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Arduino Intro Report

Introduction

I already had experience into Arduino coming into this project, so I wanted to make something that was both interesting to design and combined several sensors. Therefore, after seeing the ability to use an LCD screen and learning about our requirements, I decided I wanted to use a joystick and a button as inputs, which would change output on the LCD screen.

Idea

The idea is using the joystick as a "quick select" of life. For example, one could map the four directions as functions to, "Set Morning Alarm", "Callback Most Recent Missed Call", etc. The button can be used a a panning of modes. For example, there could be a set of four options for general life options, while pressing the button again could bring up work quick select options.

Build Process

These are the parts I planned to use for my project:

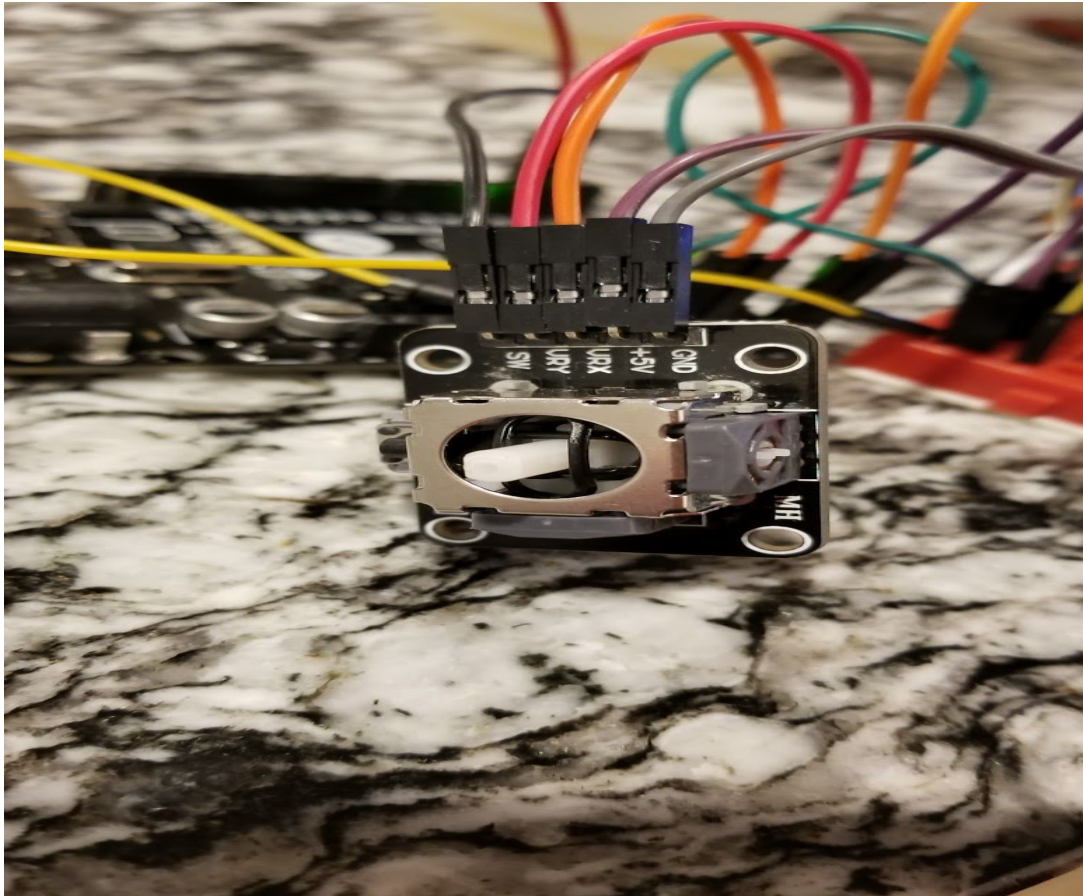
- Arduino
- 16x2 LCD Screen
- Button
- Joystick

