

# Implementation of Color Image Sampler And Profiler

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## ABSTRACT

Image processing is a field which is increasing tremendously now a days. It totally deals with the image. There are many tools invented for user to edit an image. Tools related to find numbers of colors present in an image and replace any one color is in trend currently. But not a single tool works on pixel level and also has limitations such as if change in one color affects the whole image or to replace a color user need to search that color and then able to replace. There is a need to overcome from such limitations to improve efficiency, user-friendliness, cost-effectiveness and quality. In this paper, an advanced image coloring tool is proposed to sample the provided image, profile and rebuild them to create a new image with specified color pattern.

**Keywords**— color sampler, color profiler, alpha replacement

## I. INTRODUCTION

Image processing involves processing of images for which the input is an image, such as a photograph, the output of image processing may be either an image or a set of characteristics or parameters related to the image. The domain of image processing provides unique functionalities, since it only considers an image as valuable entity. In technical sense, image processing deals with image manipulation, which in same context deals with sampling and profiling an image. This system is intended to be used by any person with elementary knowledge of computing. The contribution of user should be of providing digital image to be profiled and making changes accordingly. No prior knowledge is needed on user's part.

Sampling is a concept which detects different colors present in an image and shown along with their intensities. Color Profiling is replacement of color or intensity of any specified color. Images also gain much broader scopes due to the ever growing importance of scientific visualization and increasing demand of manipulated images with its original quality. This system is beneficial in following areas such as Modern sciences and technologies, Microarray data in genetic research, Real-time multi-asset portfolio trading in finance, Photograph, Animation. This system is mainly constructing a tool to sample and profile given image according to the requirements of user.

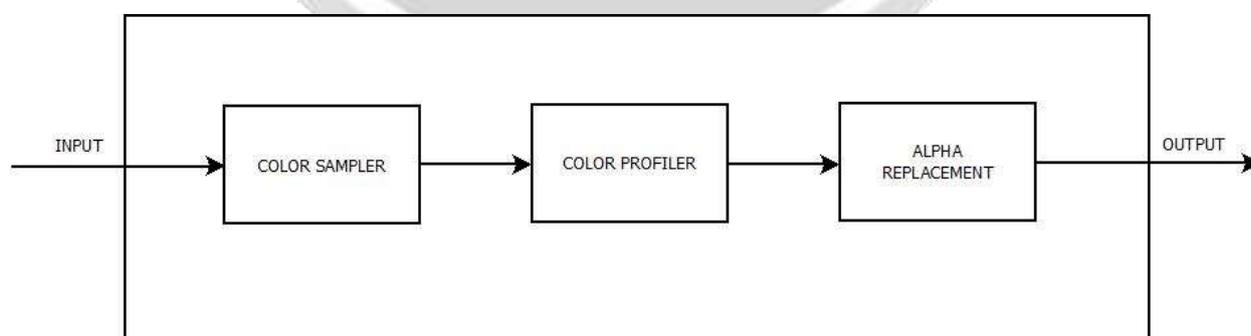


Fig-1 :Color Sampling and profiling process.

## II. LITERATURE REVIEW

This system plays a vital role in image processing. There are some related work corresponding to this proposed work viz. Color profile management and color collection management, visual design and Color Search

and Replace. Drawbacks of above methods are overcome through this tool. The proposed system has primary function as sampling which shows all the colors present in an image along with alpha value, this leads to user friendliness as user doesn't need to search color which user wants to replace. Replacing any color will not affect RGB value of any other color present in an image, which is a best advantage of this project because it maintains quality and efficiency. Karen H. Thomas, Jay A. Glaspy, Jr., Raju Seetharam, Thomas M. Sheehan, Sue Quinionin [1] in 2003 proposed a tool for color profile management and color collection management, navigation and visual design. The Limitation of this system is we cannot replace any specific color with any other specified color.

Mark Grundland and Neil A. Dodgson [2] in 2005 proposed a technique to search color and Replace. This technique was used to adjust the global color composition of an image by finding and replacing color gradients in order to show how color gradient transformations can perform the basic operations of color editing. To recolor an image, the user performs a mapping of source color gradients to corresponding target color gradients. Each color gradient can be represented by a spherical parameterization, consisting of its midpoint color, contrast radius, as well as hue and luminance angles, so that user can obtain independent control over contrast adjustment, color shift and color variation. Color gradients provide not only a flexible way of selecting color features but also a powerful way of manipulating image colors. Perceptual similarity between colors is evaluated by applying Shepard's law of generalization to color differences in order to determine the region of influence of each color mapping. The limitation of this system is, user need to search the color which he wants to replace. Yuya Ema and Seisuke Kyochi[3] proposed an application that encodes chroma components using guide image. In this work, they utilized guide chroma components of a similar color image for recovering the chroma components. Such image can be found from, for example, users' photo storages. For more efficient guided colorization, they have used global kernels which enable accurate chroma recovery from fewer representative chroma samples required in conventional methods.

