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Github: Francis CSC615 Embedded Linux

Assignment 3 - Start Your Motor

Description:

Press the button to start the program.The program will wait until the button is pressed. Once it is pressed, then the motor will run forward for 2 seconds, then slow down to 15% gradually, then stop for one second, then start slowly and gradually increase speed to max but in reverse (backwards).

Approach / What I Did:

I first wanted to deal with the part of the assignment that I already had experience with ,which was using the gpio pins. I began by wiring the button and testing wheter or not the raspberry pi was registering the input. For this step I used the sample's sysfs_gpio file.

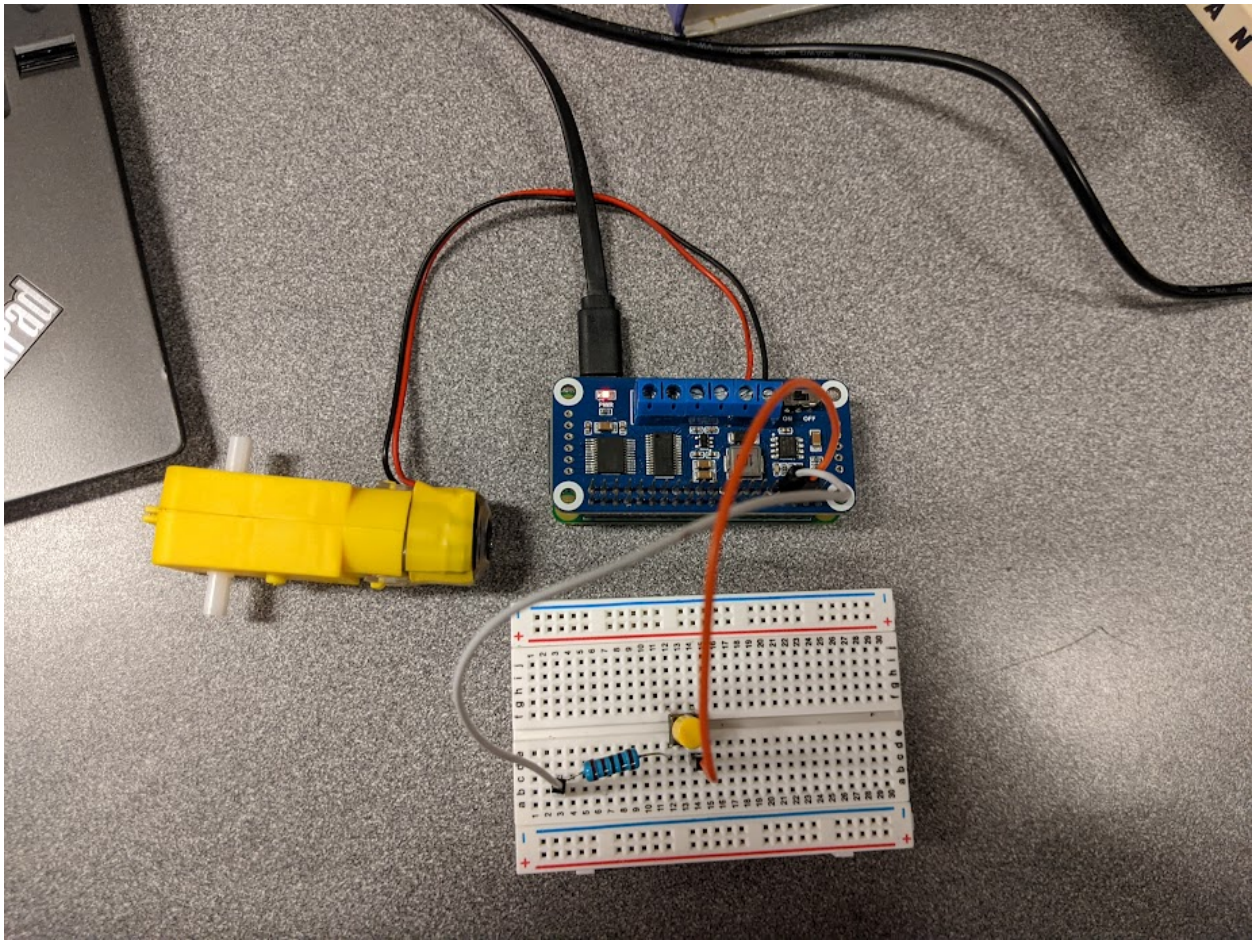
Next, I began to test wheter I could get the motor to run at full power. But using the PCA9685 functions I was able to register the i2c address to the raspberry pi and control the motors power.

