

IN620 Embedded systems

Sensor Project



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## Introduction

At first, I wanted to expand on my previous Sensor Project but later decided to do something different. Luckily the tasks in the SIK guide had just what I needed for this assignment. The temperature sensor and the LCD. So, putting them together was all I needed to do with some added extras if necessary. I couldn’t really use previous references as the assignment stated that I had to use only what I had, and he had some sensor projects that used different parts altogether.

## Idea

My project is based on measuring the temperature and how it gives feedback to the user. Using the sensor on the circuit it measures the temperature in the area or room. Feedback is given using the 16x2 LCD. Using the two components the sensor measures the temperature which then displays the data recorded on the LCD. This gives the user an indication on the temperature in the room. I’ve set certain temperatures so when it reaches a certain value a message pops up saying “it’s hot” or “it’s cold”. This indicates when the temperatures get’s too cold or too hot. If neither then “its fine”. Temperature sensors for me has always been used only to display the temperature, that’s it. I always thought, wouldn’t it be cool to have it do something else like notify us when it’s getting too hot or cold. It could be set up in places where it can be adjusted accordingly using the data recorded. But for this assignment it’ll only be used to record and display.

## Design

I basically used the temperature sensor and LCD tasks in order to build this. Only difference being the placement of the temperature sensor itself. The result to me looked like a mess due to the amount of wires placed on the breadboard. If I had a bigger breadboard, I would have spaced them out a bit for more room. An issue I came across when I decided to put the temperature sensor literally in between the potentiometer and the jumper wires. This caused the sensor to overheat, like when I accidentally put it the opposite way. For this I had to move it towards the other end of the bread board.

I would have liked to have used male to female jumper wires in order to have the sensor somewhat mobile so I can pick it up and stick it towards hot or cold surfaces to get a reading. Placing my fingers on top of the sensor in order to get the temperature readings proved time consuming.

Adding LED’s would have been great too. When the temperature gets too hot, red lights will flash and cold temperatures will flash a bright blue. Perhaps in the near future or when I expand on it next time.

## Hardware Choices

* Temperature sensor
* 16x2 LCD
* Potentiometer
* Jumper Wires

Nothing was added for hardware. Although would have liked to have been powered by a power bank for convenience. Rather than having to plug into the laptop every time to get the project working. Once again it was powered using the laptop. Maybe next time try to arrange the jumper wires more neatly. Although this is what most hardware looks like in the background when there’s no covers hiding all the messy stuff.

## Problems

Originality once again was an Issue. I found myself racing against time trying to find the perfect example to build the project. Most had parts that I did not frustrating me at times. In the end I went back to the SIK guide book and found the answer in the form of 2 tasks and putting them together. The coding aspect was more to understand what the code was doing and learning the LCD side of it.

Burning my finger trying to get a reading on the temperature sensor was not a good experience. This was due to installing it the wrong way and placing it in between other components of the circuit.

## Discoveries/Insights

At the end of the project build I found the LCD the most fun part of it. Being able to see your build come to life in front of your eyes was something. I’ve always wondered how LCD works and I got a taste of it. The temperature sensor is something that was rushed and would have been better off planned properly ahead of time. The end result could have been better. All in all it was another fun build.

## References

* Sparkfuncom. (2019). Sparkfuncom. Retrieved 28 April, 2019, from <https://learn.sparkfun.com/tutorials/sparkfun-inventors-kit-experiment-guide---v40/all>
* Sparkfuncom. (2019). Sparkfuncom. Retrieved 28 April, 2019, from <https://learn.sparkfun.com/tutorials/sparkfun-inventors-kit-experiment-guide---v40/all>