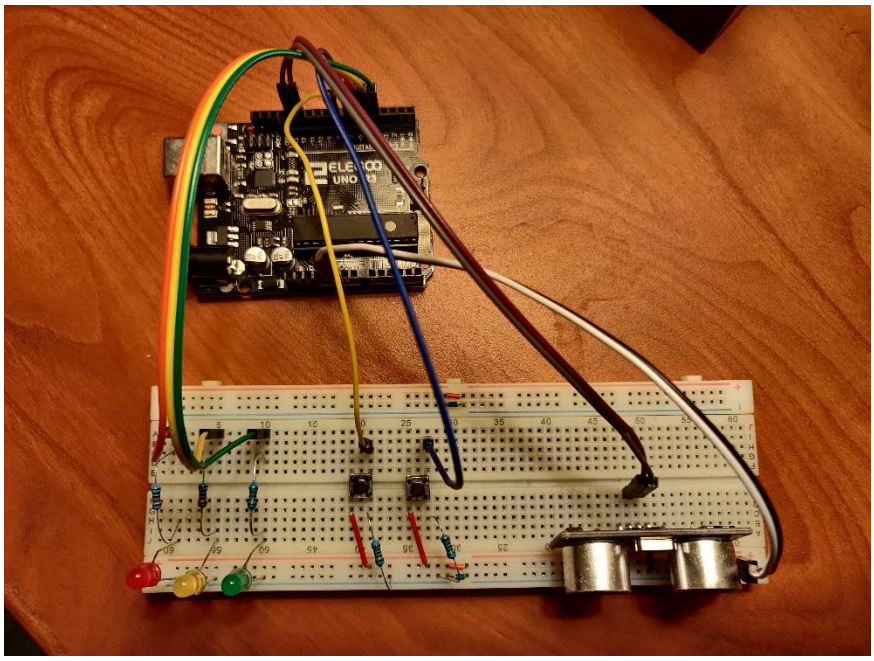
Garage Parking Sensor



By – Calvin Pereira

Github - https://github.com/CalvinJDP

Description

This project is developed to help a person park their car in their garage in the same place every time. Normally people have a tennis ball hanging from the ceiling. However, whenever you need to work on project or organize your garage the tennis ball can get in the way. With this circuit nothing is in the middle of the garage that you have to walk around. There is no need for that silly tennis ball hanging from the ceiling. It is time to move into the modern era.

Purpose

Many garages are tight and small. If a person were to park a minivan in their small garage it would be difficult to make sure the van is not too close to the wall/garage door. If it is too close to the garage door, we run the risk of damaging the vehicle. In other cases, people have cabinets in front of their parked car. We want to make sure that we are not too close to the cabinets so that they are still accessible. This circuit helps the person park their car perfectly every time. It makes sure that the car is not too close to the garage door and not too close to the cabinets or wall.

Components

- 1x Arduino Nano or Arduino Uno
- 1x Green, Red, Yellow LED or RGB LED
- 3x 220 Ω Resistors
- 2x 1k Ω Resistors
- 1x Ultra Sonic Distance Sensor
- 2x Push Buttons