From there I simply started the motor, had the program wait for 2 seconds, then in a loop reduce the power of the motor by 15 every second. Then I did the reverse of this process for the second half of the project.

Issues and Resolutions:

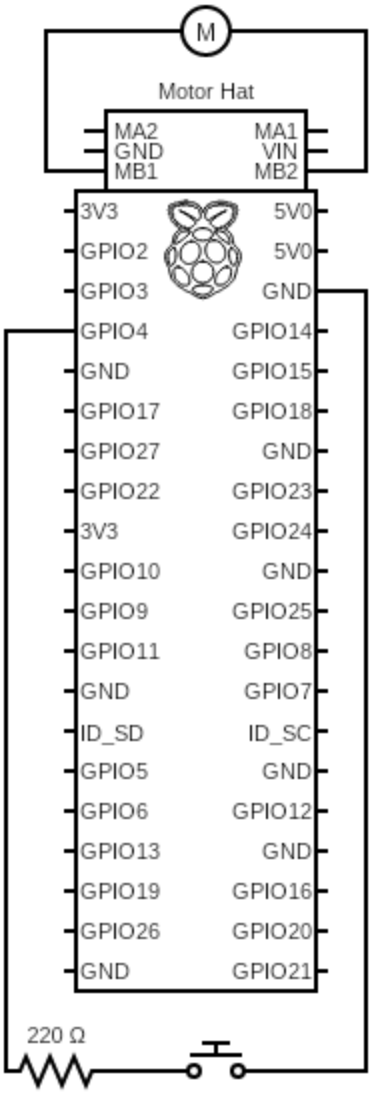
One issue I had from the very beginning was thinking that the motor hat worked just like the gpio pin. I quickly realized that an address was needed so I could even interact with the motor.

Photo of the completed circuit.



Hardware Diagram:

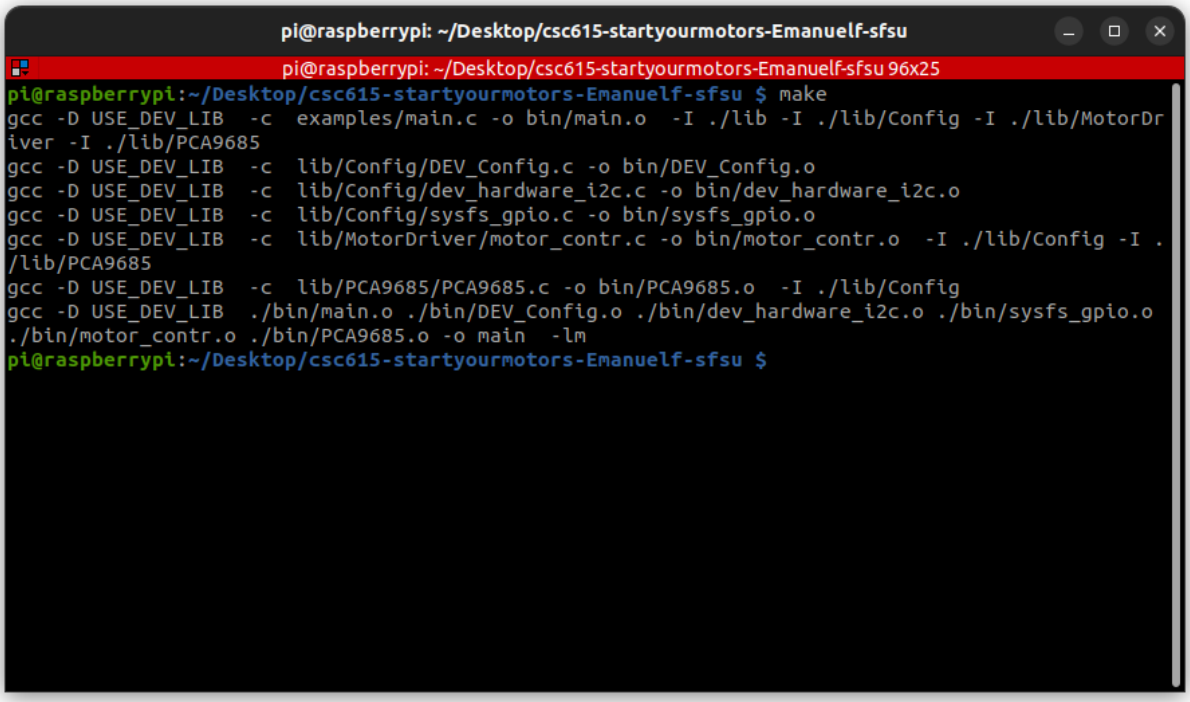
All components must be labeled and values specified and pins used (Physical pin numbering)



