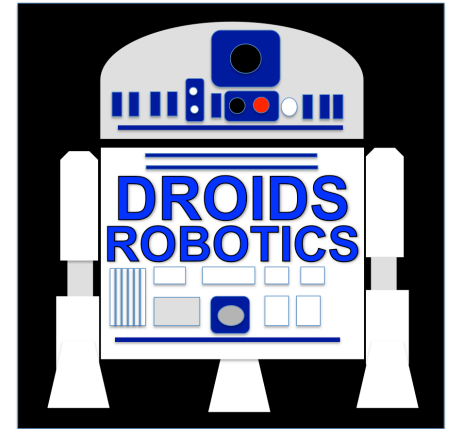# ADVANCED EV3 PROGRAMMING LESSON
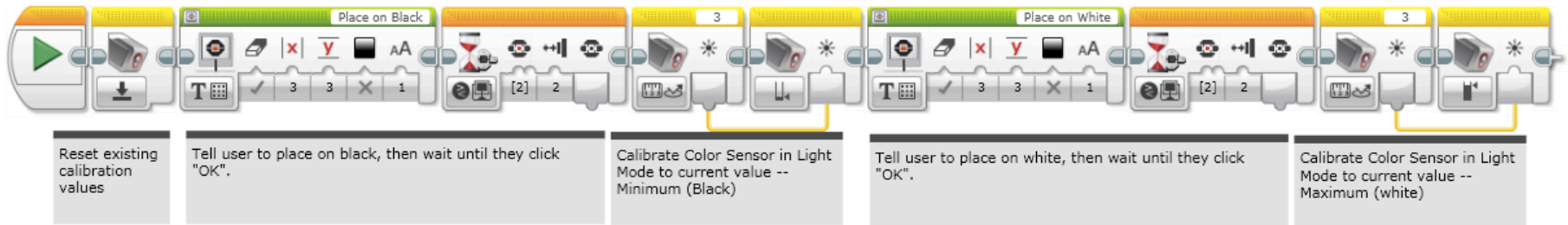
COLOR SENSOR CALIBRATION

BY DROIDS ROBOTICS

WHY CALIBRATE?

- **When you use your EV3 Color Sensor in Light Sensor Mode (e.g., reflected light mode), you should calibrate it**

- **Calibration means "teaching" the sensor what is "Black" and what is "White"**

  - This makes White read as 100 and Black read as 0

- **Run your Calibrate Program whenever light or table conditions change**

  - It is probably a good idea to run it before you start a table run where you use your EV3 Sensors in Light Mode

- **If you have 2 Color Sensors, the same calibration will apply to BOTH sensors. You don't have to make a different calibration program for each color sensor. Make it using 1 sensor on one of the ports and the values will apply to both.**

  - If you have sensors that are very different from each other, you will need to write your own custom calibration.

CALIBRATE PROGRAM

The goal of this program is to teach the robot what black and white values should read. At the end of this program, the color sensor (in light mode) should read around 100 on white and 0 on black.

Note 1: This program is set to use sensor 3.
Note 2: If you use two color sensors the calibration values for one sensor will be used for the other also.

| Reset existing calibration values | Tell user to place on black, then wait until they click "OK". | Calibrate Color Sensor in Light Mode to current value -- Minimum (Black) | Tell user to place on white, then wait until they click "OK". | Calibrate Color Sensor in Light Mode to current value -- Maximum (white) |

- **When you run the above Calibrate Program, you will be asked to place the robot on a BLACK section of the mat and then hit center EV3 button.**

- **Then you will be asked to place the robot on WHITE and hit center EV3 button.**

CREDITS

- These slides and the corresponding EV3 project files were made by Sanjay Seshan and Arvind Seshan from FLL Team: Not the Droids You Are Looking For.

- They are free to use and distribute. Please just give credit to the team and send a thank you note if you can.

- You can reach the Droids at: team@droidsrobotics.org

- More lessons: www.ev3lessons.com