Weather Station Project

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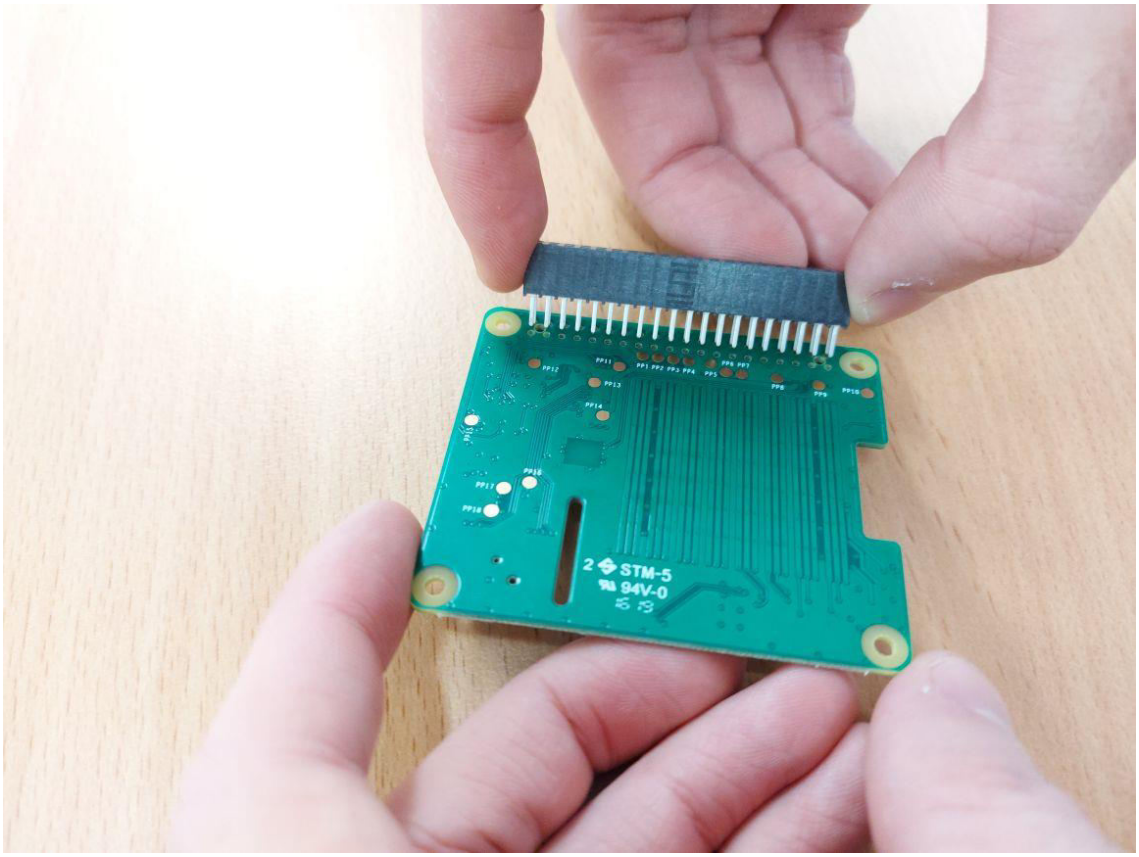
Part one