Analysis:

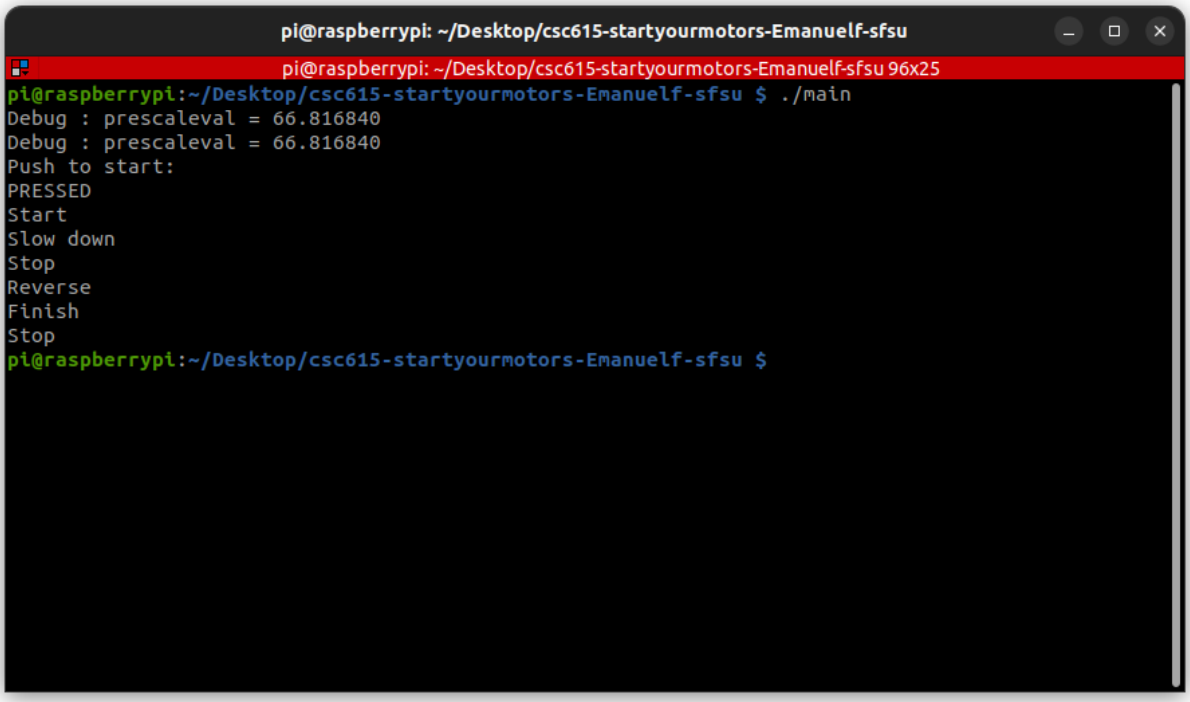
(If required for the assignment)

Screen shot of compilation:



Screen shot(s) of the execution of the program:

Show all necessary screen shots (some assignments require more than one).
These should be in the Terminal window.


pi@raspberrypi: ~/Desktop/csc615-startyourmotors-Emanuelf-sfsu
pi@raspberrypi: ~/Desktop/csc615-startyourmotors-Emanuelf-sfsu 96x25
pi@raspberrypi:~/Desktop/csc615-startyourmotors-Emanuelf-sfsu $ ./main
Debug : prescaleval = 66.816840
Debug : prescaleval = 66.816840
Push to start:
PRESSED
Start
Slow down
Stop
Reverse
Finish
Stop
pi@raspberrypi:~/Desktop/csc615-startyourmotors-Emanuelf-sfsu $