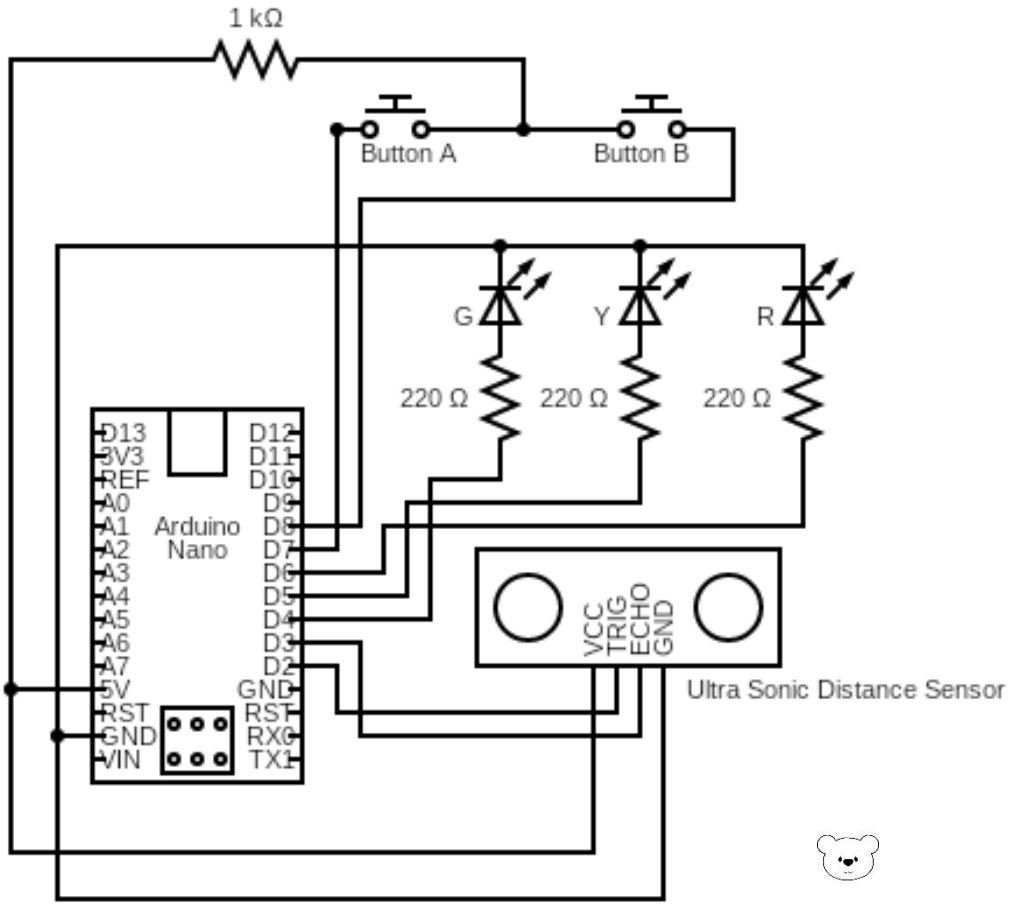
Features

- LEDS that act like a stop light
- Two buttons to change the distance from the sensor and the car

Arduino Pin

- Ultra Sonic Distance Sensor Trig Pin #2
- Ultra Sonic Distance Sensor Echo Pin #3
- Green LED Pin #4
- Yellow LED Pin #5
- Red LED Pin #6
- Button A Pin #7
- Button B Pin $8

Schematic



How to Setup

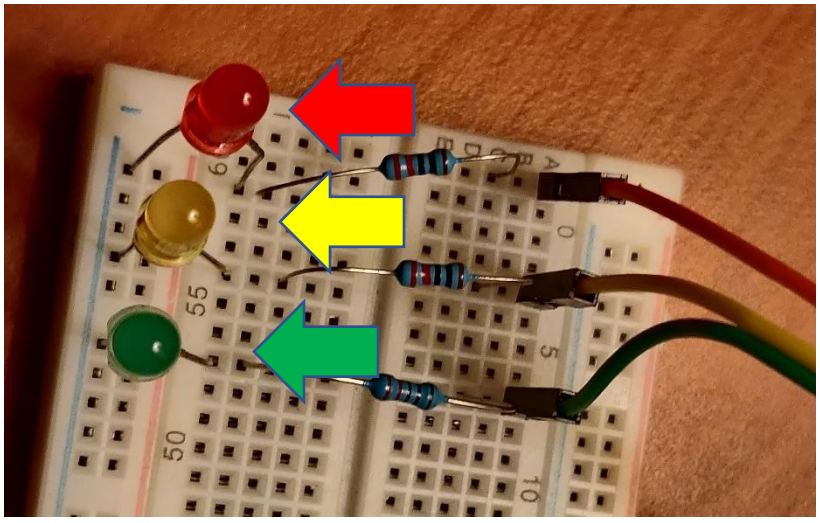
Step 1 - Park your car where you want it positioned.

