AUTOMATIC PAINT MIXER

Mr. Suraj Prasad Kesari, Dept. of Information Technology

Dr. C.V. Raman University, Bilaspur

Abstract

It can be very helpful to detect the required color and its automated generation. Each color has a particular wavelength of 400nm-700 nm in the visible spectrum. A machine that could use the robotics principle to automatically blend the primary colors viz could be created based on its wavelength and other characteristics. Red, blue and green (RGB) to achieve the same color in the necessary ratios to get the same color as needed. The automated system can be further created with the assistance of a robotic arm to spray-paint a specified region. There will definitely be the following advantages to this fully automated system.

Key words: Color, detect, machine, automated system.

Introduction

Color blending[1] is a significant method in several areas that has a broad application. There are different types of blending of colors that can be achieved. It could be either additive mixing of color or subtractive mixing of color. Additive shade mixing color involves light mixing colors. There are three vital colors in added substance mixing shades: red, green, and blue. Additional substance blending is used as part of TV and workstation screens to create a wide range of shades using only three vital colors. Subtractive color mixing[2], [3] is performed by evacuating certain shades specifically, case by case with optical channels. Yellow, maroon, and cyan are the three vital colors in subtractive mixing.
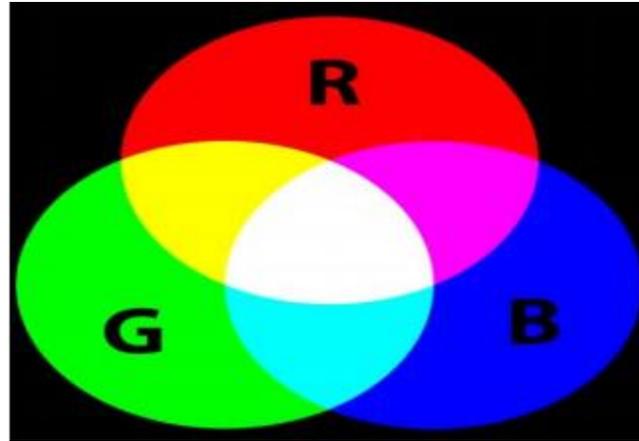
FIG.1 RGB color model

Methodology

1. Color Sensor

   The CS0105RS[4] is a sophisticated color and/or light sensor designed to accurately infer surrounding light's shade chromaticity and luminance (energy) and provide a computerized output with 16-bit yield.

2. Controller

   The Arduino ADK may be fueled with an external power supply or through the USB connection. Consequently, the source of power is selected. The board can operate on a 5.5 to 16-volt external supply.

3. Interfacing

   The interface involves connecting all the components to form the functional unit together. It is therefore needed link the micro controller with the color sensor and the controller with the robotic arm. The robotic arm is made up of several joints and the end effector and steppers are used to control joints.
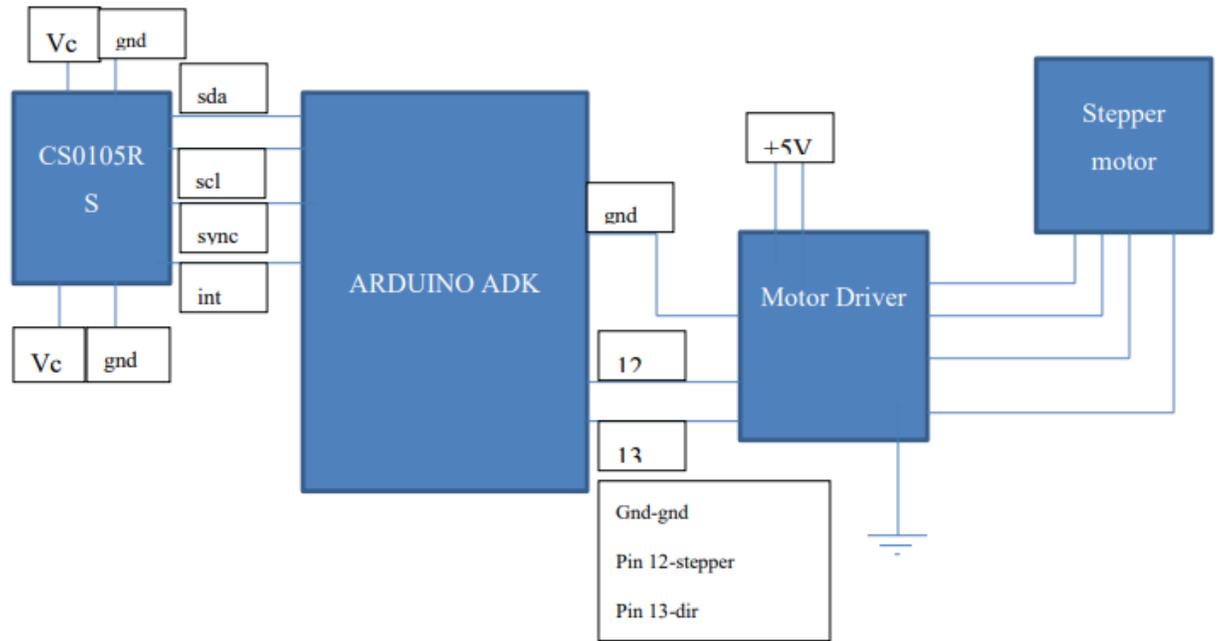
FIG.2 Block diagram of the system

Conclusion

With the help of this setup, we can precisely determine RGB proportions of any sample color can be determined by this configuration except black as it is obtained by subtractive color blending. The product's mechanical model was finished and all the mechanisms for working were inspected.

References

[1]   J. Chuang, D. Weiskopf, and T. Möller, "Hue-preserving color blending," in *IEEE Transactions on Visualization and Computer Graphics*, 2009.

[2]   P. U. P. A. Gilbert and W. Haeberli, "Experiments on subtractive color mixing with a spectrophotometer," *Am. J. Phys.*, 2007.

[3]   R. H. Bulloch, J. A. Kerszulis, A. L. Dyer, and J. R. Reynolds, "Mapping the broad CMY subtractive primary color gamut using a dual-Active electrochromic device," in *ACS Applied Materials and Interfaces*, 2014.

[4]   S. Yokogawa, S. P. Burgos, and H. A. Atwater, "Plasmonic color filters for CMOS image sensor applications," *Nano Lett.*, 2012.