee/1603-test%20pattern%2028test_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:

    rosrun rgb_led fancy1
    rosrun rgb_led fancy2

Predefined blinking patterns

In general, you can use:

    rosrun 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.