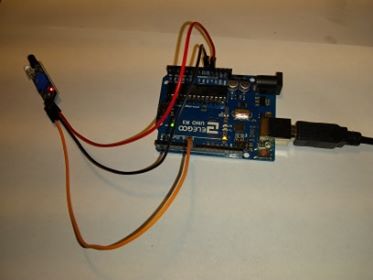
ROSSERVER Engineering Notebook

This notebook contains the technical details of the Brandies Research Technology Innovation ROSServer Project. This project is designed to allow Brandeis community members to program ROS robots virtually, especially important in COVID contingencies.

5/15/2020 4:17 PM: I am preparing examples for the ROS robots components. This should probably be a separate repository.

For the obstacle avoidance sensor, it works as a digital input (VCC-5V, GND-GND,OUT Digital 7), same digital input program as usual



APDS 9960 Gesture sensor

Using [Sparkfun](https://github.com/sparkfun/APDS-9960_RGB_and_Gesture_Sensor) example and [this](https://www.youtube.com/watch?v=XFy8X_ohmQ8) reference video

Haven’t gotten examples to work, could be because the sensor isn’t soldered

5/16/2020 2:15 AM: I am using my [Lavfin Smart Car](https://www.amazon.com/gp/product/B07JN46YSW/ref=ppx_yo_dt_b_asin_title_o03_s01?ie=UTF8&psc=1) as a test platform for the ROS robot components. I wrote the motors example to get the robot driving, and will now test the obstacle avoidance senosrs on the robot.

Using four sensors because there’s only enough digital input ports for four.

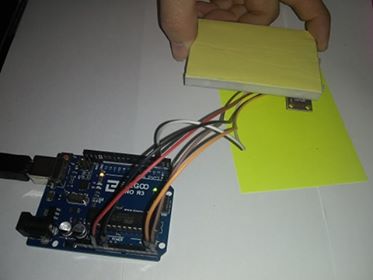
Port 13 can’t be used as a digital input, don’t know why

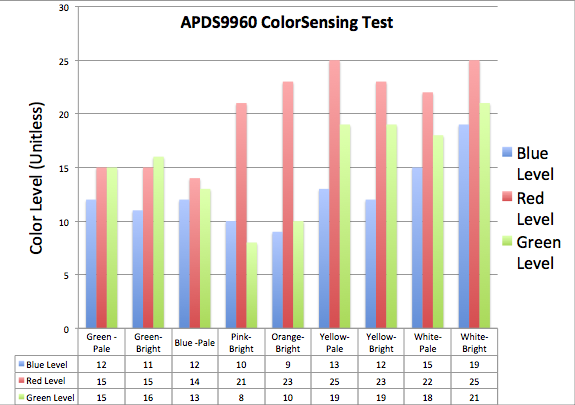
Replaced not working sensor

|  |  |
| --- | --- |
| **Digital Port** | **Purpose** |
| **0** |  |
| **1** |  |
| **2** | TOP LEFTAVOID |
| **3** | BOTTOMRIGHTAVOID |
| **4** | dir1PinL |
| **5** | dir2PinL |
| **6** | dir1PinR |
| **7** | dir2PinR |
| **8** | speedPinL |
| **9** | speedPinR |
| **10** |  |
| **11** | BOTTOMLEFTAVOID |
| **12** | TOPLEFTAVOID |
| **13** | EXTERNAL LED |

5/16/2020 6:08 PM: I wrote a simple navigation program to use the obstacle avoidance sensor to allow the robot to drive around a cardboard environment. It doesn’t take advantage of all 4 sensors because ethe robot only needs the forward sensors, but it shows that they can be used to inform he robot’s motion.

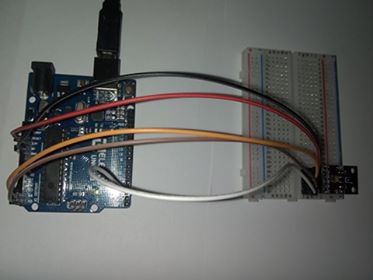


5/20/20 11:16 AM Jacob Smith: I got APDS9960 sensor working, proximity, ambient interrupt, and color sensor examples work well. Using sparkfun APDS library <https://github.com/sparkfun/SparkFun_APDS-9960_Sensor_Arduino_Library>. I tested the color sensor with card stock paper of different colors (pale) and index cards of differnet colors (bright) with the sensor about 1.5 cm from color facing table no extra light. Below is testing setup and results. Results show that sensor is most sensitive to red color levels, then somewhat sensitive for green levels and not sensitive to blue levels. 



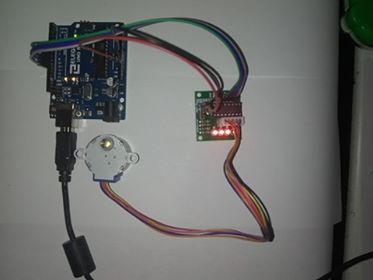
**Color Sensor use:** Wiring (Sensor to Arduino): GND🡪GND, VCC🡪3.3V,SDA🡪Analog 4,SCL🡪Analog5, INT🡪Digital2

Use Sparkfun Library <https://github.com/sparkfun/SparkFun_APDS-9960_Sensor_Arduino_Library>



**Stepper Motor (28byj with driver)**

Wiring (Driver to Arduino) -🡪GND,+🡪5V,IN1🡪Digital 8,IN2🡪 Digital 9,IN3🡪 Digital 10,IN4🡪 Digital 11



Use library https://github.com/arduino-libraries/Stepper

Also writing example sketch