

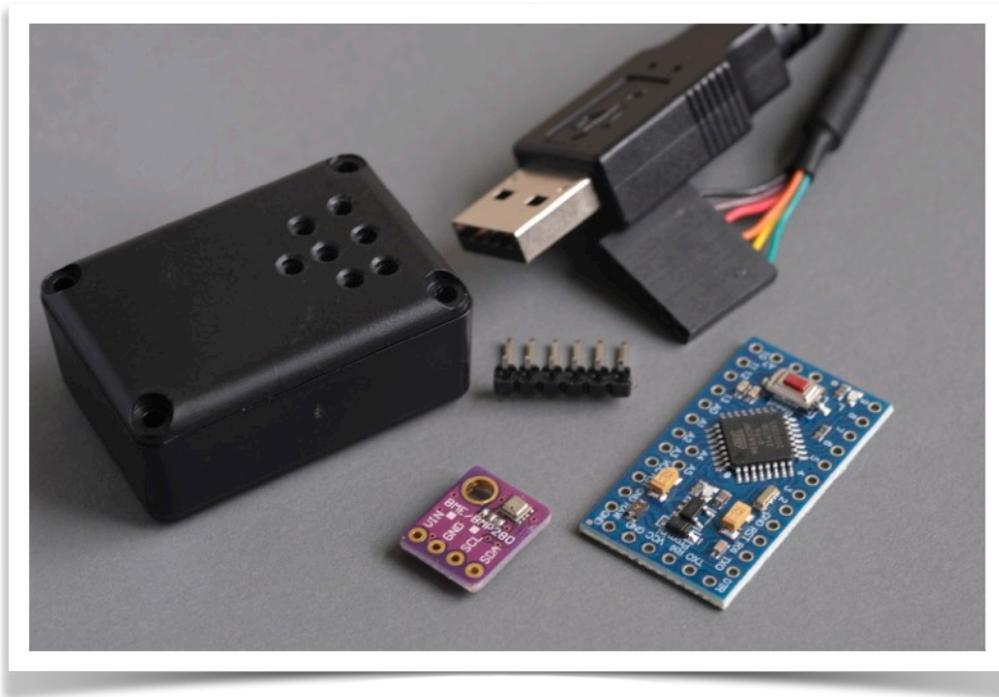
## Arduino Mini-based Environmental Conditions project. V1

This is an excellent starter project, which is not too demanding on soldering or computing skills. I would suggest loading Visual Studio community version (free) to look at the code and give you insights on how these small projects are put together. It is the equivalent of the (now out of production) Blue Astro weather stick by the late Per Frejvall. For the Arduino code, one can either use the (free) Arduino IDE, from their website, or use Visual Studio and load the Visual Micro extension, which has a 30-day grace period.

### Hardware

#### Shopping list

- Arduino Mini Pro board 5V version
- FTDi - 5 V USB-serial cable
- GY BME 380 module (5V)
- Enclosure



This uses an Arduino Pro Mini board, which (compatibles) are still obtainable on Amazon. It was the smallest I could find. Other boards can be used too, as it simply requires a serial port and an SCL / SDA port, present on most boards. It usually comes with a 6-way header (or you can solder direct to the board).

The FTDI cable supplies the serial communications to the imaging computer and power to the board. There are several types; choose one with a 6-way connector. and the 5-volt version.

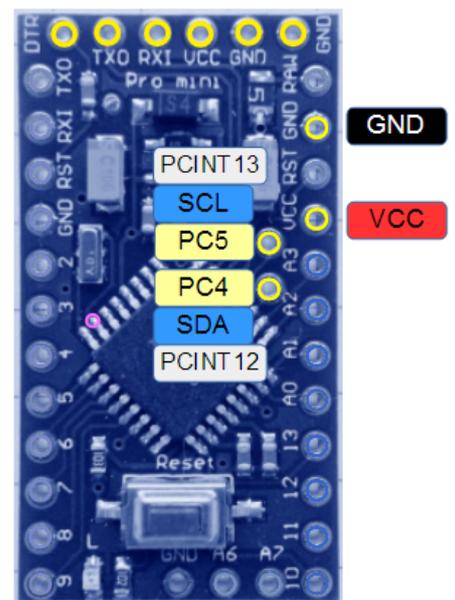
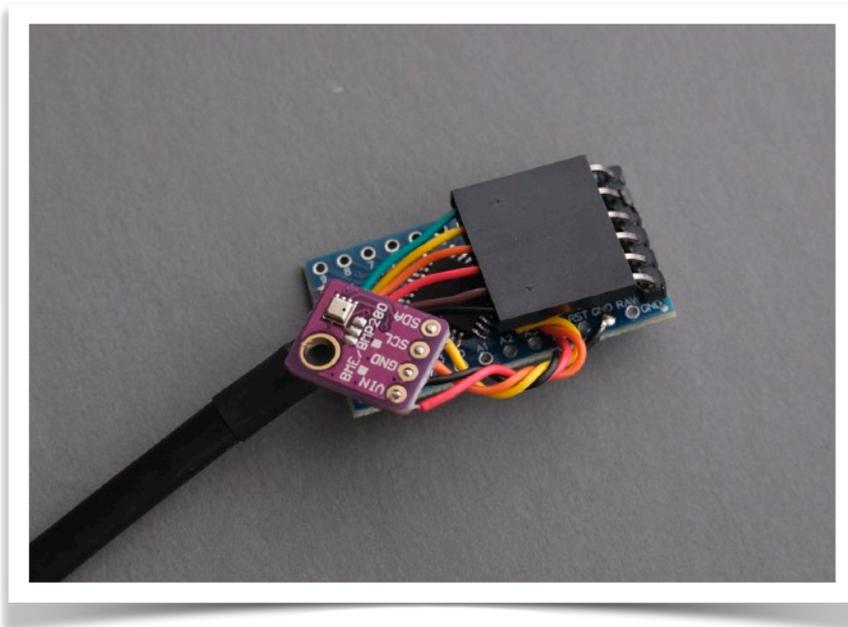
Color	Cable	Arduino
1. Black	ground	GND
2. Brown	CTS	GND
3. Red	+5	VCC
4. Orange	Tx	RXI
5. Yellow	Rx	TXO
6. Green	RTS	DTR

The latest drivers for the FTDI chipset are available from the FTDI's website.

The BME/BMP280 is a tiny sensor and is supplied on a small circuit board, with a four-way connector. Choose the 5V version.

BME board	Arduino Mini Pro
VIN	VCC
GND	GND
SCL	A5 (SCL)
SDA	A4 (SDA)

When connecting the BME sensor board, makes the wires as short as possible.



I put this in a tiny plastic enclosure, which had been perforated with holes to allow airflow throughout.

### Software

The GitHub resources comprise two sets of code. One for the Arduino which, when it is running, outputs a continual data stream on its serial port, and one for the ASCOM environmental conditions driver, which monitors the data stream and converts it to temperature, humidity and pressure. It also does a conversion to give dew point too. Some mounts, like the 10Micron, use frequent updates of these measurements to improve its unguided tracking accuracy.

Enjoy!

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