

Re: Advise on object detection

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- *From:* serg271 <serg271@xxxxxxxxxx>
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aruzinsky wrote:

It just occurred to me that YUV is asymmetric:

$$\begin{aligned} Y &= 0.2990 * R + 0.5870 * G + 0.1140 * B; \\ U &= -0.14713 * R - 0.28886 * G + 0.436 * B; \\ V &= 0.615 * R - 0.51499 * G - 0.10001 * B; \end{aligned}$$

As I recall, these coefficients (or was it YCbCr?) are determined by the characteristics of CRT phosphors which changed from the 1950s. Anyway, I bet the rationale for these coefficients is far fetched.

It would be better to use a symmetric version:

$$\begin{aligned} Y' &= (R + G + B) / 3.0; \\ U' &= (2.0 * B - R - G) / 3.0; \\ V' &= (2.0 * R - G - B) / 3.0; \end{aligned}$$

$$\begin{aligned} R &= Y' + V'; \\ G &= Y' - U' - V'; \\ B &= Y' + U'; \end{aligned}$$

In my experience, this works just fine.

I suspect internal camera format is YUV, before it converted to RGB later by driver – it seems it's either yuv or jpeg. So working with asymmetrical YUV could be preferable.