

Method for Creating Uniqueness of a Brand Color

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Abstract — In this study, computer vision techniques are used for creating uniqueness of a color used by a brand or company and also make sure that the same color not to be used by any other one. Usually, it is advantageous for a brand to consistently “own” certain colors, which provide an additional recognition cue. Many of the most recognizable brands in the world rely on color as a key factor in their instant recognition of products so it is important for them to ‘own’ their color rather than sharing them and also avoid other companies to use the same color. However, it is difficult to own a particular color. World Trade Organization Agreement on Trade-Related Aspects of Intellectual Property Rights raised this problem of owning a particular color and prepared legal terms for this problem. We have to select the color threshold value which is always a fixed value and has to be very accurate and use that value in that code and check for the colors that you are doubtful about that the color is same.

Keywords: Color differentiation, Color Identity, HSV, Hue

I. INTRODUCTION

Computer Vision is a very useful tool which is currently used vastly in many fields. I decided to use this technique in the field of marketing. In marketing color is an important factor. Effective and comprehensive brand strategy must consider the critical importance of color. Consider a red can of cola, a black

apple, and yellow arches – what brands come to mind? In each instance, color is the predominate element of identification and association with a brand. So, it is important to have a unique color for a brand product and also to prohibit other brands to copy it. Therefore, this tool will be useful in doing that than relying on naked eye. This tool basically compares the image with the threshold value of your unique color and then tries to find out if any similar color is present in the image or not. This threshold value can be changed in the code for the color to be detected.

A. Color and Visual Identity

Color is the foundation and basic for creating a uniqueness among other brands. John Deere owns green and yellow. IBM has a royal blue. Fed Ex chose two clashing colors (orange and purple) To give a simple idea of differentiation requires you select a color that properly fits your strategic positioning. Selecting a color for the brand is an important decision and strategy because this is what attracts people towards you and will help your brand getting recognized more easily. Selecting the appropriate color to represent and differentiate your brand must be based on several criteria. Color perception changes with race, age, social class, gender and religion. Demographics as well as Psychographics are important for selecting a color that represent your brand in this competitive market.

Trademarking of color: ® (REGISTERED) mark protects the brand image - not the color or color combination. In other words, we can use the yellow and red of McDonalds but not the same logo and color combination otherwise you can get yourself into trouble. The TM (TRADEMARK) symbol gives protection to design but does not give legal rights to color alone. A color trademark is different. In this case, the color is the brand. If a color is trademarked it means that it is protected for example the purple color of the wrapper of Cadbury chocolate.

B. Examples of brand with their unique color

1. Tiffany & Co. has a trademark over Robin's Egg Blue color which means luxury and sophistication.



2. Owens-Corning has a trademark over pink Panther Mascot and Pink color. It's the only company in the industry legally authorized to use the color in its products and advertising.



3. Post-Its 3M has trademarked the color Canary Yellow used on its famous Post-It Notes. They even sued Microsoft for infringement when it created a digital version of a sticky note product in the same color.



4. John-Deere went a step further than most companies, trademarking two colors as a color combination (Green, Yellow). While it can't trademark green by itself because it's considered a "functional" color that symbolizes vegetation, it does protect the use of a particular green and yellow used together.



5. The Home Depot, HomeTLC, the parent company of The Home Depot, has legal rights over the Orange used in their signs and advertising.

C. Principle of operation

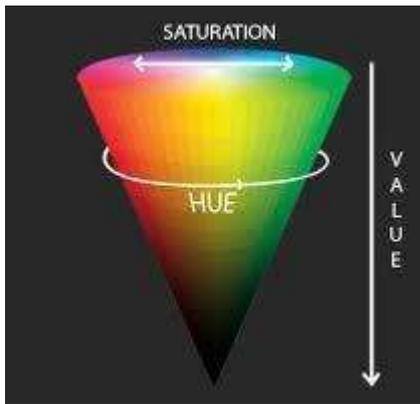
A color image is a digital image that includes color information for each pixel. For visually acceptable results, it is necessary (and almost sufficient) to provide three samples (*color channels*) for each pixel, which are interpreted as coordinates in some color space. The RGB color space is commonly used in computer displays. RGB is

