calibrating the humidity sensors with Arduino for NSW/Atlas

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C++,'Arduinos' {
[the new small wheel]

<and how it all comes together at CERN>

}

What did I do?
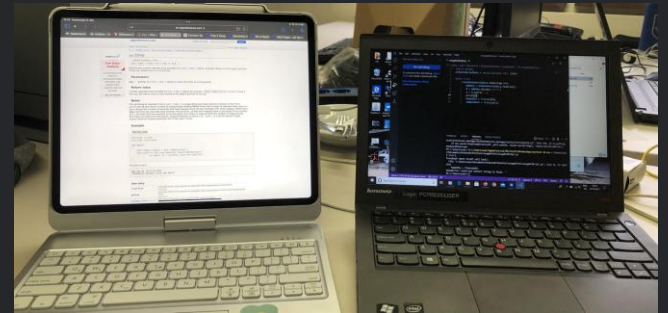
STEP1: understanding what detectors we're working with
{type: gaseous detectors, the new small wheel}

STEP2: learning C++

STEP3: learning how to use an Arduino

STEP4: understanding and using the code for the sensor

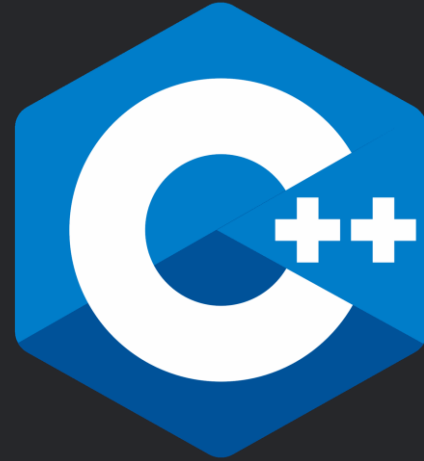STEP5: attempting to work it in Python

What is C++?

'C++ (pronounced "see plus plus") is a computer programming language based on C. It was created for writing programs for many different purposes.
It allows efficient and machine-related programming'

                                        - Wikipedia

Advantages:

*Portability: easily switch from one platform to another

*compiler-based: fast and powerful

*versatile: mid-level programming language

Hello World!

```cpp
#include <iostream>

using namespace std;

int main()
{
    cout<<"Hello World";

    return 0;
}
```

Sorry, what time is it again?

```cpp
#include <iostream>
#include <ctime>

using namespace std;

int main()
{
    time_t TheTime = time(nullptr);
    int n = TheTime;

    while(1)
    {
        TheTime = time(nullptr);
        if (TheTime==n)
        {
            cout<<asctime(localtime(&TheTime))<<endl;
            n = n+10;
        }

    }

    return 0;
}
```

What is An Arduino?

THE MINI COMPUTER

Arduino is a small open-source electronic machine with easy to use hardware and software that allows to make electronic applications.

Has 2 parts: a circuit board and a program.

What can it do?
* read inputs {light on a sensor, a finger on a button, or a Twitter message }
* turn it into an output {activating a motor, turning on an LED, publishing something online}
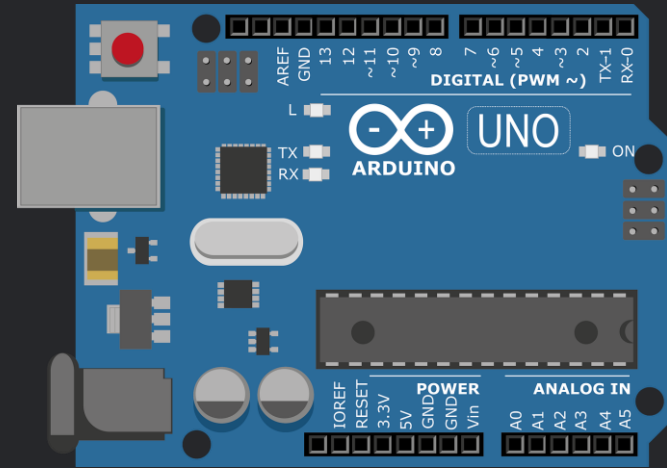
How is CERN a part of this?
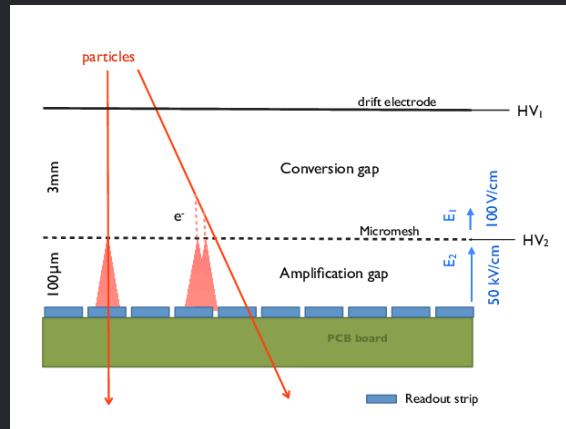
BASICS: 'THE NEW SMALL WHEEL'

structure:
* new small wheel consists of 16 sectors
* each sector has 8 MicroMegas-detectors, and only one
  gas supply line

how it works:

MICROMEGAS:
* muons ionize gas
* electrons drift towards
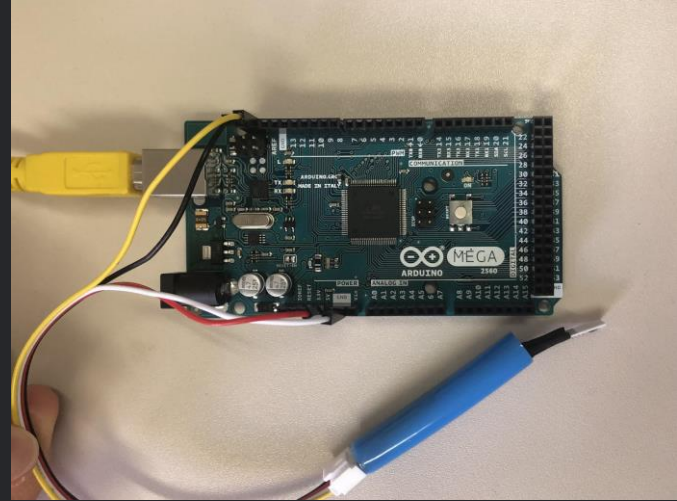anode
* electrons get amplified
(avalanche) and detected

the new small wheel

The sensor and the Arduino

* sensors like this one are to be added to gas supply of the small wheel
* this prototype has sensors connected to Arduinos working via C++
  issue: exporting data

* other possible prototypes:
  Sensor + Raspberry Pi + Python
                or
  Sensor + Arduino + Python

-a demonstration will follow shortly-

Conclusion:
One humidity sensor was tested
for one Arduino.
Further testing has to be
done.

Thanks for listening :)