Step 2 - Set up the sensor so it directed at the license plate or any flat surface on the vehicle. If the sensor is not directed at a flat surface, you will not be able to this circuit. The sensor emits sound waves. When the sound waves hit curved surfaces, they do not travel back to the sensor or the sound waves are delayed.

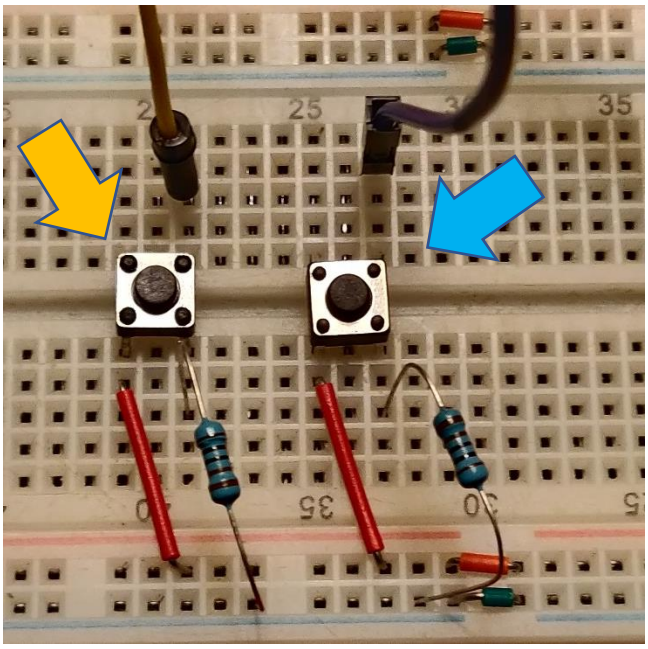
Step 3 - Use the buttons on the circuit to change the distance from the sensor to the car. (Make sure your car is where you want it positioned.) The red led indicates that the car is parked perfectly. NO OTHER LEDS SHOULD BE ON

