1 Colors

1.a Calibration script

For this exercise we used the measurements from the previous series. But this time we included a evaluation of our results in percentage to help us find an algorithm to recognize colors.
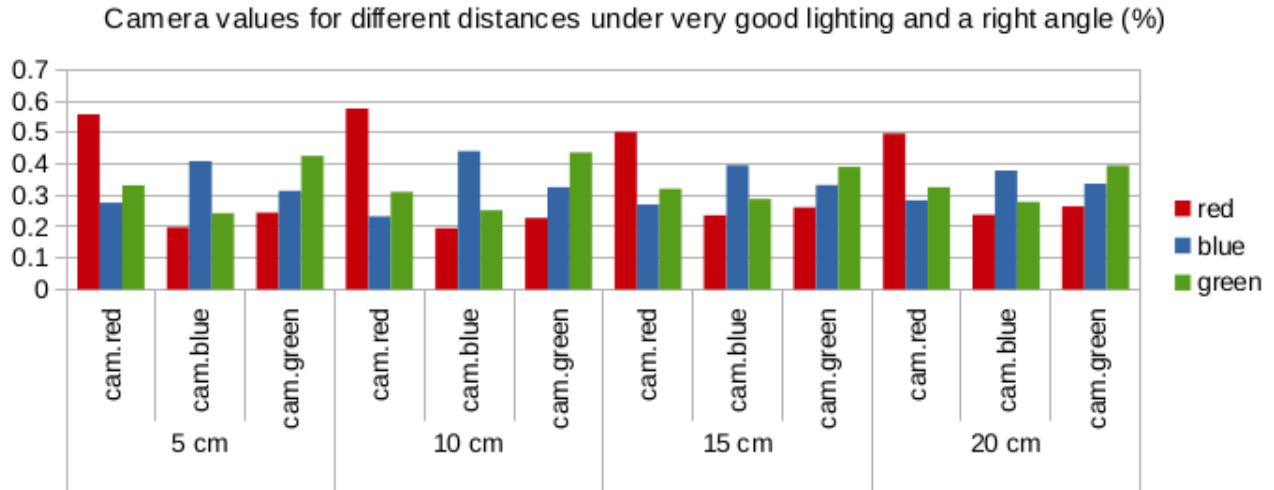

Figure 1: Color measurements in percentage

We used this analysis to come up with the following ranges for the colors:

	cam.red	cam.blue	cam.green
Red	50% - 60%	15% - 25%	20% - 30%
Blue	20% - 30%	35% - 45%	30% - 35%
Green	30% - 35%	20% - 30%	35% - 45%

Table 1: Color ranges in percentage

From the values of Table 1 we figured out algorithms to recognize colors. For example, the ratio of red is generally 2 to 4 times bigger than the ratio of blue.

$$2 \cdot cam.blue \leq cam.red \leq 4 \cdot cam.blue$$
$$2 \cdot cam.green \leq cam.red \leq 3 \cdot cam.green$$

Similarly you can find a calculation for green and blue.

$$14 \cdot cam.red \leq 12 \cdot cam.blue \leq 27 \cdot cam.red$$
$$7 \cdot cam.green \leq 7 \cdot cam.blue \leq 9 \cdot cam.green$$

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1.b   Approach color