Alexandria University
Faculty of Engineering
Computer and Systems Engineering Dept.
CSE233: Computer Organization

Lab #7-B Report

Temperature Sensor (Fire Alarm)

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1. Problem Statement

Using the LM35 heat sensor to measure the current air temperature and print the readings in Centigrade(ºC), If the temperature exceeds certain limit, a buzzer and LED must turn ON.

2. Code “GitHub Rebo”

GitHub:

https://github.com/Mohamed-Abdalla-Yassen/Computer-Organization-Projects.git

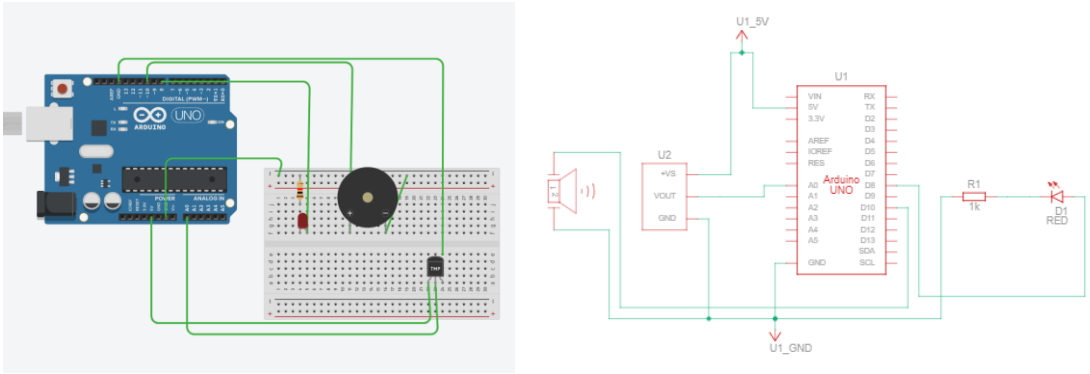
Arduino web editor:

The code is supplied in the zip file.

3. Video “YouTube”

https://youtube.com/@mohamedabdallah5159?si=DVL4HmmriXFDGW0O

4. Schematic diagram



Take Care the diagram doesn’t contain the LM35 sensor as its not available in tinkercad the diagram only shows how things are connected

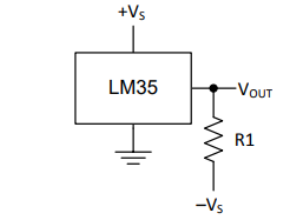
5. Description & Challenges

The Fire alarm system is a piece of concern in every home.
we tried to integrate it using the temperature sensor and heat it slightly using laptop fan, in order for this to work we had to specify a Threshold , the threshold here was 30 °C when the temperature increases beyond that we what to set the alarm and the lamp on so the fire alarm catches the people attention that there is a fire

Challenges:

The challenges that were faced are Two, checking out the voltage relation with the temperature, Our reference here was the paper discussing the LM35 properties.

Full-Range Centigrade Temperature Sensor



Choose $R_1 = -V_S / 50\ \mu A$
$V_{OUT} = 1500$ mV at 150°C
$V_{OUT} = 250$ mV at 25°C
$V_{OUT} = -550$ mV at –55°C

LM35 Precision Centigrade Temperature Sensors datasheet
https://www.ti.com/lit/ds/symlink/lm35.pdf?ts=1764372335169&ref_url=https%253A%252F%252Fwww.google.com%252F

The Second Problem we faced was that the sensor was damaged so we were not able to get the correct result we were anticipating.