How to Use

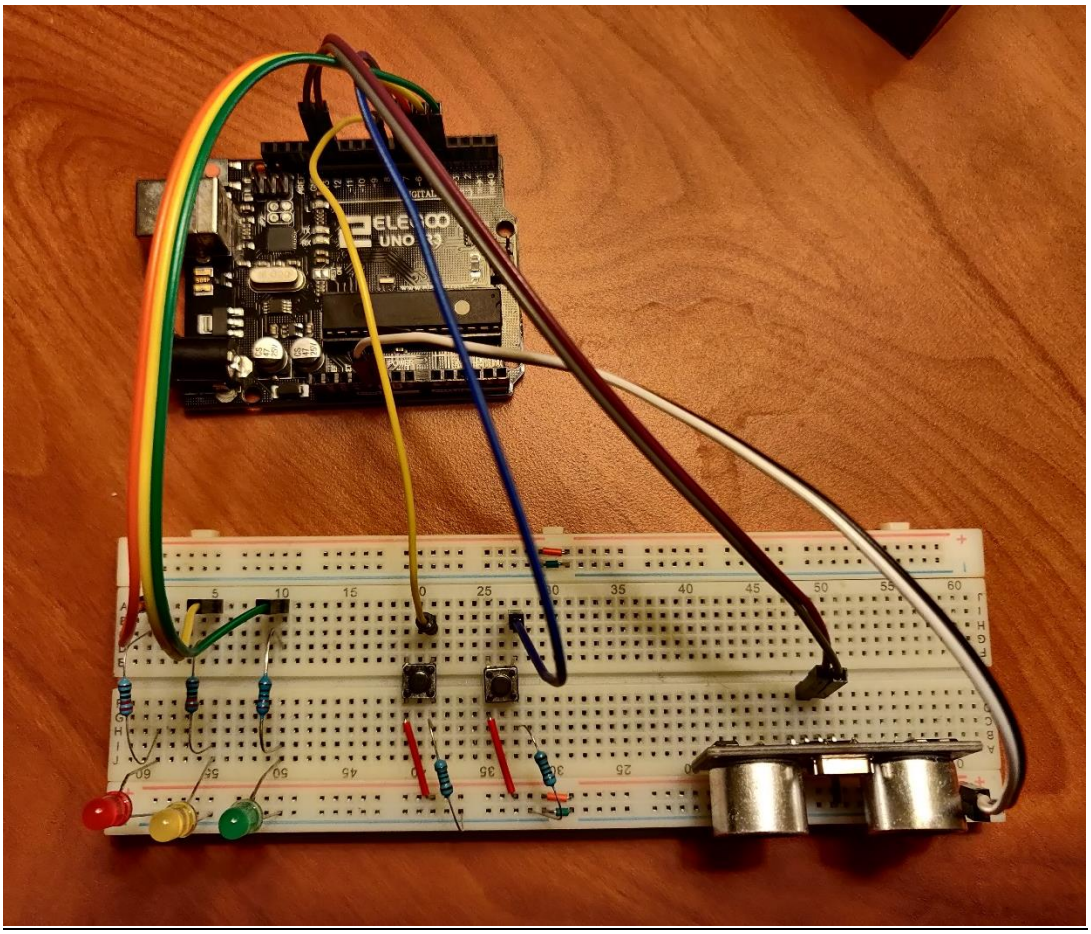
There are 3 LEDS, green means keep going, yellow means almost there, red means STOP, and blinking red means you are too close to the sensor.