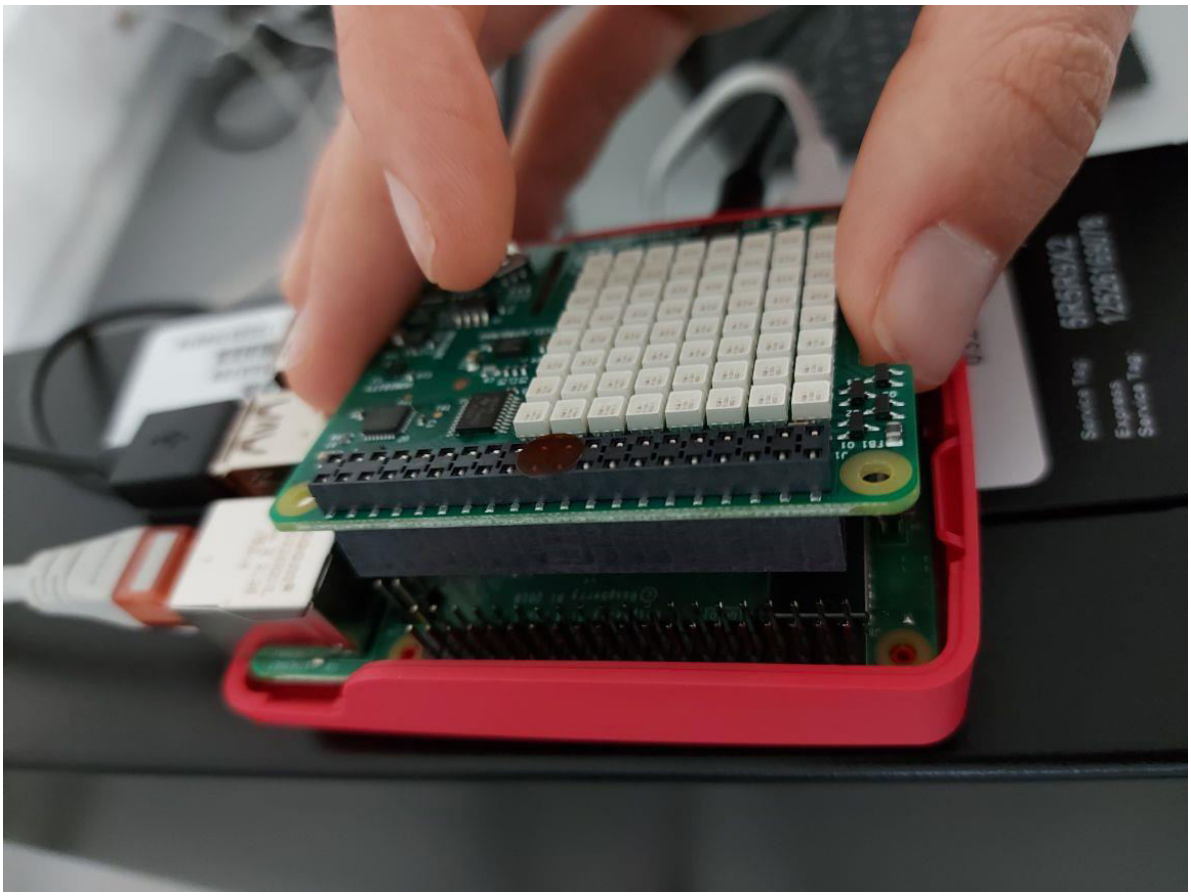
Installation and setup

We first need to install the rasberry pi and connect the sense hat to it to display the humidity, the pressure…



So here is the part that we connect to the sense hat that will link it to the raspberry.

Now, we can connect all the cables such as the USB, the power cable… to the raspberry.

