

Study of Grayscale image in Image processing

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Abstract:- Image is made by number of pixels and different major parameters like color and monochrome (sometimes also known as black & white image or property). Image is processed and executed by an image processing techniques. So image processing is the major part of signal processing. Gray scale conversion is also a vital part of image processing. RGB or color information has a 3 dimensional property which makes signal processing so much bulky and heavy to remove this drawbacks gray scale conversion is necessary. So in this paper we will discuss about advantages of gray scale images and how they are used in image processing.

Keywords: Image Processing, Gray scale conversion, Monochrome, Image, Matlab.

I. INTRODUCTION

We know that the image is a visual representation of any object or we can say that the image or picture is created, copied and stored in an electronics form. Mathematically image is the form of two dimensional signal define by $f(x,y)$, where f is the intensity property like brightness and contrast.

Color information is made by RGB color format. Human has an ability to describe any type of colors and also identify colors but machine has no capacity to do those things like humans. Same problem will also arise in the gray scale images So we need a that type of system who can identify the gray scale information.

II. LITERATURE REVIEW

In 2010, Tarun Kumar, Karun Kumar proposed system The use of color in image processing is motivated by two principal factors; First color is a powerful descriptor that often simplifies object identification and extraction from a scene. Second, human can discern thousands of color shades and intensities, compared to about only two dozen shades of gray. In RGB model, each color appears in its primary spectral components of red, green and blue. This model is based on Cartesian coordinate system. Images represented in RGB color model consist of three component images. One for each primary, when fed into an RGB monitor, these three images combine on the

phosphor screen to produce a composite color image. The number of bits used to represent each pixel in RGB space is called the pixel depth. Consider an RGB image in which each of the red, green and blue images is an 8-bit image. Under these conditions each RGB color pixel is said to have a depth of 24 bit. MATLAB 7.0 2007b was used for the implementation of all results.

III. PROPOSED TECHNIQUE

In this technique we proposed a system, We know that the Image is made by number of pixels and different major parameters like color and monochrome (sometimes also known as black & white image or property). Image is processed and executed by an image processing techniques. So image processing is the major part of signal processing. Gray scale conversion is also a vital part of image processing. RGB or color information has a 3 dimensional property which makes signal processing so much bulky and heavy to remove this drawbacks gray scale conversion is necessary.

Grayscale images are the those images where color information is missing and all color information is converted into gray scale format.

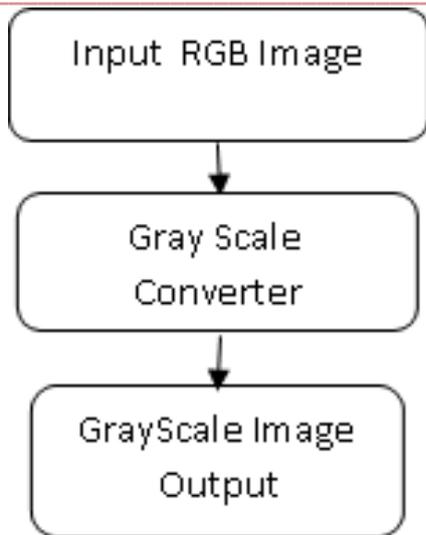


Fig: Gray Scale image converter

Grayscale images are distinct from one-bit bi-tonal black-and-white images, which in the context of computer imaging are images with only the two colors, black, and white. Grayscale images have many shades of gray in between. Matlab supports large amount of image formats i.e jpg, tif, bitmap, png, gif etc.



(a) original Image



(b) Gray Scale Image

Fig.2 Conversion of RGB to Gray scale image



(a) original Image



(b) Gray Scale Image

Fig.3 Conversion of RGB to Gray scale image

IV. MATLAB CODES FOR GRAY SCALE CONVERSION

```

I = rgb2gray(RGB);
gray = rgb2gray(map);
imshow(gray);
//Another codes//
I = rgb2gray(RGB);
Gray =(I,0.2989 * R + 0.5870 * G + 0.1140 *
B);
imshow(Gray);
    
```

V. CONCLUSION

Image is made by number of pixels and different major parameters like color and monochrome (sometimes also known as black & white image or property). Image is processed and executed by an image processing techniques. So image processing is the major part of signal processing. Gray scale conversion is also a vital part of image processing. RGB or color information has a 3 dimensional property which makes signal processing so much bulky and heavy to remove this drawbacks gray scale conversion is necessary. Using these above written technique we can able to convert any color image into gray scale image.

References

- [1] **Tarun Kumar, Karun Kumar** “A Theory Based on Conversion of RGB image to Gray image”2010
- [2] MATLAB and Simulink for Technical Computing, URL: <http://www.mathworks.com>, July 2010.