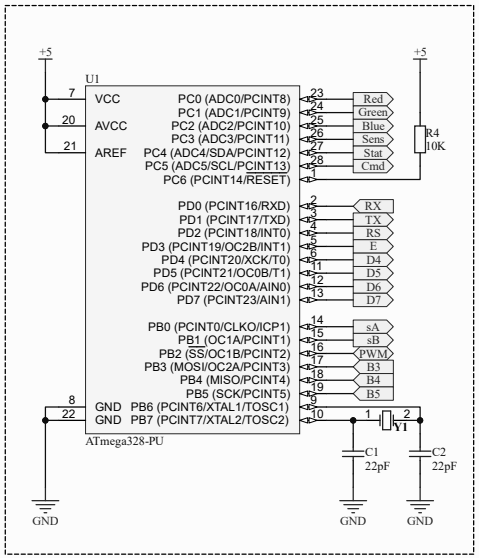
REVISION	DESCRIPTION	DATE	APPROVED

Horizons RGB Sensor Project Schematic

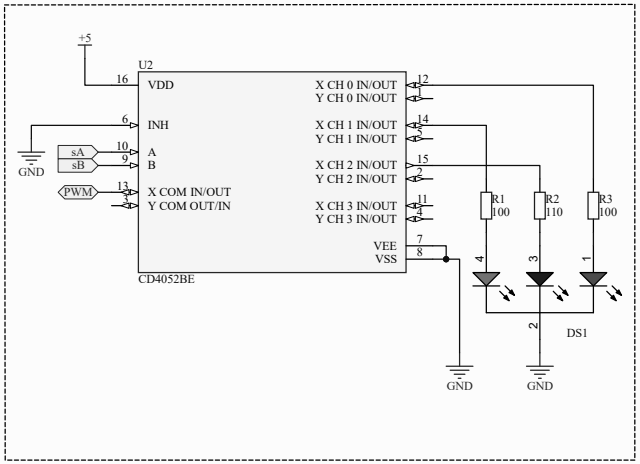
https://github.com/0301yasiru/RGBsensor

This is the Schematic Diagram of the RGB Sensor Project Printed Circuit Board. The project was on April 2021. Hardware is designed by Yasiru Senerath. Our Team name is Sagittarius. The Group members were Yasiru, Prabhashwara, Kajhanan, and Poojitha. The objective of this project is to sense the color of a given surface using a custom-made RGB sensor and display it to the user. We used a 4x3 keypad for getting input and a 16x2 LCD to output data. Not only that but also we used an HC-05 Bluetooth Module to connect the RGB product with a Laptop or a Mobile Device.

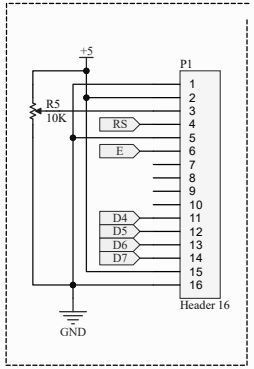
ATMEGA328-PU IC connection



RGB Led Lighting 4:1 Demux Connection



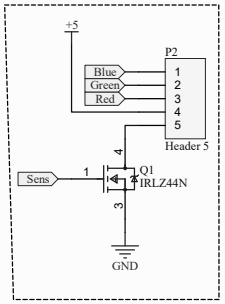
LCD Display Connection



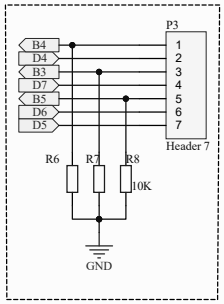
P1 Connector is for the LCD. The four data lines of the LCD are also shared with the keypad (Connector P3). The LCD can use these D4 - D7 data pins only when the Micro Controller gives the permission, The default is the Keypad. The HC-05 Bluetooth module is connected to the P4 slot, and the voltage divider is mandatory due to the logic level requirement of the module. MC can check the connection status using STAT pin, and it can send AT commands using CMD line. For the sensor connection P2 slot is used. To turn on the sensor there is an N-channel Mosfet.

For the power supply, a 12-9 V external supply must be used, and +5V linear regulator is used to step down the voltage. 220 uF 50v capacitor to cut off higher frequencies. To light up the RGB led we use a 4:1 demultiplexer (CD4052) and 31.25kHz 8-bit PWM signal.

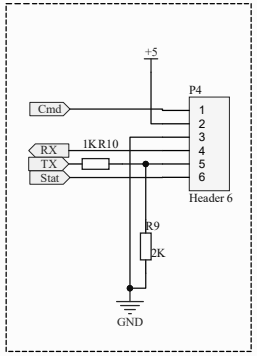
RGB Sensor Connection



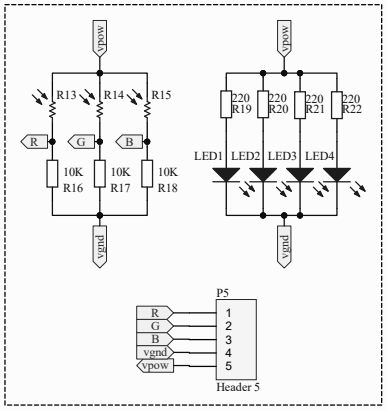
Keypad Connection



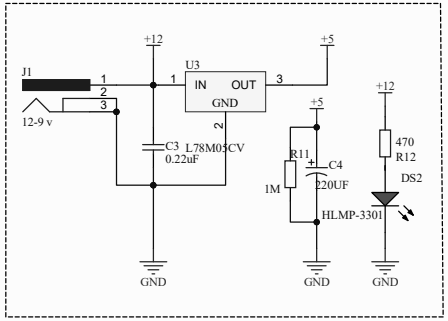
Bluetooth Connection



RGB Sensor Circuit



12-9V Power Input Circuit



APPROVALS	DATE
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REFERENCE DOCUMENTS	
BOM:	
ASSY DWG:	
FAB DWG:	
PCB DWG:	

PROJECT

PROJECT REVISION: Not in version control | DOCUMENT REVISION: Not in version control | DESIGN ITEM:

TITLE

RGB Sensor Schematic

SIZE	CAGE CODE	DWG NO.	REV
A3			

SCALE: | FILE NAME RGB_sensro_schematic.SchDoc | SHEET 1 OF 1