part was broadcast. The ... white television ... colour model used ... grayscale ...

POORNIMA
COLLEGE OF ENGINEERING
DETAILED LECTURE NOTES

Unit 2

Color models in Digital Image processing

* most common color models
  - RGB (Red, Green & Blue)
  - CMY & CMYK (Cyan-Magenta-Yellow)
  - HSI (HUE-SATURATION-Intensity)

* concept of Additive color model

Additive color model

- These type of model use light which is emitted directly from a source to display colours.
- These models mixes different amount of RED, GREEN and BLUE to produce rest of colours
- Adding these three primary colours result in white image

Subtractive color model

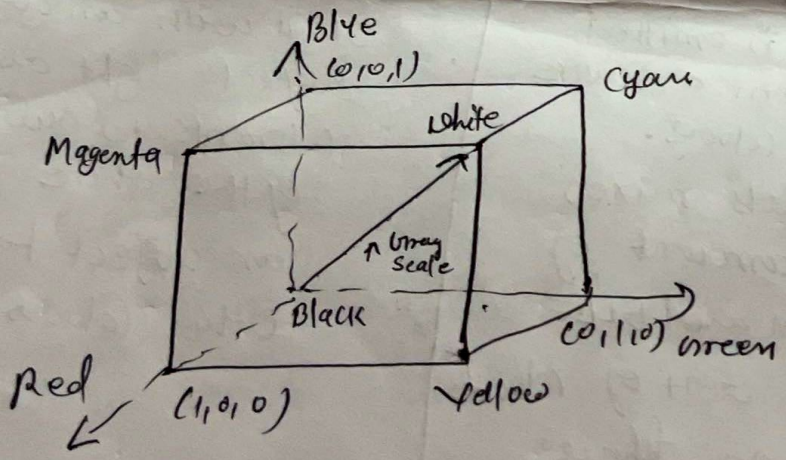
- Subtractive color ~~model~~ start with an object that reflects light and uses colorants to subtract portions of the white light illuminating an object to produce other colors.

① RGB Color model -

* Name comes from the initials of three primary colours Red, Green & Blue. The RGB color models in an additive color model in which red, Green and Blue are added together in various ways to reproduce wide range of colors

* Usually, in RGB a pixel is represented using 8 bits for each red, Green and Blue. Equal value of these primary color represents shade of gray color ranging from black to white.

* three primary colors on a 3-dimensional plane in the form of a cube. The origion will be black, and the diagonal opposite to the origion will be black. Variety of colors can produce by RGB Vector.



CMY and CMYK model -

* CMY color model is Subtractive color model in which Cyan, magenta and yellow are mixed in different ways to produce wide range of colors.

$W_R = 0.715$ & $W_B = 0.072$

Removing derivation is a process
RGB in

2) • CMYK - CMYK Colour model is widely used in printers. It stands for Cyan, magenta & yellow and black.

→ It is subtractive Colour model. It is subtractive model then the value is substracted from 1 to vary from least intense to a most intense Colour value.

1 - RGB = CMY

Cyan is negative of Red.

Magenta is negative of Green.

Yellow is negative of Blue

4) YIQ model → YIQ the most widely colour model used in television broadcasting. In black & white television, only the luminance part was broadcast. The Y value is similar to the grayscale part. The colour information is represented by the IQ parts.