

Calibrating the NXT line sensors

The calibration of sensors is really important to ensure optimum use. This is especially the case when using light sensors for line following. This means that we can use the light sensor effectively in the actual conditions expected.

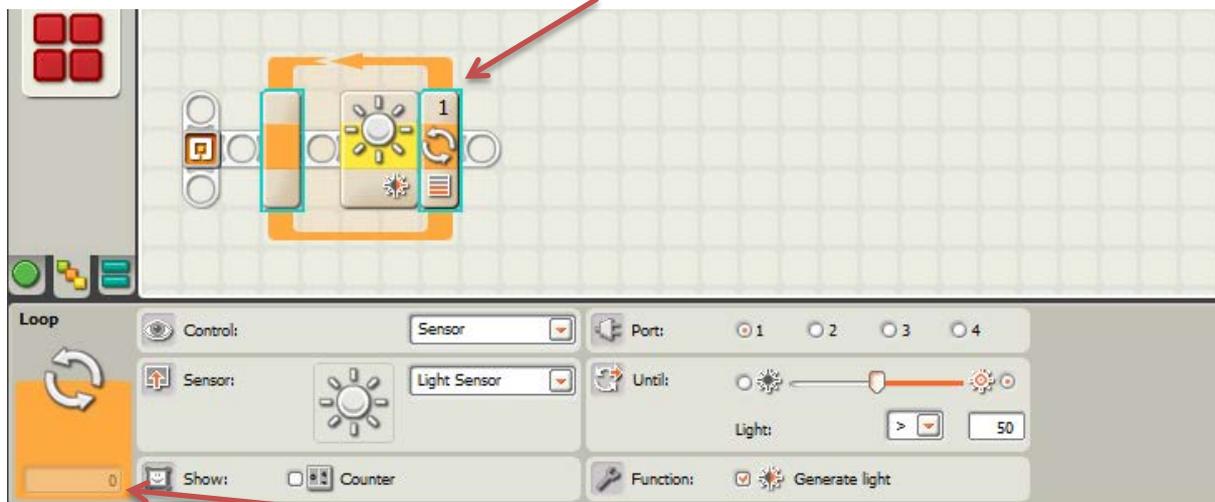
The first thing you should do is find the help file about calibrate sensors (Under general topics). This is always a good place to find new information.

Step 1: What is the current situation?

- 1 Using the **View program** on the NXT brick find values for black and white on the mat you are working on. Use different areas. Record these values in your log book or below

	Value 1	Value 2	Value 3	Value 4
Black				
White				

- 2 Create a program with only a sensor loop as shown below.



- 3 Download and run this program. Check the feedback for the sensor value. This should be similar than your View values except if it has been calibrated before. If not the same you will need to delete the calibration using the following tool with action set to delete.

- 4 Record these values for black and white.

	Value 1	Value 2	Value 3	Value 4
Black				
White				



Step 2: Calibrate the sensor

In NXT-G, find the tools menu at the top and then calibrate sensors. Make sure you choose light sensor and the correct port. Press calibrate and follow the instructions on the NXT brick.

Step 3: Check new values

- 1 Download and run the previous **sensor loop** program. Check the feedback box. What are the values for black and white? Record them below. If they look the same you need to program the brick again, exit the NXT brick program etc to make sure it uses the calibration values. I am still working in the reasons it doesn't always pick it up at first.

Calibrated values	Value 1	Value 2	Value 3	Value 4
Black				
White				

- 2 Check the black and white values with the **View function** in the NXT brick. Record them. **Why are they different?**

Calibrated values	Value 1	Value 2	Value 3	Value 4
Black				
White				

Step 4: Understanding the values

Mark your values on this ruler. Identify if they are black (calibrated), black (un-calibrated), white (calibrated) or white (un-calibrated)



What does the difference in the range between calibrated and un-calibrated values mean?