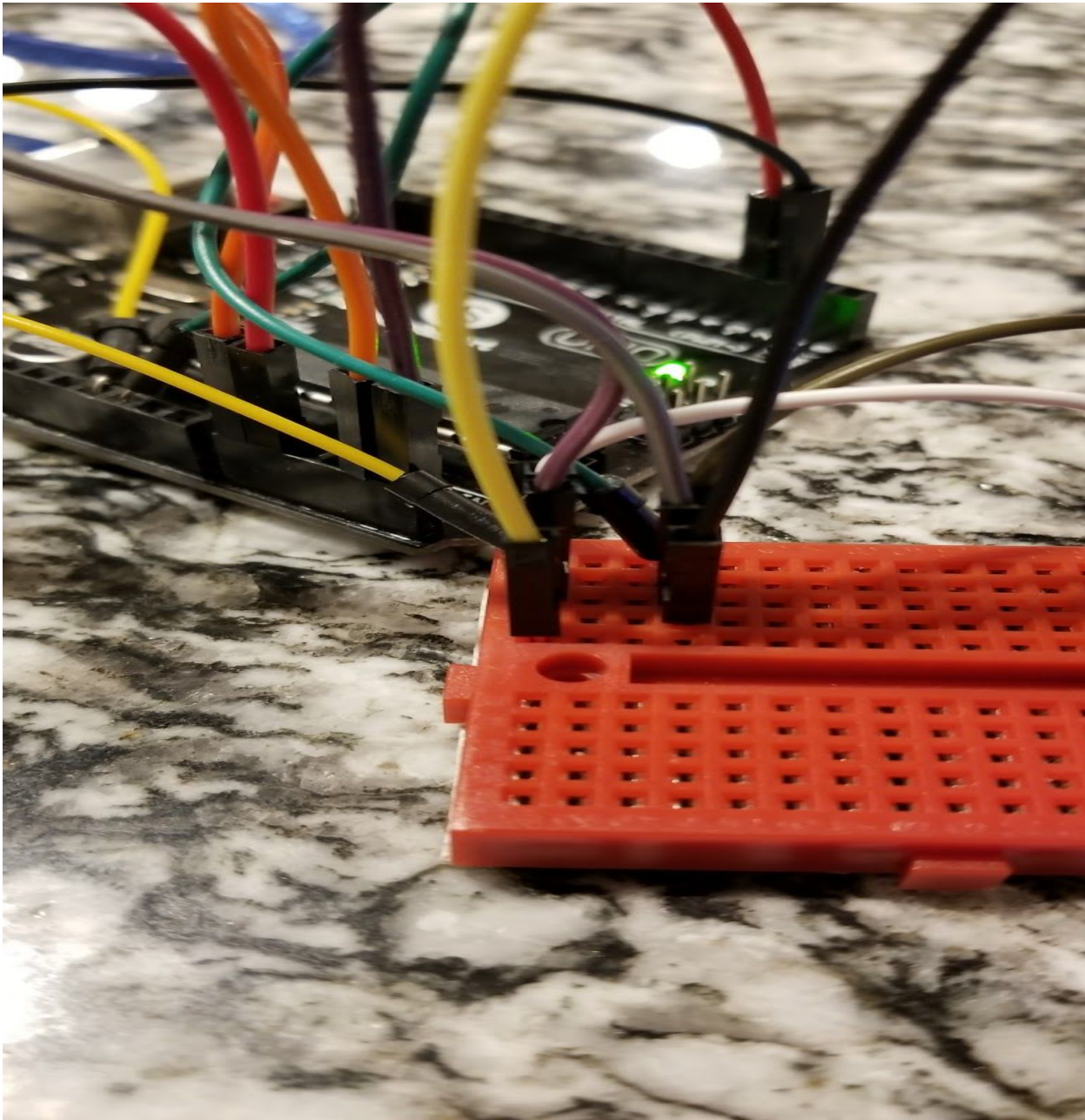
I was most unfamiliar with the LCD Screen, so I tackled that first.



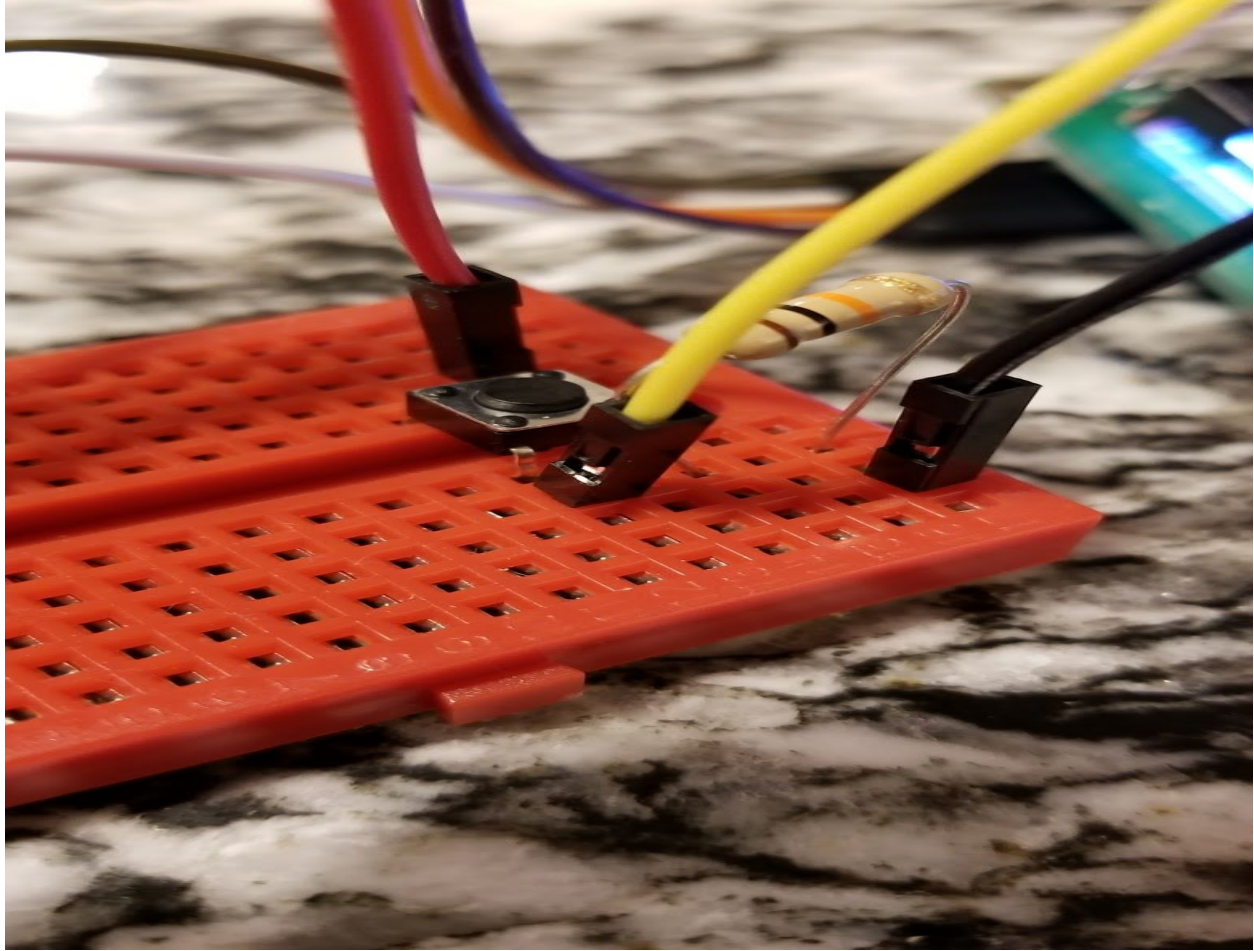
One of the biggest issues in working with the LCD screen was A) Finding the right library to support LCD functionality through the I2C controller, and B) understanding the function of the potentiometer. The original library that comes preinstalled with the Arduino IDE does not support I2C controllers, so finding one that worked was a big obstacle. Once I finally found one, I spent more time debugging until I realized that my potentiometer was too low to display the letters. After I installed the right library and corrected the lighting on the screen itself, I was able to make it work.

