PY371 Final Project Proposal:
Computer Temperature Monitor with LCD Display

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The objective of this project is to create a computer temperature monitor which displays the temperature of computer when too high. Additional components such as sound alert as well as light flash alert may be included.

I.   INTRODUCTION

For our project, we decided to modify the temperature indicator proposal that was originally presented. We were hoping to adjust it to make the project a little more useful to the general population, and many of us (if not all of us) own computers. Specifically in gaming PC's, one thing that hinders the performance of our devices is overheating, particularly when our computer is running too many things at once. This can sometimes be difficult to catch, as our computers do not often give us an indicator of when our computers are starting to overheat, only when it has overheated to the point of damage.

This device will have 3 main components: It will have an LCD screen that shows the temperature of the chosen area at all times, as well as a LED light that will flash red if the temperature gets too high. In addition, we are hoping to incorporate a beeping/buzzing sound that will go off when the LED light goes off (when the temperature has risen too high).

II.   LIST OF PARTS

- Arduino Uno
- LCD Screen [1]
- TMP36 Temperature Sensor [2]
- Piezo Speaker [3]
- Jumper wires
- RGB LED

III.   PROJECT DESIGN

This design involves a simple set up which may be altered at any given moments to add new components.

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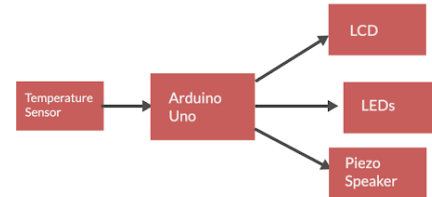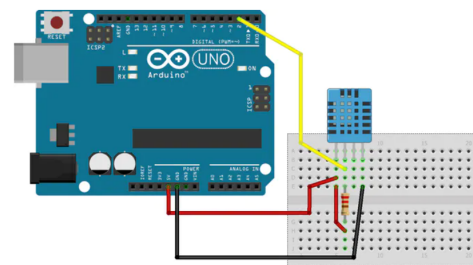[†] rmoshe12@bu.edu

FIG. 1. Schematic

FIG. 2. TMP36 Temperature Sensor Test Run

Implementing this design requires a series of test runs. We begin with referencing past Arduino projects that involves each element of what is needed for this project.

FIG.2. starts the project by testing the TMP36 Temperature Sensor. This step makes sure that the sensor wiring is correct and prints the correct values of temperature of the room before we go on to check the temperature of the computer [4].
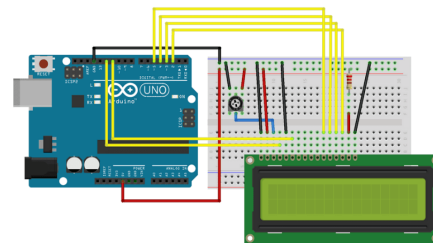

FIG. 3. LCD Test Run

FIG.3. continues by following the same order of operations but now with the LCD [5]. This will assure that

only the desired writings display on the screen.

As for the extra components such as the RGB LED, the construction can be followed by what was learned in class Lab 4.4 [6] and as for the Piezo Speaker [7].
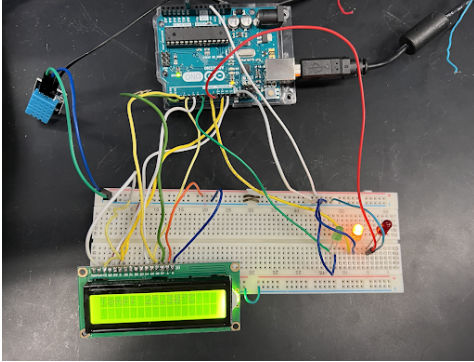

FIG. 4. Combined Components

The final piece to putting the hardware together is combing all these pieces into one breadboard and with one Arduino as shown in FIG.4.

IV. ORDER OF EVENTS

First, we would like to establish a connection between the temperature sensor and Arduino so as to sure that the correct temperature can be achieved. Second, we will proceed with the coding and connect the LCD so as to make sure we have the correct phrases and temperature displayed on the screen.

From here, once we have the correct temperature displayed consistently, we will work on connecting the LED light, and program it to flash red (or whatever color) when a particular temperature is reached. We will then work on programming the speaker/buzzer to do the same.

To extend this, we are considering adjusting the frequency of flashes/buzzes to increase in speed when the temperature continually increases.

V. REFERENCES

[1] LCD Screen https://www.openhacks.com/uploadsproductos/eone-1602a1.pdf

[2] TMP36 Temperature Sensor https://www.analog.com/en/products/tmp36.htmlproduct-overview

[3] Piezo Speaker https://www.arduino.cc/documents/datasheets/PIEZO-PKM22EPPH4001-BO.pdf

[4] TMP36 Temperature Sensor Test Run https://create.arduino.cc/projecthub/pibots555/ how-to-connect-dht11-sensor-with-arduino-uno-f4d239

[5] LCD Test Run https://docs.arduino.cc/learn/electronics/lcd-displays

[6] Lab 4.4 https://docs.google.com/document/d/1kfpnus4ivPLroLpL2Ss$_U$$fpPdeZNlNqVlEdnbrMWvn4$/edit

[7] Piezo Speaker Test Run https://create.arduino.cc/projecthub/SURYATEJA/use-a-buzzer-module-piezo-speaker-using-arduino-uno-89df45