an abbreviation for red–green–blue. A particular RGB color space is defined by the three chromaticities of the red, green, and blue. Defined by listing how much red, green, and blue is contained in a single value. RGB color code is additive. It means if a particular color is added more the color is brighter. But in our operation RGB method is not as much reliable as HSV (Hue Saturation Value). HSV (Hue, Saturation, Value) is the alternative representations of the RGB color model, designed in the 1970s by computer graphics researchers to more closely align with the way human vision perceives color-making attributes. In HSV model, colors of each hue are arranged in a radial cone, around a central axis of neutral colors which ranges from black at the bottom to white at the top. The HSV representation models the way paints of different colors mix together, with the saturation dimension resembling various shades of brightly colored paint, and the value dimension resembling the mixture of those paints with varying amounts of black or white paint. In HSV, hue represents color. In this model, hue is an angle from 0 degrees to 360 degrees.

Angle	Color
0-60	Red
60-120	Yellow
120-180	Green
180-240	Cyan
240-300	Blue
300-360	Magenta

Saturation indicates the range of grey in the color space. It ranges from 0 to 100%. Sometimes the value is calculated from 0 to 1. When the value is '0,' the color is grey and when the value is '1,' the color is a primary color. A faded color is due to a lower saturation level, which means the color is greyer.

Value is the brightness of the color and varies with color saturation. It ranges from 0 to 100%. When the value is '0' the color space will be totally black. With the increase in the value, the color space brightness up and shows various colors.



The colors used in HSV can be clearly defined by human perception, which is not always the case with RGB.

D. Procedure

- Get the input in the form of image or video, preferably in video.
- Set the threshold value in the HSV color code of the color which you have to be compared with.
- Convert the input which is in default RGB color format into HSV format.
- Compare the input with the HSV threshold which is set by you.
- If the color matches then it is compared that the color is copied.

E. Working

So basically, we first take the input from the camera in the form of video. Since from default the input is in the form of RGB color code we have to first convert it into HSV color code.

After getting the HSV value set the lower and upper threshold by giving a range of values which are nearby the HSV value.

For example, if the HSV value is [64 167 124] then set the value of lower_color as [60 150 110] to upper_color as [70 175 130]. We can lower the difference to attain maximum accuracy. Then the input video is compared with this threshold, if any color is in the range of threshold then it will show up and we will be able to know where is the required color present.

F. Performance Analysis

Let's consider the John Deere logo



The RGB value of this logo is as follows

Yellow: [255 222 0]

Green: [54 124 43]

By using the code above, we get the HSV value for yellow and green as follows

Yellow: [94 255 255]

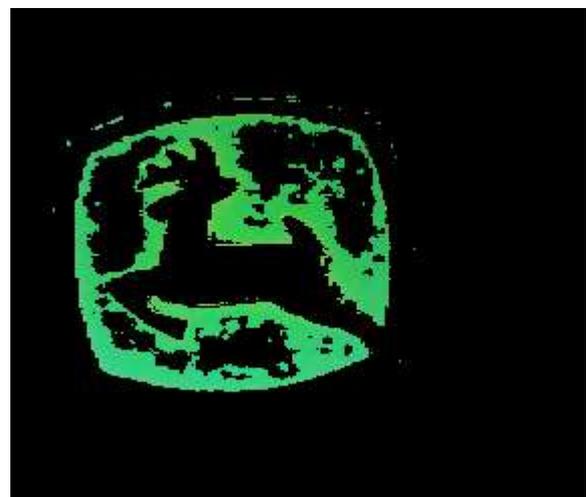
Green: [64 167 124]

Now set the threshold for green as

lower_color = [80 150 110]

upper_color = [100 180 140]

putting this logo in front of the camera and getting the input, we get the result as



G. Results

As we saw that we were successful in detecting the color present in our logo from the threshold input that we fed into the system.

H. Conclusion

Hence, we conclude that the given code will give the results by properly detecting color from logos if they are suspected for using the color owned by some.

Reference

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