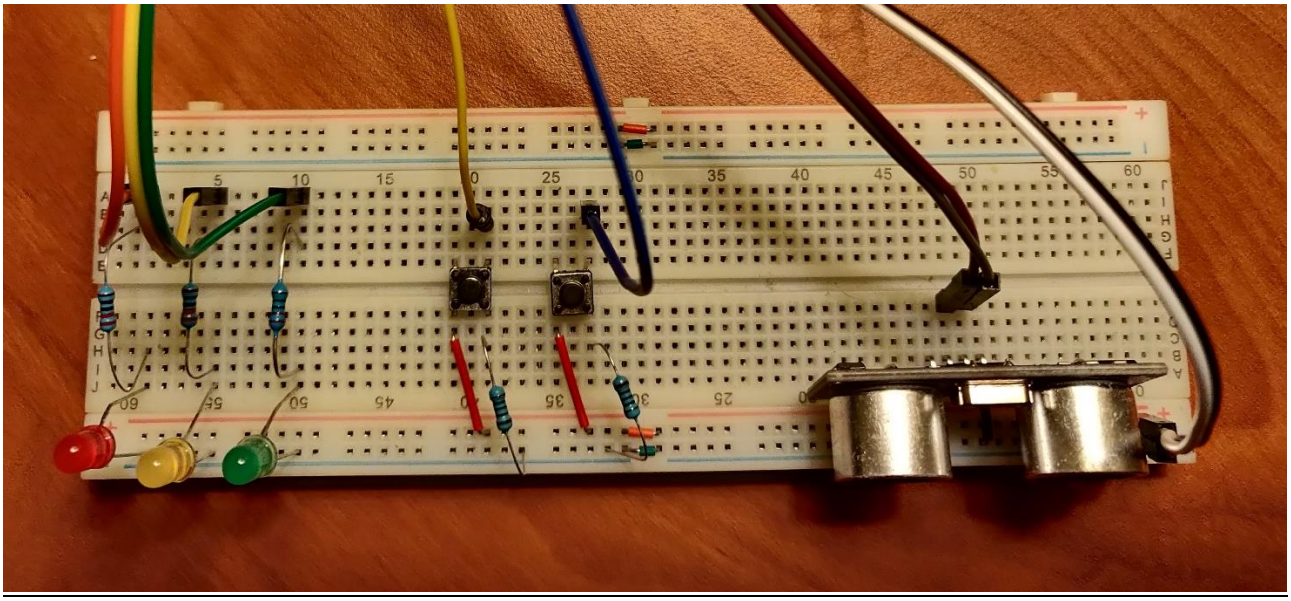


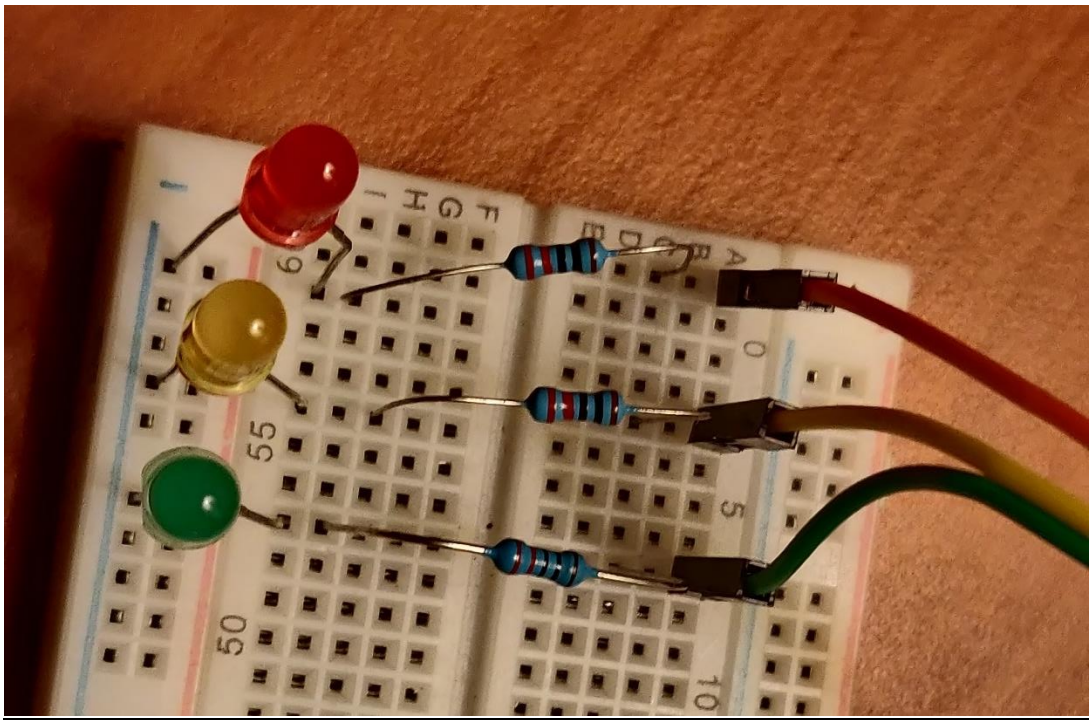
There are two buttons that increase and decrease the distance from the sensor to the car. Button A (right button) increases the distance. Button B (left button) decreases the distance.

