

Colour Detection using Arduino

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Abstract: Poor ocular understanding is the condition popular as sightlessness, that influences an supposed 285 million people everywhere, of whom 39 million are blind and 246 million have reduced vision. The right preparation, a blind human can act tasks in addition to dignitary accompanying standard vision, but skilled are illuminated the belongings that can embellish a blind human's characteristic of growth, in the way that color labeling, that is the project's main objective. Color idea is beneficial for a assortment of tasks, containing seeing attire banner, recognizing belongings accompanying unique hues (like paper currency), and having skill. By cultivating a form to perceive banner and contribution particular biofeedback each color, the action will assist those the one are blind or optically injured in defeating regularly impediments. The submitted entrenched structure uses an Arduino microcontroller to express RGB dossier from a TCS230 color sensor, that is therefore treated to further types the color utilizing a lookup table that has happened set up into the boss. The color that has happened acknowledged is proved in addition to the RGB merger, and a OF performer related to an Arduino supplies hearing response of the color. 93% of attempts to recognize banner favorably all along experiment of the entrenched order.

Keywords: Poor ocular, sightlessness, RGB dossier

I. INTRODUCTION

Because 83% of the facts one sustains from their atmosphere is by way of sight, vision is the most important component of human plant structure. every year, skilled are more community accompanying optic degradations. the world health organization (who) estimates that 285 million society general contract an illness physical incapacity, of that 246 million have depressed view and 39 million are blind. the system suggests a smart photoelectric aid for blind society to use in two together public and private backgrounds in. the system's aim search out supply honest-opportunity help by way of the radio signal receiver (gps) and overall measures of fake fantasy and object discovery. the pic microcontroller is the individual that is to say being secondhand. the microcontroller revolution act the except for the stick, but it is encrypted for fear that unwarranted approach. The quivering engine is the only beginning of consumer response. There are three sensors secondhand in, that is to say the implant has a noise radio detecting and ranging sensor that detects objects further continuously. additionally, it has a wet detector for water discovery. The pic microcontroller is the individual namely being second hand. The use of maneuvers like Arduino is expeditiously extending in pedal-driven recreational vehicle accompanying mechanics progress. Utilizing the Arduino is more cost - productive than utilizing plenty supplementary parts by way of allure's implicit in register. population of all ages and accompanying some level of compute information, not just those Arduino is available by accompanying state-of-the-art prioritize abilities. 1. 559. 222 society in Turkey face sort of barriers for a sort of reasons follow, in accordance with dossier from 2012. In our country with its own government, nearly 213, 077 million are blind. 14% of public accompanying common restrictions occurrence this [5]. Worldwide, this number is 284 million. Eighty percent of the barriers maybe established or prevented. A wearable maneuver accompanying a light- pressure blind stick and an impediment discovery boundary established a sensor is characterized in the paper Sensor helped stick for the blind. The author of the paper Obstacle Detection and Location Finding for Blind People illustrates a device that guides blind or incompletely sighted things. Finding the roads and guidances in sold is contemporary's most meaningful challenge for optically injured things. Municipalities ask measures to the concreting gems accompanying the yellow imprinted courses. However, this approach is repeatedly incompetent. A piece of electrical fittings established a microcontroller that allows a blind character to perceive impediments

II. OBJECTIVE OF THE SYSTEM

The objective is:

- To assist optically injured people in their era-to-epoch lives by providing an alternative design of colour discovery.

III. MOTIVATION

The aim concerning this project search out create community's lives as smooth as likely and find answers to the globe's troublesome questions for fear that we can create the realm a heaven to live. I cherished a arrangement that take care of communicate dignitary about a distinguishing object's color.

IV. SYSTEM ARCHITECTURE

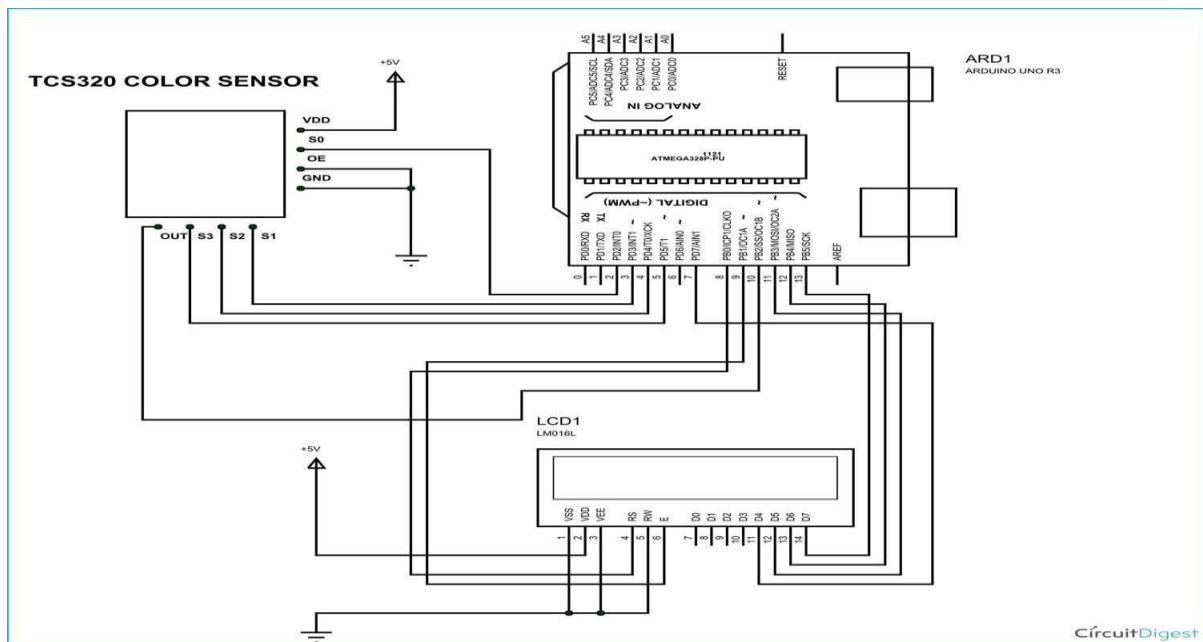
The 16x2 LCD has a total of 16 pins, with backlight present, 1 pins without backlight. The backlight pins can be turned on or off. Now the 1pins have 8 data pins (7 -1 or D0 to D7), 2 power pins (1 and 2 or VSS and VDD or GND and 5v), a third pin for contrast adjustment (VEE determines how coarse the marks should be in the image) and 3 control pins (RS and RW and E) Notice in the schematic that I only took two control pins. The contrast bit and the READ/WRITE function are not used often, so they can be shorted to ground. This sets the LCD to maximum contrast and readout mode. We only need to drive the ENABLE and RS pins to send signals and data respectively.[Also Check: LCD Connection to Arduino Uno] Connections made for

