CS1010 Lab4

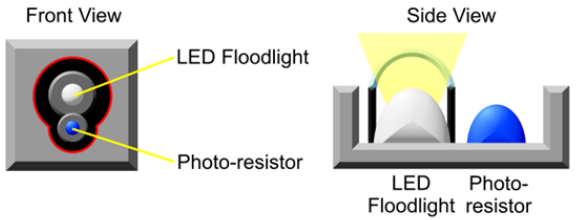
Line following

Agenda

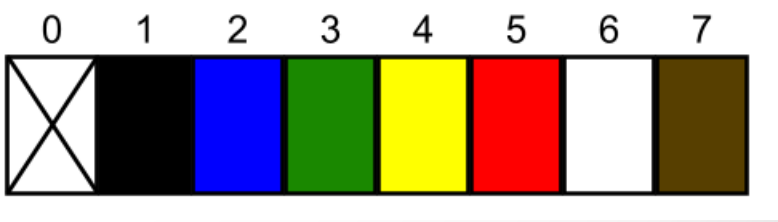
- Line following
  - Working with different modes for the Color/Light Sensor
  - Update and review your strategy with one of the instructors before the end of class
  - Update progress on the planed tasks by the end of class
- Extra credit demo
  - Be prepared to demo the extra credit during lab time

EV3 Color Sensor

- Hardware (2 main pieces)
  - The color sensor photo-resistor
  - An LED Floodlight
    - can be turned on and off
    - specific colors of the LED can be controlled independently



- It is capable of measuring either the overall ambient light or specifically the reflected red light
- Can identify 8 colors (including NONE)
- **The Color Sensor must be close to the surface, about 1cm to work well.**



EV3 Color Sensor Modes

The Color sensor is more complicated than the other sensors. It has several modes of operation:

Mode	Description
ColorID	Returns a numeric value that maps to a single color. Values can be found in the **lejos.robotics.Color** class. Only recognizes basic colors.
Red	Returns light level (brightness) of Red light. Red floodlight LED should be turned on. Red light offers better detection of light levels.
RGB	Returns a **lejos.robotics.Color** object with the Red, Green and Blue values set according to the brightness (intensity) of those colors detected.
Ambinet	Returns the ambient light level detected.

EV3 Color Sensor Modes

- For the line following, probably the red light/ RGB (with HSV) mode is the most appropriated
- The exact interpretation of the readings from the Color Sensor varies.
- Play around with different sample input to get a feel for the values you get for each situation.

Sample Code

Look at:

- Interfaces_and_demos.zip
- color_testing.zip

NOTE: In your project copy ColorSensor.java class to be able to run the 2 demos: RGBtoHSVDemo.java and ColorDemo.java

Files can be found at the bottom of the page for labs