Once I got the LCD to work, I decided to work on setting up the joystick functionality. The only thought process this required was how to set it up to provide power to both the LCD display and the joystick module, meaning they had to be hooked up in parallel and on the breadboard.

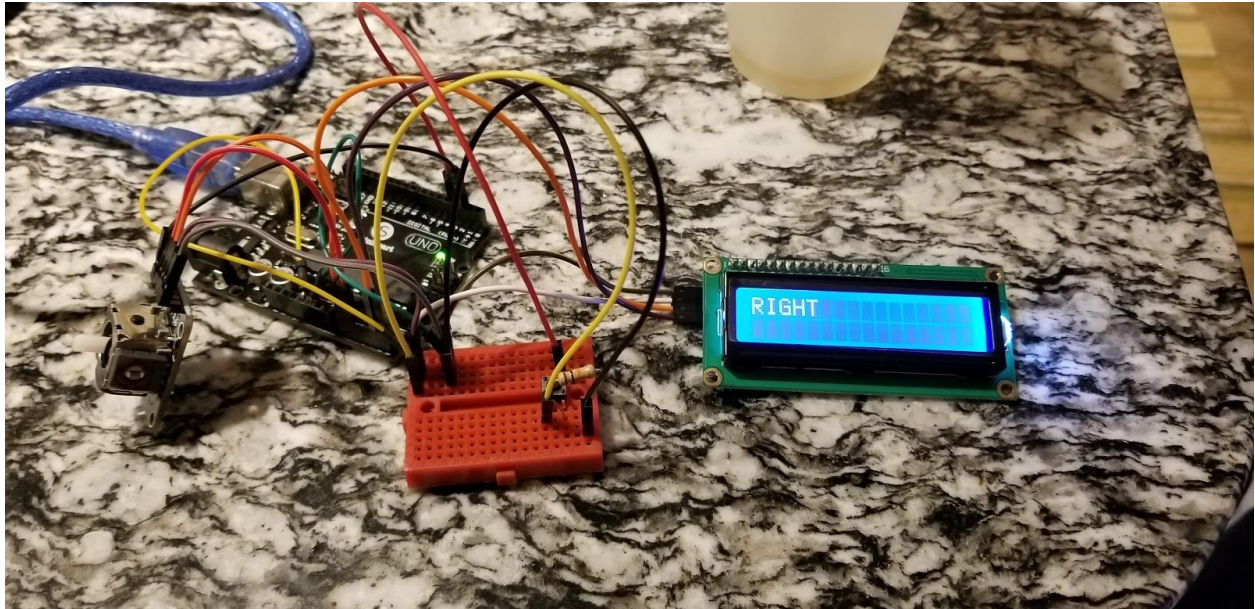




Finally, I set up the button. A resistor had to be added to prevent the button from taking too much power from the Arduino. This button would be used to set which mode you would be on.



Final Product:



Reflection

I enjoyed the project thoroughly, and am looking forward to working more with Arduinos in the future. Much of the learning comes from learning how to use certain modules, as well as learning how to set up more complex systems, since one cannot just attach everything onto the Arduino itself. I like the idea of using the physical environment and writing code around that.