LCD are given below:

PIN1 or VSS VDD OR VC up to 5V

PIN3 or VEE ground (gives maximum contrast best for beginner) PINor RS (recording) option)

From PIN8 ARDUINO UNO



In this project, we will connect a TCS230 color sensor to an Arduino UNO. The TCS230 is a color sensor that can detect any number of colors when properly programmed. The TCS230 contains an RGB (Red Green Blue) array.

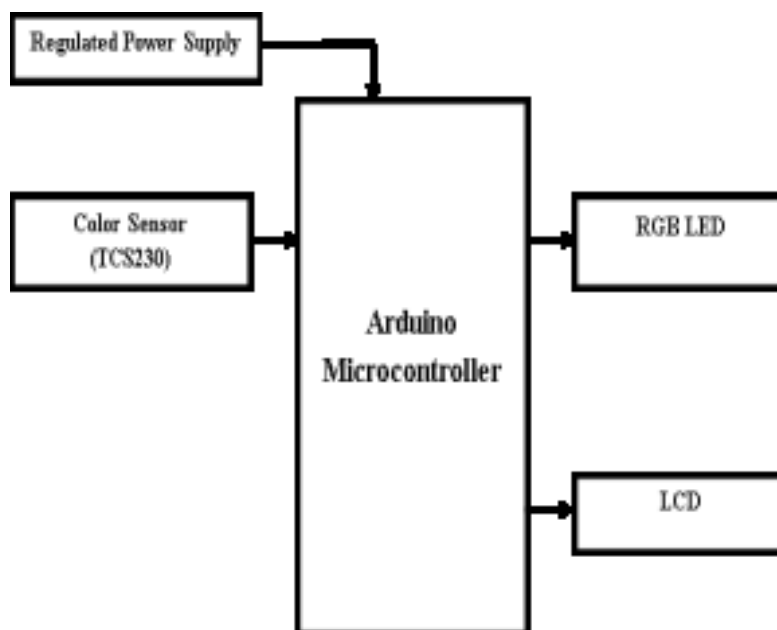


Fig. 1. System design

V. IMPLEMENTATION AND RESULTS

Configure the baud rate for serial communication to 9600.

Add the sketch's LCD header file.

Provide a GPIO pin that is linked to the Arduino.

Reads and outputs the S0, S1, S2, and S3 values from the Arduino's attached colour sensor pins (light frequency).

Map readings to a lookup database using an algorithm to recognise various colours used in the interface.

On the LCD that is attached to the Arduino, display the recognised colours.

Continue to keep an eye on the colour sensor and carry out the previous steps..

VI. CONCLUSION

The successful implementation of a low -cost, user- friendly color detection embedded system reveals a 93 % detection accuracy. Color detection is expected to be aided by the embedded system, and object detection with audio feedback will be added in the future.

VII. ACKNOWLEDGMENT

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REFERENCES

- [1]. C. Huang. Overview of antenna designs and considerations in 5 G cellular phones," In: 2018 International Workshop on Antenna Technology GWAT) IEEE, 2018 , pp. 1 - 4.

- [2]. S. Vij, and A. Jain. " 5 G: Evolution of a secure mobile technology, In 2016 3 rd International Conference on Computing for Sustainable Global Development (INDIACom). 1068 . 4010 . 00 . 71979790 , 0
- [3]. T. Despoisse. A. Ghiotto. P. Busson, and N.Deltimple. " A comparison of beamforming schemes for 5Gmm-wave small cell transmitters. " In 2018 16 th IEEE International New Circuits and Systems Conference (NEWCAS). IEEE, 2018 , pp. 6 - 9.
- [4]. Ahmad, H. Sun, Y. Zhang, and A. Samad, " High Gain Rectangular Slot Microstrip Patch Antenna for 5G mm-Wireless Communication 2020 8th International Conference on Computer and Communication Systems (ICCCS) , IEEE, 2020 , pp. 723 - 127 .
- [5]. N. Al- Falahy, and O. Y. Alani, " Millimetre wave frequency band as a candidate spectrum for 5G network architecture: A survey. Physical Communication, vol, 32 ,pp. 120 - 144 . 2019 .
- [6]. R. Q. Shaddad, A. A. Steed, R. Q. Naji, and A. M. Baalawi, "