Bei Tang, Guillermo Sapiro[4] in 2001 proposed a method for color image denoising based on separating the color data into chromaticity and brightness, and then processing each one of these components with partial differential equations or diffusion flows. Sunil Prasad Jaiswal, Oscar C. Au, Vinit Jakhethiya, Yuan Yuan, Haiyan Yang [5] proposed Image demosaicking or color filter array interpolation process to interpolate missing color samples to reconstruct a full color image. Mohammed Ashraf Al Zudool, Saleh Khawatreh, Ziad A. Alqadi[6] proposed efficient methods, which can be used to extract color image features. These features can be used in the form of color image key or signature to retrieve or to recognize color image. Gilad Michael and Nahum Kiryati[7] proposed Example Based Demosaicing, Demosaicing which is an algorithm used to reconstruct a color image from the incomplete color samples of a color filter array (CFA). Aleksandra Mojsilovic and Emina Soljanin[8] proposed Color quantization technique which is sampling of three-dimensional (3-D) color spaces (such as RGB or Lab) which computes a discrete subset of colors known as a color codebook or palette. It is extensively used for display, transfer, and storage of natural images in Internet-based applications, computer graphics, and animation. David R. Martin, Charless C. Fowlkes, and Jitendra Malik [9] proposed detection of natural image boundaries using local brightness, color, and texture cues.

### III. IMPLEMENTATION DETAIL

Color image sampler and profiler are feasible as it make use of all the known technologies like Javascript, HTML, and CSS. The user is allowed to directly use the site. For clients those prefer to modify image themselves, a Color image sampler and profiler system is the ideal solution. From users point of view they don't need any prior technical knowledge. The proposed system consists of three main modules as follows:

#### 1] Color Sampler:

Image uploaded by the user will be displayed in canvas. The sampler tool will detect different colors present in an image and they will be shown to user along with their name and intensity.

#### 2] Color Profiler:

After completion of color sampling profiler replaces any specific color by other user specified color using color replacement tool. Color Replacement can also change an intensity of specific color. All operations will be performed on entire image by maintaining its original quality.

#### 3] Alpha Replacement:

If alpha is present, it can be replaced by another alpha i.e. degree of transparency can be changed by using alpha replacement tool. So, the degree of transparency will be changed as per user requirement even though after performing changes to an image quality of image remains same.

Algorithmic description of each module

- Color sampler
  - 1- Start
  - 2- Get input Image
  - 3- Put input Image in canvas
  - 4- Divide image into 25 parts
  - 5- Find average color of each part
  - 6- Display all the colors.
  - 7- End
  
- Color profiler
  - 1-Start
  - 2-Select color to change(original color)
  - 3-Select color from palette to replace(new color)
  - 4-Check original color pixel and replace it with new color
  - 5-Display new image with modified colors
  - 6-End
  
- Alpha replacement
  - 1- Start
  - 2- If alpha is present in an image, display its value.
  - 3- Change the value of alpha.
  - 4- Display new image with modified colors and alpha values.
  - 5- End

#### IV. RESULTS

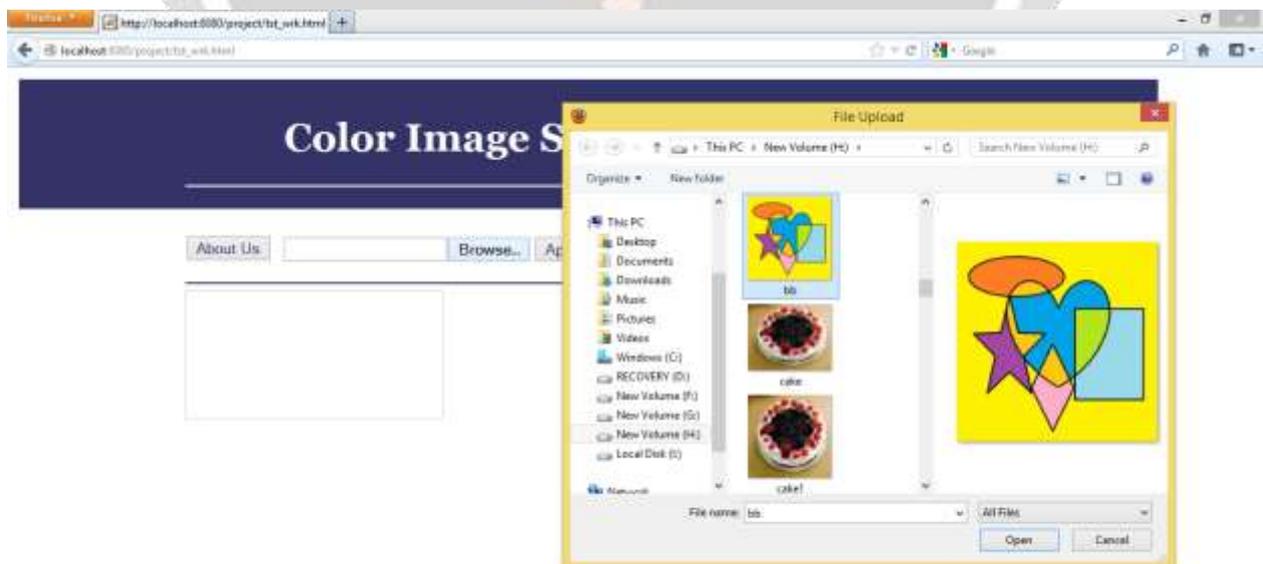


Fig 2: Browse page



Fig 3: Sampling page



Fig 4: profiling page

## V. CONCLUSION

In this paper, an advanced image coloring tool is proposed to sample the provided image, profile and rebuild them to create a new image with specified color pattern. The sampler tool detects different colors present in an image along with their name and intensity. After color sampling, profiler replaces any specific color by other user specified color using color replacement tool. This color replacement can also change an intensity of specific color while maintaining its original quality. Alpha replacement changes the degree of transparency as per user requirement even though after performing changes to an image quality of image remains same. This system is beneficial in following fields such as Modern sciences and technologies, Microarray data in genetic research, Real-time multi-asset portfolio trading in finance, Photograph.

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