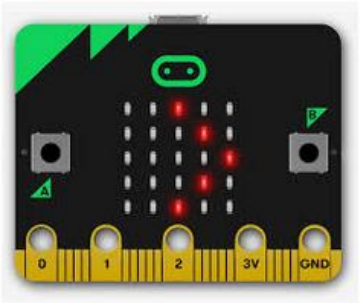
day73 micro:bit temperature
Monday 3/25/24



When you look at your micro:bit on the top side it looks like this image to the right (ignoring the lit up LEDs). Today we're going to do two things:

1. Read data from pin 0 (bottom left in the picture to the right) to tell when or if someone is touching the micro:bit, and

2. Report the temperature

First do part 1:

1. Set up a standard program with "from microbit import *" and a "while True:".

2. Put your name at the top in a comment. Save your program.

3. Under the while True add an if statement "`if pin0.is_touched():`".
   Inside the if statement display a HAPPY face and sleep(1000).

4. Add an else: and in the else display a sad face. Don't put a sleep call on this one. Upload the program.

5. With one hand, hold your device by the GND pin. Then, with your other hand, touch the 0 (zero) pin. You should see the display change from grumpy to happy! Sometimes the board senses you easier than other times; if it doesn't switch, try twisting the board a bit under your grip, ask a neighbor to try your board, etc. I think a lot of this depends upon the humidity and factors beyond our immediate control. Try to limit your gripping to the 0 and GND pins, not all the other pins towards the center.

Part 2 on the other side.

Part 2:

The micro:bit has a built-in temperature sensor. I want you to access that data and report it when the micro:bit is touched. When you finish with part 1, do the following:

1. Change part 1 by adding a an elif before the else:

   ```
   elif button_a.is_pressed():
   ```

2. This is where we are going to access the microbit thermometer. You can access the temperature in Celsius using the call temperature(). For example, to read the temperature and save it in a variable t use this line: "`t = temperature()`". Add code to read the temperature and display it using display.scroll when button a is pressed.

3. Don't add any sleep calls.

4. Once you get this working, copy the entire elif block of code and paste it below, changing the button_a to button_b. In this section, add code to convert the temperature to Fahrenheit before displaying it. Do the calculation (Google the formula, you can do it!) Does the value seem correct? 21 degrees Celsius is about 70 degrees Fahrenheit to give you a specific example. Normally our classroom is most likely in the 70s by the time our class meets. Does it say an appropriate temperature? Get it right. If it says the temperature is 8000 degrees, obviously there is something wrong with your code.

5. Test your program. You should be able to make the smiley face show by holding pin0 and GND, and then see the temperature in Celsius if you press the a button and Fahrenheit by pressing the b button.

6. Show me your program when you are done. Turn the file in on the Google Classroom.