Cambridge Raspberry Jam

Name	
Age	
Parent	

Beginners worksheet #7

|	
Project	Temperature sensor
Description	In this project you will learn how to wire and program a temperature sensor. Let's see how hot the room is.

Tools required

☐ Raspberry Pi SD card	☐ 1 X Red LED	☐ 7 x m/f jumper wires
☐ Keyboard	☐ 1 X Blue LED	☐ 5 m/m jumper wire
☐ Monitor + Cable	☐ 2 x 330 Ω resistors	☐ Buzzer
☐ Power supply	☐ 2 4.7k Ω resistors	☐ Temperature sensor (DS18B20)
☐ Breadboard	☐ Push button	
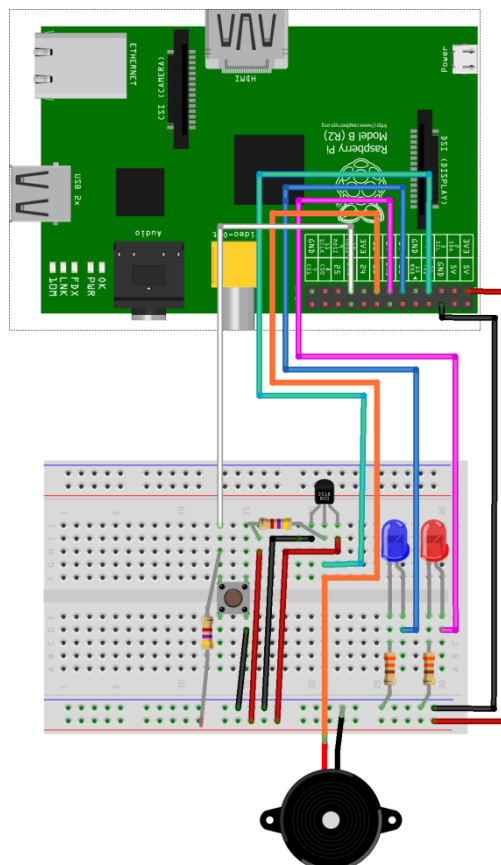
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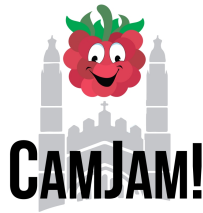
TURN ON THE LEDS "7_temperature.py"

```python
import os
import glob
import time
#initialize the device
os.system('modprobe w1-gpio')
os.system('modprobe w1-therm')

base_dir = '/sys/bus/w1/devices/'
device_folder = glob.glob(base_dir + '28*')[0]
device_file = device_folder + '/w1_slave'

def read_temp_raw():
    f = open(device_file, 'r')
    lines = f.readlines()
    f.close()
    return lines

def read_temp():
    lines = read_temp_raw()
    while lines[0].strip()[-3:] != 'YES':
        time.sleep(0.2)
        lines = read_temp_raw()
    equals_pos = lines[1].find('t=')
    if equals_pos != -1:
        temp_string = lines[1][equals_pos+2:]
        temp_c = float(temp_string) / 1000.0
        temp_f = temp_c * 9.0 / 5.0 + 32.0
        return temp_c, temp_f

while True:
    print(read_temp())
    time.sleep(1)
```
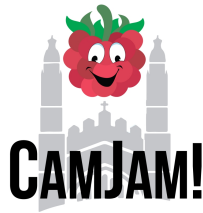
This one is a little different you need to run the following commands before running the code.

1. "sudo modprobe w1-gpio"
2. "sudo modprobe w1-therm"
3. "cd /sys/bus/w1/devices"
4. "ls –l"

```
total 0
lrwxrwxrwx 1 root root 0 Jan 31 20:34 28-000004d50803 ->
../../../devices/w1_bus_master1/28-000004d50803
lrwxrwxrwx 1 root root 0 Jan 31 20:34 w1_bus_master1 ->
../../../devices/w1_bus_master1
```

If you see "28-000004d50803" << this then it's working!!! ☺

5. Change directory "cd Desktop/gpio_python_code/"
6. Create file "touch 7_temperature.py"
7. Enter the code above code
Once complete "Ctrl + x" then "y" then "enter"
8. To run the python code "sudo python 7_temperature.py" << See what the temperature is!