EECS
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Assignment 7 Report

RASPBERRY PI AND MCP3008

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We connected the potentiometer and the ADC to initially test the functionality of the ADC with the raspberry pi. We ran into some issues with our SPI decide not being automatically activated so we had to activate it through the raspi-config menu.

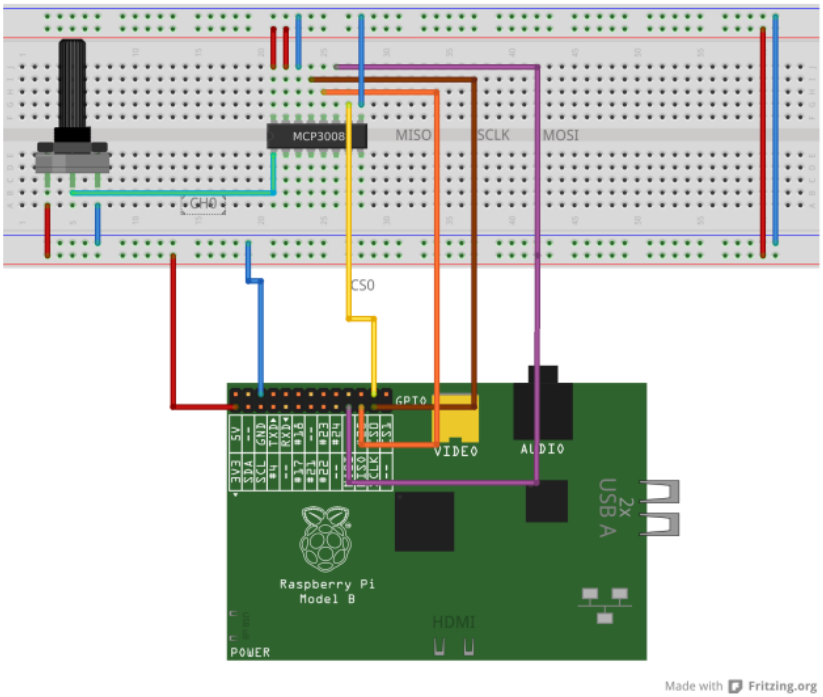

Figure 1: ADC Wiring Diagram

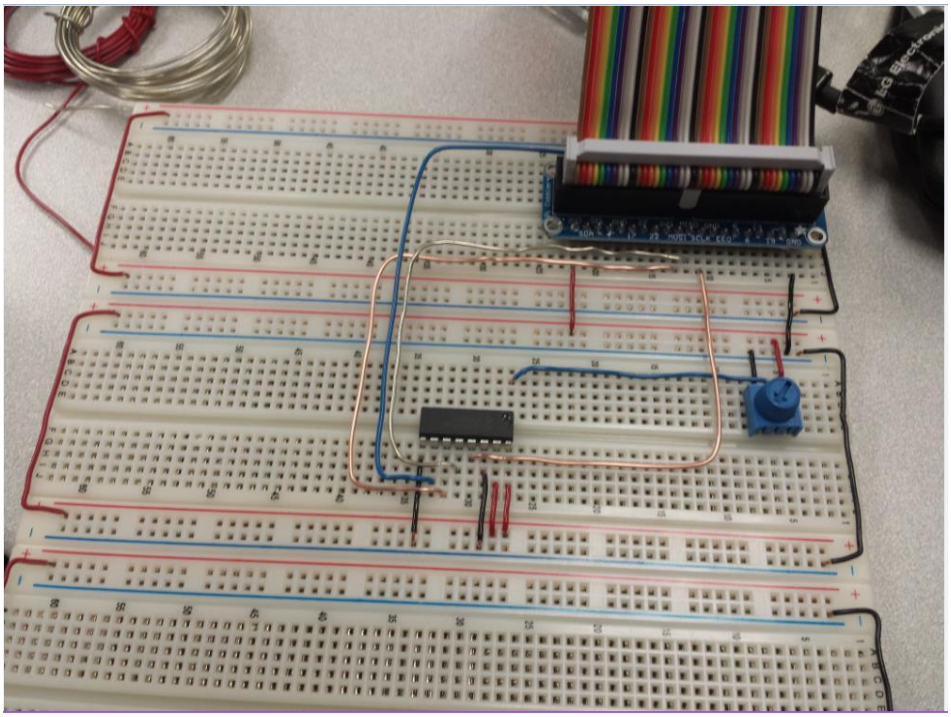

Figure 2: Potentiometer and ADC Wiring

```
MCP3008(CE0,single-ended): analogChannel 7 = 2
MCP3008(CE0,single-ended): analogChannel 8 = 2
pi@raspberrypi ~/project2 $ sudo ./readMcp3008 all
MCP3008(CE0,single-ended): analogChannel 1 = 619
MCP3008(CE0,single-ended): analogChannel 2 = 7
MCP3008(CE0,single-ended): analogChannel 3 = 4
MCP3008(CE0,single-ended): analogChannel 4 = 4
MCP3008(CE0,single-ended): analogChannel 5 = 3
MCP3008(CE0,single-ended): analogChannel 6 = 1
MCP3008(CE0,single-ended): analogChannel 7 = 0
MCP3008(CE0,single-ended): analogChannel 8 = 0
pi@raspberrypi ~/project2 $ sudo ./readMcp3008 all
MCP3008(CE0,single-ended): analogChannel 1 = 775
MCP3008(CE0,single-ended): analogChannel 2 = 5