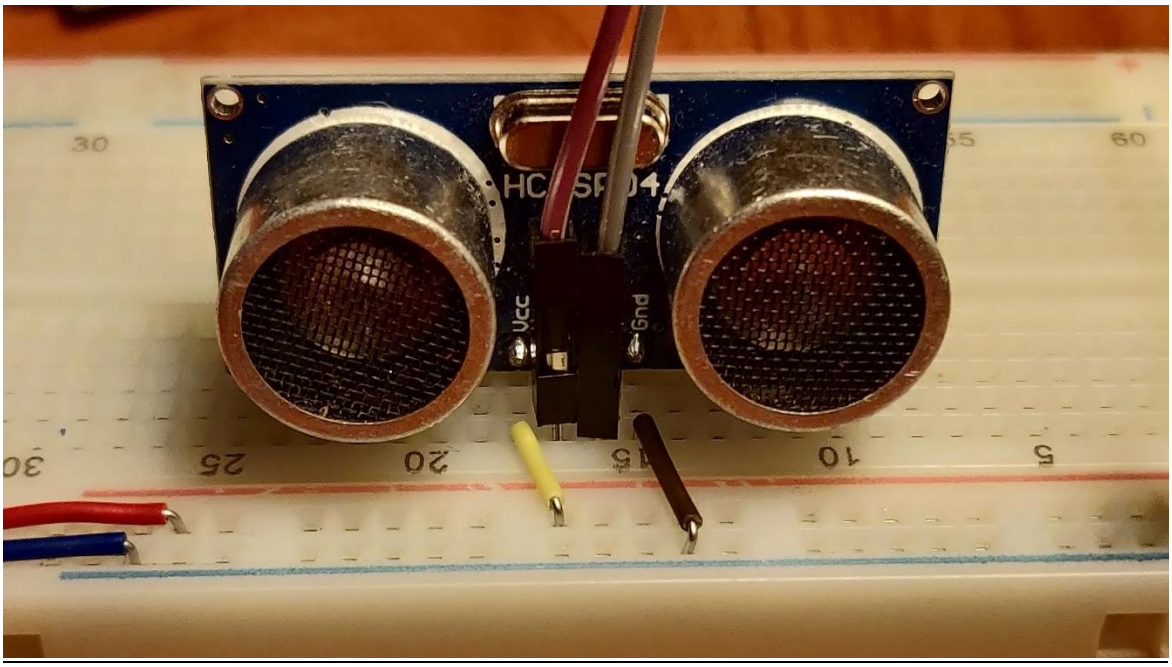


Pictures





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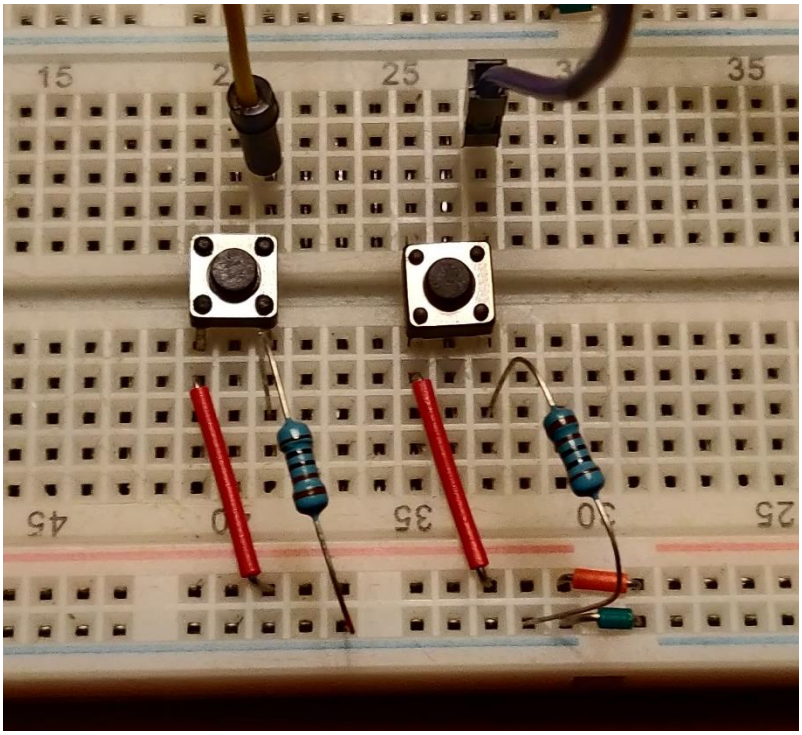