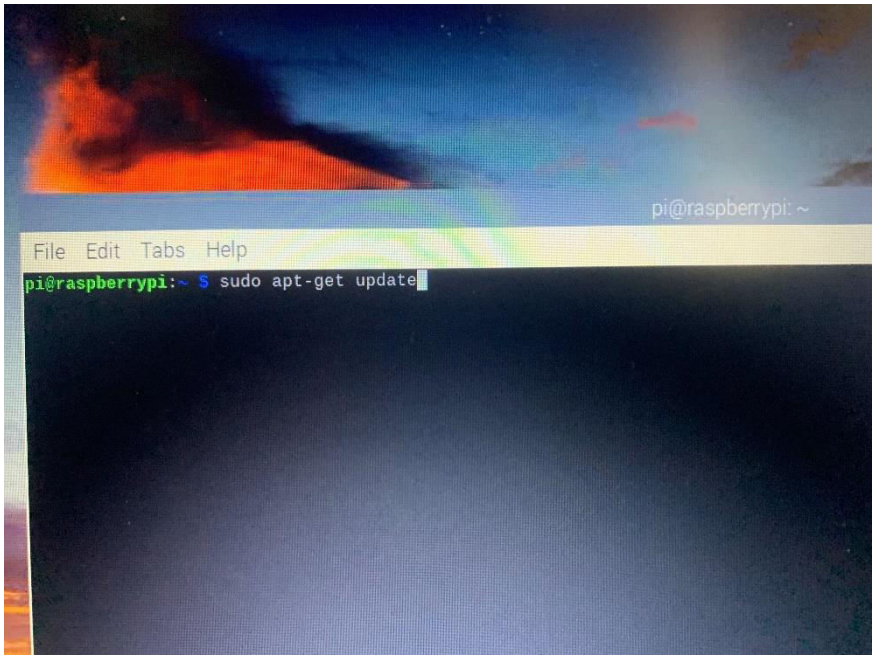


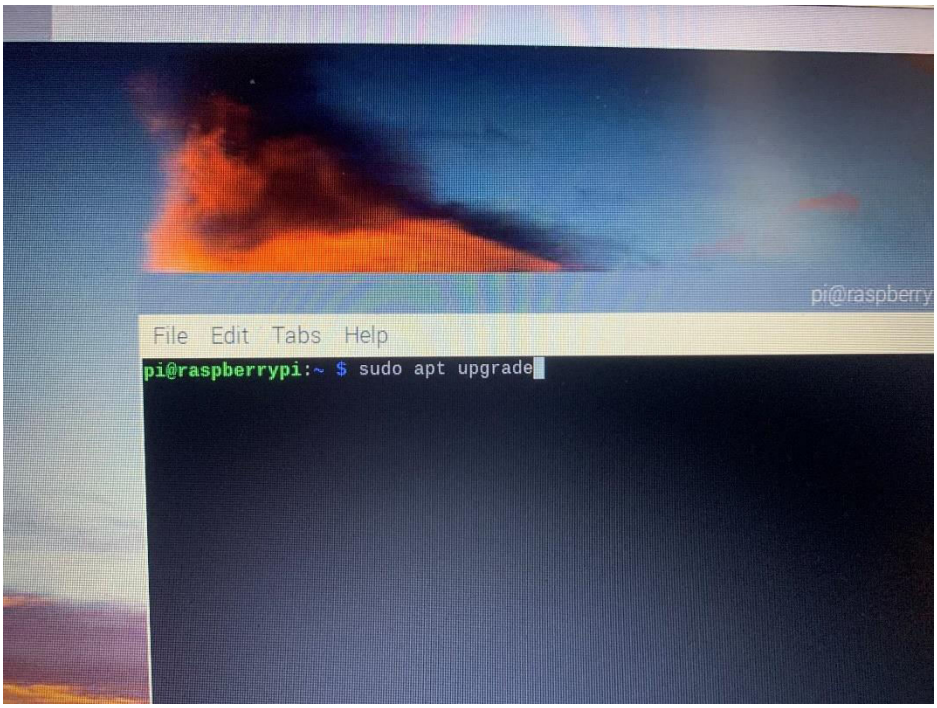
Then, we connect the sense hat to the raspberry pi by aligning each spike correctly and we can now turn on the computer.

Computer Setup

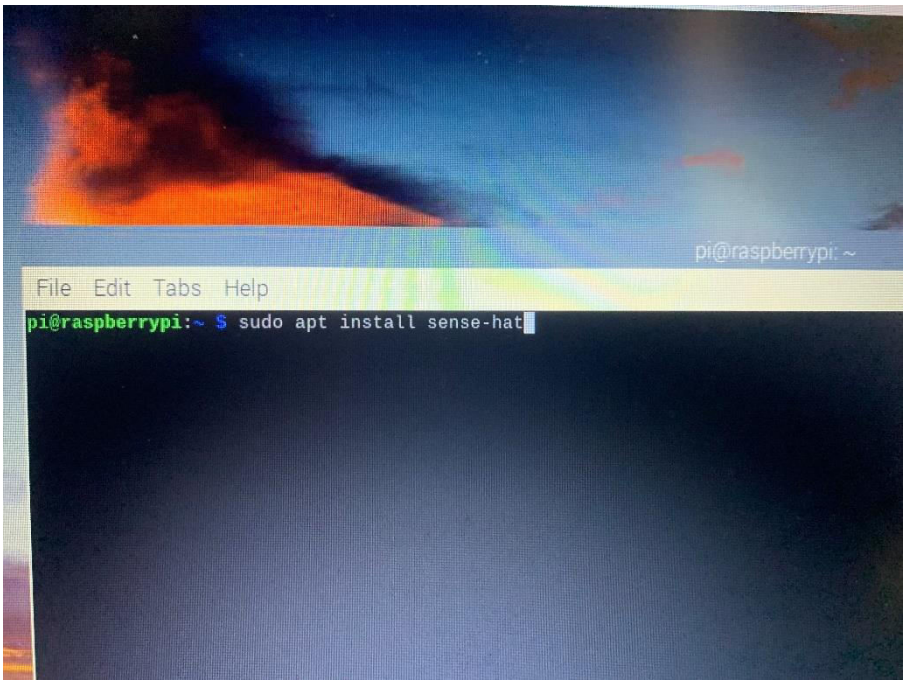
Now that we have installed our sense hat and our rasberry pi, we need to install the sense hat drivers on our rasberry to make it work.