MCP3008(CE0,single-ended): analogChannel 3 = 6
MCP3008(CE0,single-ended): analogChannel 4 = 7
MCP3008(CE0,single-ended): analogChannel 5 = 7
MCP3008(CE0,single-ended): analogChannel 6 = 7
MCP3008(CE0,single-ended): analogChannel 7 = 10
MCP3008(CE0,single-ended): analogChannel 8 = 11
pi@raspberrypi ~/project2 $ sudo ./readMcp3008 all
MCP3008(CE0,single-ended): analogChannel 1 = 1023
MCP3008(CE0,single-ended): analogChannel 2 = 8
MCP3008(CE0,single-ended): analogChannel 3 = 9
MCP3008(CE0,single-ended): analogChannel 4 = 9
MCP3008(CE0,single-ended): analogChannel 5 = 8
MCP3008(CE0,single-ended): analogChannel 6 = 7
MCP3008(CE0,single-ended): analogChannel 7 = 8
MCP3008(CE0,single-ended): analogChannel 8 = 8
pi@raspberrypi ~/project2 $ sudo ./readMcp3008 all
```

Figure 3: ADC output

After checking the ADC, we proceeded to wire the rest of the components: thermister, light dependent resistor, buzzer and the button to the raspberry pi.

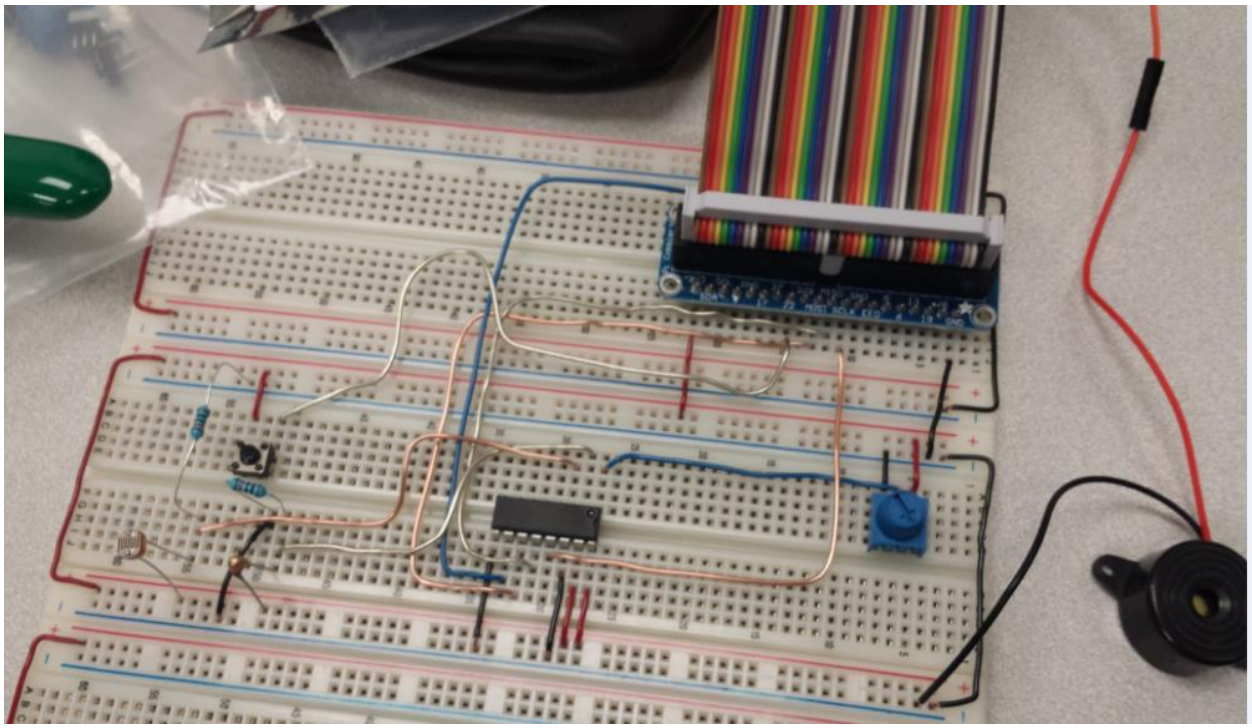

Figure 4: Wiring of All Components

After we tested each component for their reading, we added code to set up a loop that when the button is pressed, the buzzer makes a noise and the readings from the sensors are displayed on the raspberry pi shell. A video of this is included.