

Assignment 2 – Tapeless-Ruler

Description:

Create a tapeless ruler using a Echo Sensor (HC-SR04). The distance will be displayed in centimeters.

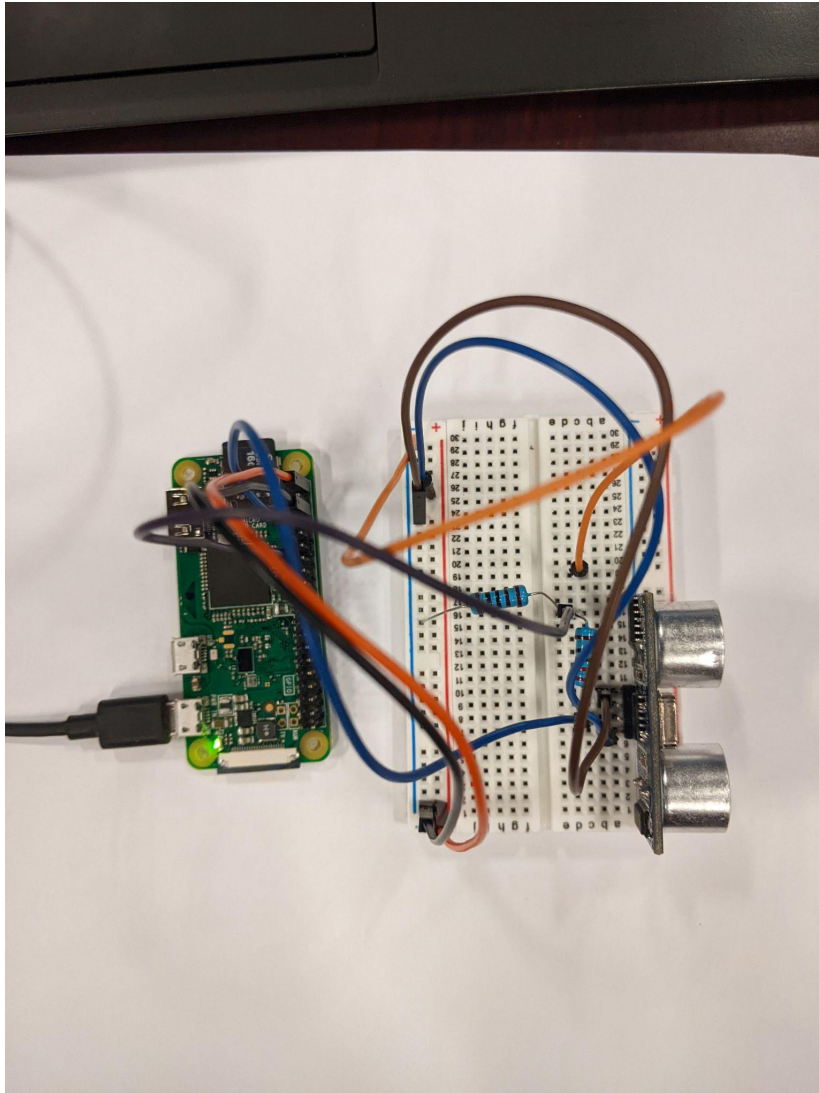
Approach / What I Did:

First thing I did was add power to the bread board. I did this by connecting 1 wire to the 5v pin and one wire to the ground. Next I added power to the echo sensor by connecting positive to the VCC pin and ground to the ground pin. The trigger pin did not require any resistors so I connected it directly to raspberry. For the echo pin I connected it to a 220 ohm resistor and connected an other 1k resistor to ground. In the same row I connected the wire to the raspberry pi.

