CS 6327 Video Analytics Assignment 1

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The following are the methods used in the

1. Create a brightness adjusted image B1 from the image I by adding a constant factor 50.

colorBrightness(image);

The following mathematical function is used to increase the brightness of the image by adding a constant factor of 50.

g(x) = alpha\*f(x) + beta;

alpha =2.0;

beta = 50;

1. Convert both images from RGB to HSV color space. Write your own code to convert from RGB to HSV color space.

convertRGBtoHSV(hsvImage);

Given an image we calculate the red, green and blue values of each pixel that vary from 0 to 255. Using the r,g,b values we move further in calculating the chroma component which indicates the colorfulness of the pixel which is given by

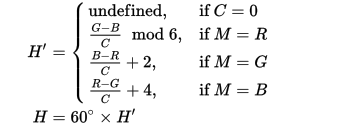
Delta = M-m

Where,

M= max(r,g,b)

m = min(r,g,b)

The hue is the proportion of the distance around the edge of the hexagon which passes through the projected point, originally measured on the range [0, 1) but now typically measured in [degrees](https://en.wikipedia.org/wiki/Degree_(angle)) [0°, 360°). Mathematically, this definition of hue is written as,



1. Object detection.

detectObject(objectImage);

Convert the given RGB image to HSV color space.

Threshold the HSV image, to keep only the red pixels

Combine the low threshold image

Use the Hough transform to detect circles in the combined threshold image

Loop over all detected circles and outline them on the original image

1. Swapping colors from red to green

colorChange(colorImg);

For every pixel where the hue is close to red (within your threshold), you move the hue to green.

color.r = image[y \* w + x].g; //the green component of the image

color.g = image[y \* w + x].r; //the red component of the image

color.b = image[y \* w + x].b; //the blue component of the image