colors [5].

All colors that can be displayed are specified by the red, green, and blue components. One color is presented as one point in a three-dimensional space whose axes are the red, green, and blue colors. As a result, a cube can contain all possible colors. The RGB space and its corresponding color cube in this space can be seen in Figure 1. The origin represents black and the opposite vertex of the cube represents white [6].

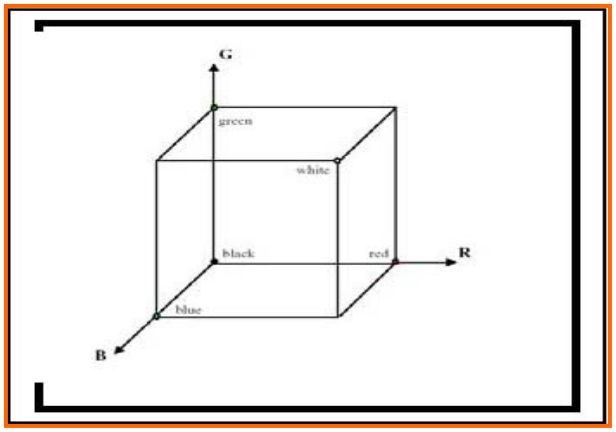

Figure 1 RGB color space and the color cube.

Any color can be represented as a point in the color cube by (R, G, B). For example, red is (255, 0, 0), green is (0, 255, 0), and blue is (0, 0, 255) .

The axes represent red, green, and blue with varying brightness. The diagonal from black to white corresponds to different levels of gray. The magnitudes of the three components on this diagonal are equal. The RGB space is discrete in computer applications. Generally, each dimension has 256 levels, numbered (0 to 255). In total, ($256^{\wedge 3}$) different colors can be R Represented by (R, G, B), where R, G, and B are the magnitudes of the three elements, respectively. For example, black is shown as (0, 0, 0) while white is shown as (255, 255, 255).

3- the YUV color space:

YUV uses a matrixes combination of Red, Green and Blue to reduce the amount of information in the signal. The Y channel describes Luma (slightly different than Luminance), the range of value between light and dark. Luma is the signal seen by black and white televisions. The U (Cb) and V (Cr) channels subtract the Luminance values from Red (U) and Blue (V) to reduce the color information. These values can then be reassembled to determine the mix of Red, Green and Blue [5], [7].

Some deeper research into YUV reveals two reasons why Blue always looks so crummy when extracted from video images. The U channel ranges from Red to Yellow, the V channel ranges from Blue to Yellow. Because Yellow is Red and Green, Red is essentially sent three times, Green twice and Blue only once. Reconstructing the Luminance component reveals another reason why Blue suffers; the Blue channel is only 11% of Luminance. The following formula shows the weighting of each channel in the Lumi-