Issues and Resolutions:

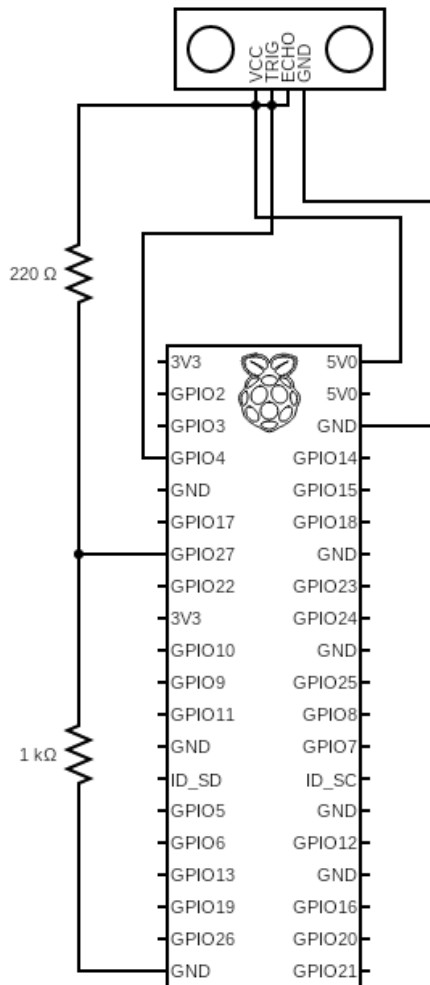
The only issue I ran into was using the wrong resistors for the echo pin. I had attached the 1k resistor to the echo pin and connected the 220 resistor to the ground.

Photo of completed circuit:



Hardware Diagram:

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

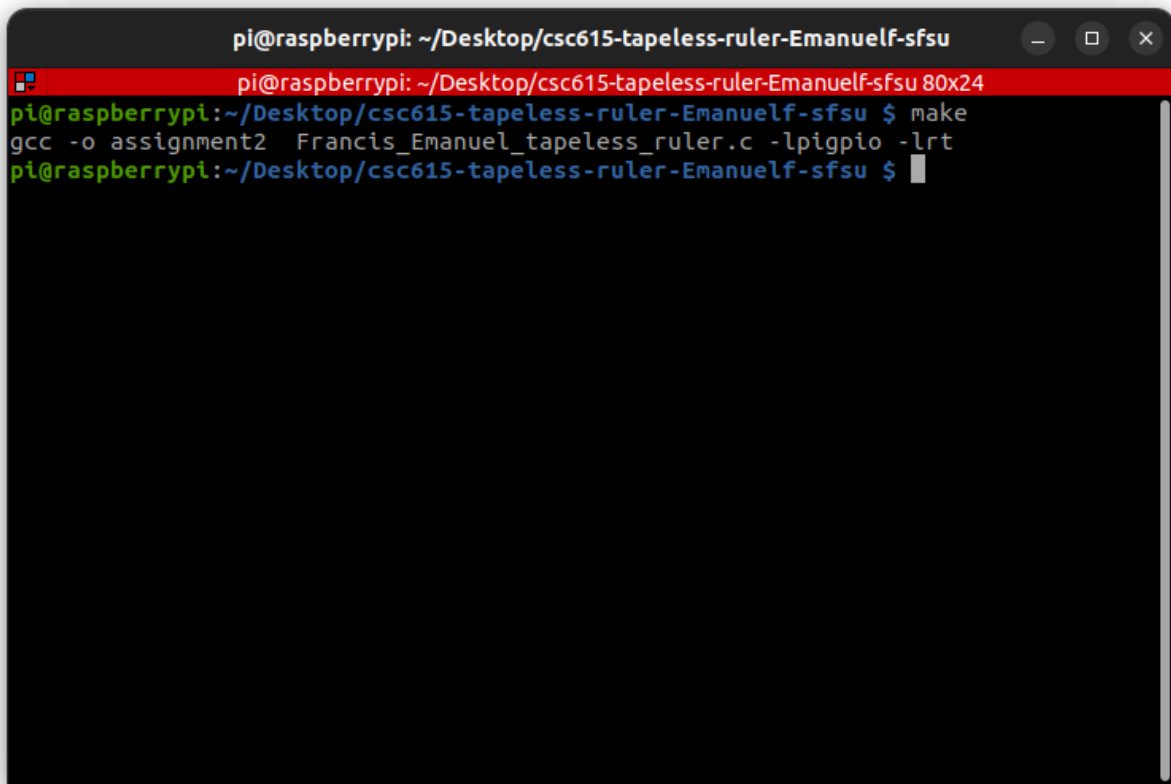


Analysis:

(If required for the assignment)

Screen shot of compilation:

Make sure it is easily readable (i.e. do not cram lots of screen shots on a single page) and that it includes the command and the complete compilation output of gcc. There should be no warnings or errors.

