Thermometer

Introduction

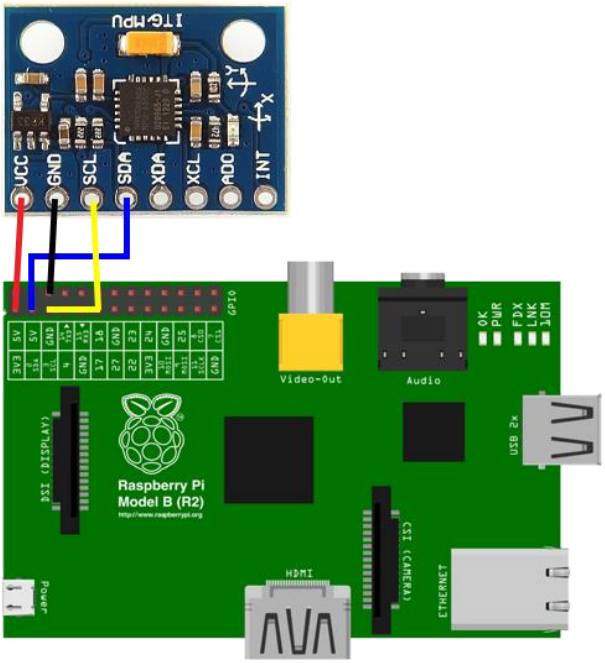
This class uses the I2C interface to connect to a MCU-6050 sensor in order to read the temperature. The class reads the temperature in a constant loop starting from the point the class is initialised.

If you require help with setting up I2C communication, please view our I2C tutorial.

Assembly

Parts:

- MCU-6050 Sensor (or equivalent)
- Jumper Cables
- Raspberry Pi
- Solder (Optional)



Build Instructions:

1. Power Off Pi completely.
2. Attach either crocodile clips to the first 4 connections on the chip. Alternatively solder these 4 connections.
3. Attach VCC (on sensor) to the 3v3 pin.
4. GND to ground on the Pi.
5. Attach SCL to SCL on the Pi (3rd pin down on the left).
6. Attach SDA to SDA on the Pi (2nd pin down on the left).

Exercises

You should also have a class called **ThermometerExercises**, this contains blank or simple methods for you to complete by doing the exercises below:

Exercise 1: After looking at the source of Thermometer you should notice the GetTemp() method. In the exercise class, get tooHot() to return true when the temperature is above the threshold specified and return false when this is not the case.

Exercise 2: Try and combine with the Speaker class. So that when the temperature reaches the threshold a sound is played. You will have to create a Speaker instance within ThermometerExcercises.

Exercise 3: Add another limit for when the temperature gets too cold. Give this limit an arbitrary value. Modify your tooHot() method to check for this new limit too. Rename the method to something more appropriate.

Notes

- Remember, Pi4J using something called WiringPi to manage GPIO pins. This means that the pin numbers do not actually correlate with what is written on the board. Use this website to convert: http://pi4j.com/pins/model-b-plus.html

- Don't be put off if you are having trouble understanding the source of the Thermometer class. This contains a lot of accessing values from registers and converting them into readable form.