We start by doing some upgrades on our rasberry by executing these lines on a new terminal :



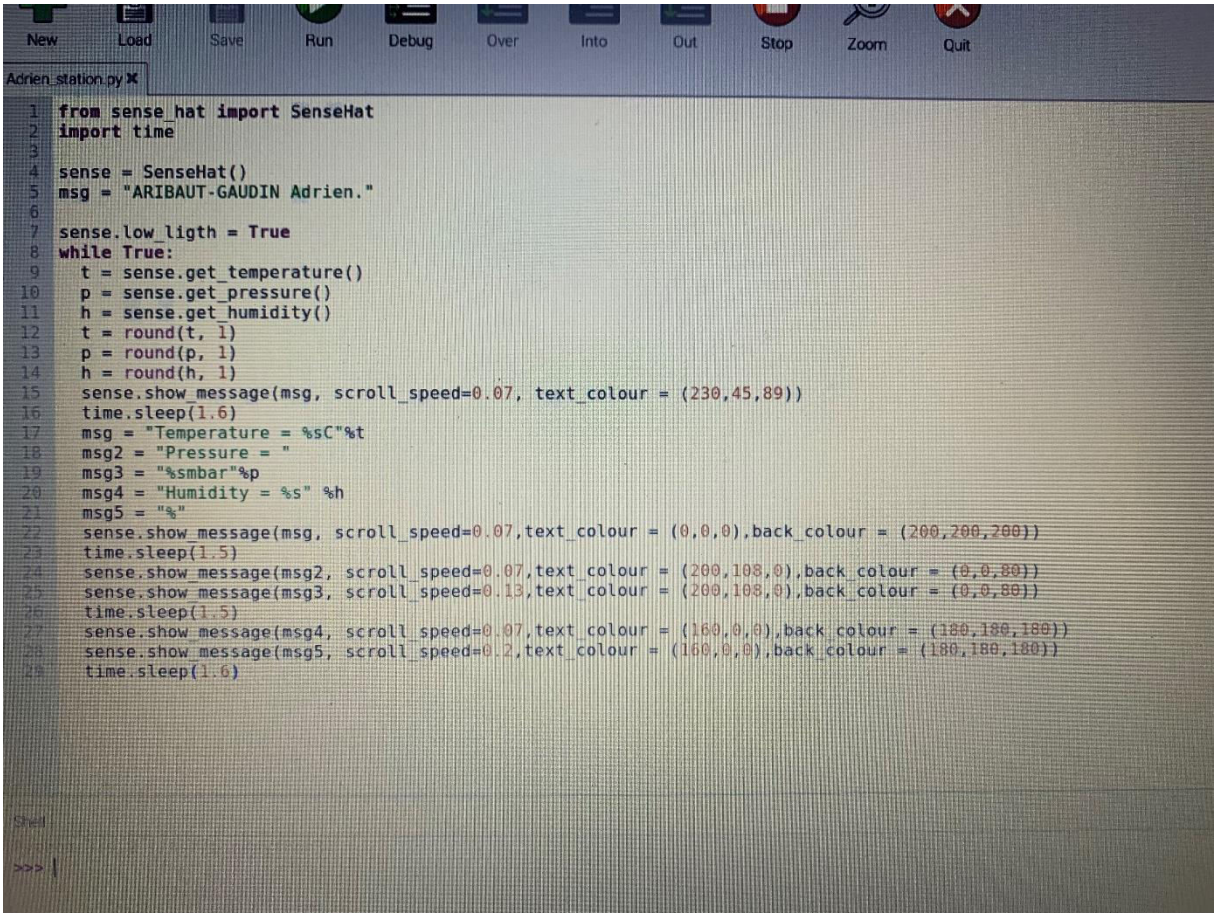


Then, we can install our driver by writing this line :



Now we are ready to code.

The Code



We are going to go through all the code to you to be able to do the same thing :

- The two first lines are mandatory because those allow us to import the library needed to use the sense hat commands.
- Then we define a variable that is the SenseHat named sense.
- We have line 5 the first message I would like to display.
- The line 7 is a command helpful when the light around you is not optimal. It toggles the LED matrix low light mode.
- We do a loop then with the declaration of our 3 variables which are going to store respectively the temperature, the pressure, and the humidity (t,p,h).
- We display our name line 15 by using sense.show_message. In the brackets, we define some options such as the message we would like to display, the scroll_speed, and the text_colour. The format of the text_colour is RGB which means that the numbers represent the red, blue,

- and green component. For example, (255,0,0) is going to display red because there is only the red component which is different from zero.
- Next, we do a time.sleep(1.5) that just wait for 1.5 seconds before doing the next command.
- The next five lines are the definition of the messages.
- We repeat until the end the display process by using sense.show_message and modify the message variable to show the correct one. The only thing that changes is the add of the back_coulour component. Using the same RGB method as text_colour, it changes the background of the sense hat.

We now have finished the first part of the project. A video of the sense hat and the code file are available in the same place as this document.