

# Report - Advanced Thermometer

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Which functions did you implement successfully?

After countless research on different components and their functionality, I was successfully able to implement all the functionalities from 65%-100%. Overall, I am extremely proud of myself and I want to thank Mr Di lorio for supporting and helping me to exceed my limits and make me a better engineer and programmer.

What mark are you expecting on this summative overall and why?

In the process of wiring and programming this summative, I have worked day and night into troubleshooting and learning about various components that I had to wire in order to make my circuit work. Throughout the code, I made sure that all my variables & functions are commented on and effectively explained in a simplified manner so that the person looking at my code can easily understand the algorithm and procedure of my code. Hence I also added the author's name (myself), date, and a brief description describing the functionality of my circuit and program so that the user has a clear understanding of the functionality of my circuit. Moreover, I also made sure that my circuit is wired neatly so that the user can easily troubleshoot and see the wiring process clearly. Overall, I am expecting to get a 100% on this summative as I have successfully implemented all the functionalities with all the hard work I have put into this project.

**ONLY answer this question If you incorporated the Operational Amplifier (LM358) chip to trigger an interrupt for the A/C fan to start spinning.** What was your threshold temperature? What voltage did you compare the Vout pin on the temperature sensor to? Provide your equations here for your voltage divider circuit as your reference voltage.

My threshold temperature is 25°C

I compared 1.16V from the Vout pin on the temperature sensor to 5V from the arduino power pin.

Equation:

$$V_{Out} = V_{In} \cdot \frac{R_2}{R_2 + R_1}$$

$$1.16 = \frac{5 \cdot R_2}{220 + R_2}$$

$$255.2 + 1.16R_2 = 5R_2$$

$$255.2 = 5R_2 - 1.16R_2$$

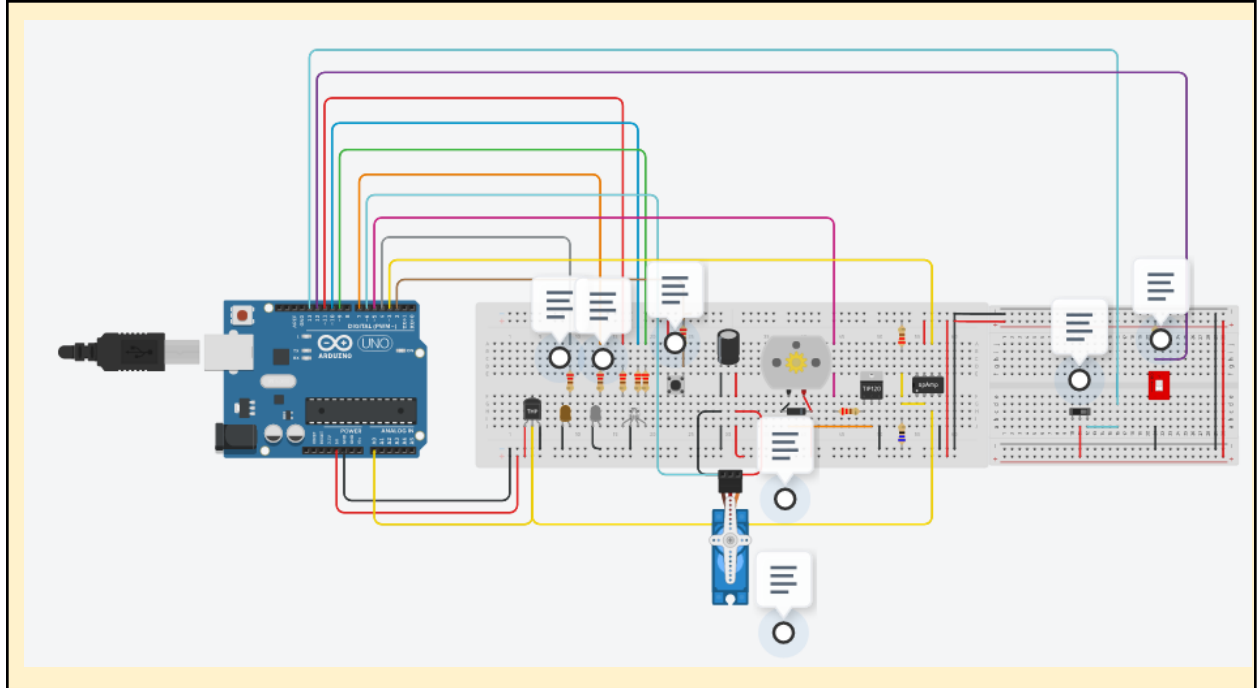
$$255.2 = 3.84R_2$$

$$\frac{255.2}{3.84} = \frac{3.84R_2}{3.84}$$

$$66.45\Omega = R_2$$

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## Circuit:



## Tinkercad Link:

<https://www.tinkercad.com/things/g4KKtEiJxpR-advanced-thermometer-summative-gurpreet-singh/editel?sharecode=RalFFfSvzT5ZqGeiq2qLYF1TWWy4EGia07hm7IFbc0o>