

CMY MIXER FOR INDUSTRIAL PURPOSE

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Abstract - CMY mixer is used to mix colors of cyan, magenta, yellow to produce different colors used for printing over a plastics. This project reduces time taken for mixing manually and produces accurate color blendings. The conventional method uses person in work to mix all three colors in assumption to produce desired blend of a color. It takes lot of time to mix all three colors since it uses error and trial method there will be some wastage. Naturally, there are two basic color models: RGB model and CMY model. RGB color model seems very logical from the first sight. It is upon this black surroundings that the little networks of lights in the screen display their various hues, essentially addition of coloration to the black of the background in order to make up the final target value. But CMY is considered subtractive because it calculates its correct hues by subtracting from the initial brightness of the paper in order to make up the final target value. For this very reason, CMY uses lighter secondary colors than those used by RGB coloration modes. Thus we go for the CMY model. References have discussed the detailed definition and introduction about CMY model. And, in this project, we just focus on the CMY mixer model.

Key Words: CMY ,RGB,Color Receptors,Color Blending

1.INTRODUCTION

1.1 BASICS OF COLOR THEORY

Two Kinds of Color Process

1)Subtractive Color (reflected pigment):When all colors are mixed, the subtractive result is black. Subtractive color is obtained from the absorption of light.

Primary color of pigment	Primary	Secondary
Cyanine	Magenta	Violet
Magenta	Yellow	Orange
Yellow	Cyanine	Green

Table-1 Subtractive Colors

2)Additive Color (projected light or reflected light): When all colors are mixed, the additive result is white. Colors are resulted from the projection of light.

Primary color of light	Primary	Secondary
Red	Green	Yellow
Green	Blue	Cyanine
Blue	Red	Magenta

Table-2 Additive Colors

1.2CMY COLOR MODEL

CMY form the most basic and well-known color model. This model bears closest resemblance to how we perceive color. It also corresponds to the principles of additive and subtractive colors.

1.2.1CMY

Cyan, magenta, and yellow are primary colors .In the illustration below, we can see the CMY counterpart to the RGB model shown in figure 1:

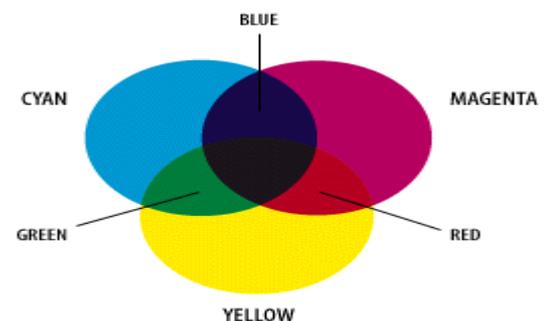


figure-1CMY Model

2.BLOCK DIAGRAM

In this block diagram shown in figure 3, we explained about the project's overview. Here input is given through a pc via usb cable of the microcontroller then microcontroller decrypts the input selection and operate the relays according to the input given. Colors of C,M,Y are pumped to the mixer vault.in order to obtain the perfect blend of output color we need perfect control of amount of

liquid flow to the mixer so solenoid valve is used as a flow control switch which operates along with the relay of the pump. Here to control pump and solenoid valve we use the two relays coupled together in input side so as to operate them at same time. every relay input is given by microcontroller which operates at basics of time delay.

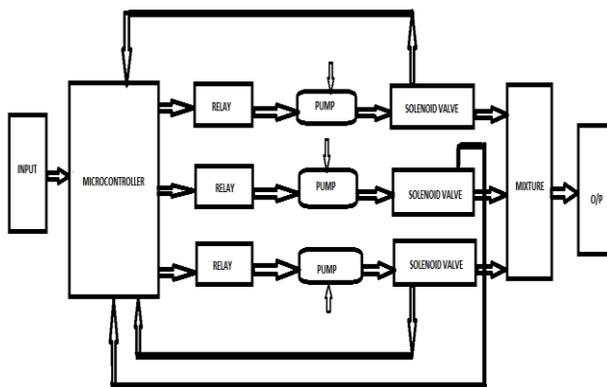


Figure-1 Block Diagram

3.HARDWARE IMPLEMENTATION

The hardware implementation of this project is shown in figure 2:

The input is given through a pc via usb cable of the microcontroller. To control pump and solenoid valve we use the two relays coupled together in input side so as to operate them at same time. every relay input is given by microcontroller which operates at basics of time delay. For every 5 seconds only 5 ml of the CMY paint will be filled in the mixer in order to obtain the perfect blend of output color we need perfect control of amount of liquid flow to the mixer so solenoid valve is used as a flow control switch which operates along with the relay of the pump.

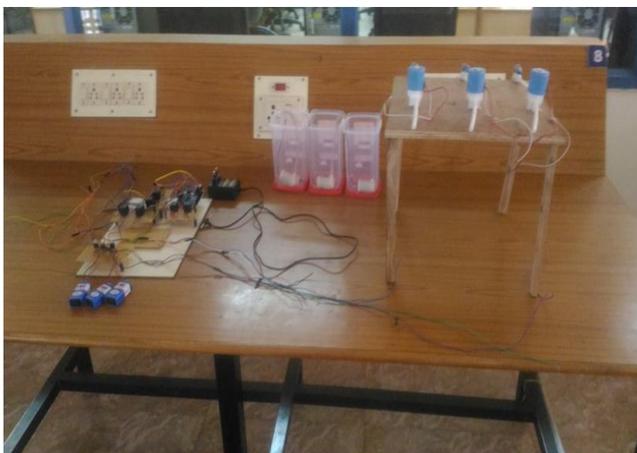


Figure-2 Hardware Implementation

4.CONCLUSION

This paper has been widely adopted by graphic designers and reproduction and printing houses. This is a proprietary, standardized color system used across many industries in manufacturing, which describes colors by an allocated number by standardizing the colors, different manufacturers in different locations can all refer to the CMY color system to make sure colors match without direct contact with one another. A majority of the world's printed material is produced using the CMY process, and there is a special subset of Pantone colors that can be reproduced using CMY.

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