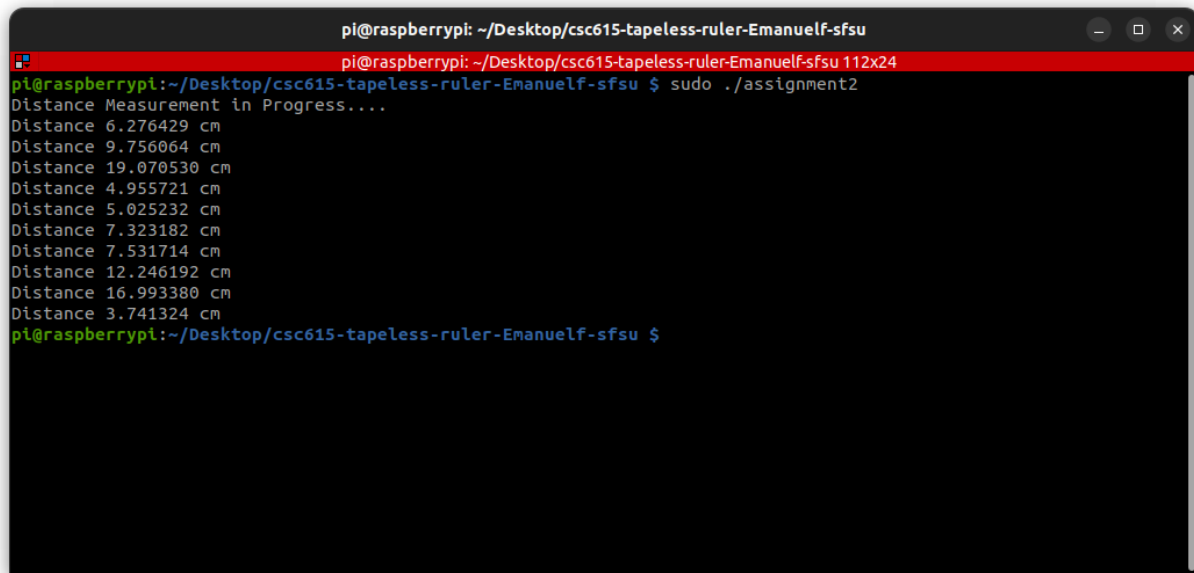


A terminal window titled "pi@raspberrypi: ~/Desktop/csc615-tapeless-ruler-Emanuelf-sfsu" with standard window controls. The terminal shows the following commands and output:

```
pi@raspberrypi: ~/Desktop/csc615-tapeless-ruler-Emanuelf-sfsu 80x24
pi@raspberrypi:~/Desktop/csc615-tapeless-ruler-Emanuelf-sfsu $ make
gcc -o assignment2 Francis_Emanuel_tapeless_ruler.c -lpigpio -lrt
pi@raspberrypi:~/Desktop/csc615-tapeless-ruler-Emanuelf-sfsu $
```

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.

A terminal window titled "pi@raspberrypi: ~/Desktop/csc615-tapeless-ruler-Emanuelf-sfsu" with a red header bar. The terminal shows the command "sudo ./assignment2" being executed, followed by a series of distance measurements in centimeters. The prompt "pi@raspberrypi: ~/Desktop/csc615-tapeless-ruler-Emanuelf-sfsu \$" is visible at the bottom.

```
pi@raspberrypi: ~/Desktop/csc615-tapeless-ruler-Emanuelf-sfsu
pi@raspberrypi: ~/Desktop/csc615-tapeless-ruler-Emanuelf-sfsu 112x24
pi@raspberrypi:~/Desktop/csc615-tapeless-ruler-Emanuelf-sfsu $ sudo ./assignment2
Distance Measurement in Progress....
Distance 6.276429 cm
Distance 9.756064 cm
Distance 19.070530 cm
Distance 4.955721 cm
Distance 5.025232 cm
Distance 7.323182 cm
Distance 7.531714 cm
Distance 12.246192 cm
Distance 16.993380 cm
Distance 3.741324 cm
pi@raspberrypi:~/Desktop/csc615-tapeless-ruler-Emanuelf-sfsu $
```