Gnd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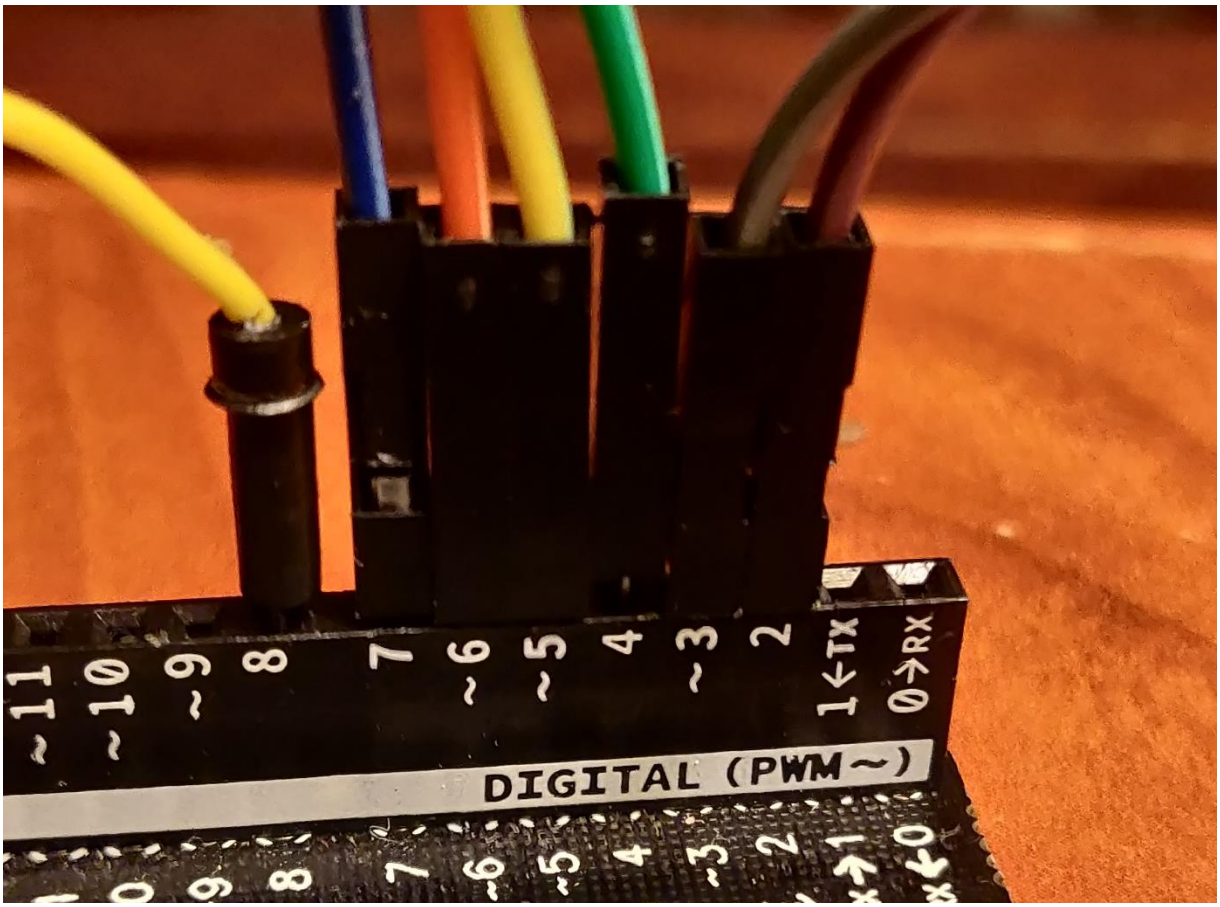
~11
~10
~9
8
7
~6
~5
4
~3
2
1←TX
0→RX
DIGITAL (PWM~)