Libelium Station Sensors Configuration

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For this project, I have decided to use one of BEIA's Libelium Stations. We have configured the station using Waspmote IDE.

Figure 1. Libelium Smart Environment Pro Station

Sensors

Figure 2. Libelium Station with all sensors

- Sulfur Dioxide (SO_2)

- Nitric Dioxide (NO_2)

- Temperature, Humidity and Pressure
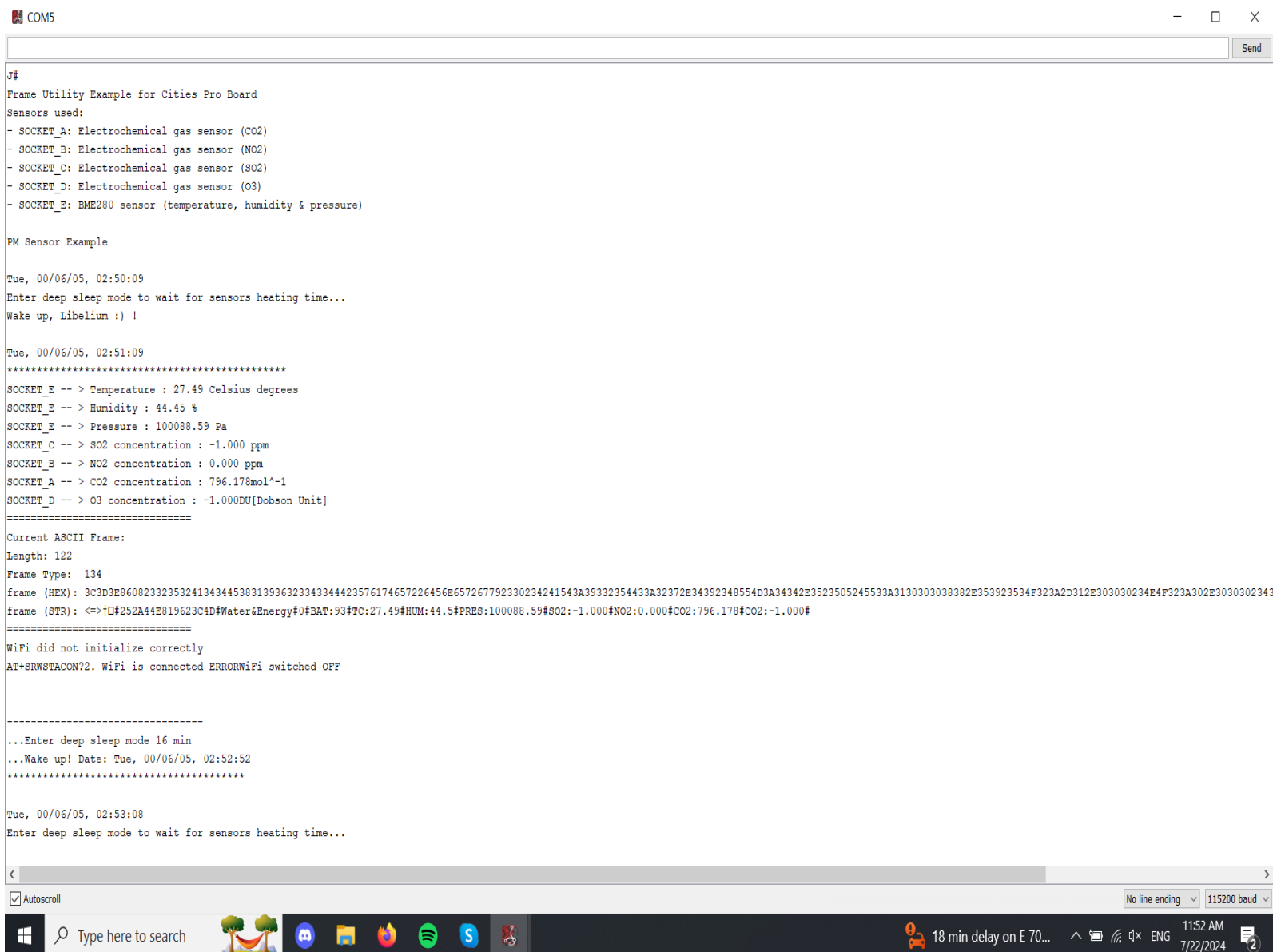
- Ozone (O_3)

- Carbon Dioxide (CO_2)

Figure 3. All sensors used for the readings

Configuration Guide

Firstly, we have installed Waspmote IDE and connected the Libelium Station via USB to a laptop.

Next, we chose the correct port and made sure our station is recognizable. After that, we wrote the code for the sensor readings and uploaded it. The code is on github : Libelium-Station-Code

The readings are in the figure below, we have set up a big delay (5 minutes) to get more accurate values.


```
J#
Frame Utility Example for Cities Pro Board
Sensors used:
- SOCKET_A: Electrochemical gas sensor (CO2)
- SOCKET_B: Electrochemical gas sensor (NO2)
- SOCKET_C: Electrochemical gas sensor (SO2)
- SOCKET_D: Electrochemical gas sensor (O3)
- SOCKET_E: BME280 sensor (temperature, humidity & pressure)

PM Sensor Example

Tue, 00/06/05, 02:50:09
Enter deep sleep mode to wait for sensors heating time...
Wake up, Libelium :) !

Tue, 00/06/05, 02:51:09
***************************************************
SOCKET_E -- > Temperature : 27.49 Celsius degrees
SOCKET_E -- > Humidity : 44.45 %
SOCKET_E -- > Pressure : 100088.59 Pa
SOCKET_C -- > SO2 concentration : -1.000 ppm
SOCKET_B -- > NO2 concentration : 0.000 ppm
SOCKET_A -- > CO2 concentration : 796.178mol^-1
SOCKET_D -- > O3 concentration : -1.000DU[Dobson Unit]
================================
Current ASCII Frame:
Length: 122
Frame Type: 134
frame (HEX): 3C3D3E8608233235324134344538313936323433344423576174657226456E6572677923302342241543A39332354433A32372E34392348554D3A34342E3523505245533A3130303038382E353923534F323A2D312E303030234E4F323A302E3030302343
frame (STR): <=>†☐#252A44E819623C4D#Water&Energy#0#BAT:93#TC:27.49#HUM:44.5#PRES:100088.59#SO2:-1.000#NO2:0.000#CO2:796.178#CO2:-1.000#
================================
WiFi did not initialize correctly
AT+SRWSTACON?2. WiFi is connected ERRORWiFi switched OFF


----------------------------------
...Enter deep sleep mode 16 min
...Wake up! Date: Tue, 00/06/05, 02:52:52
***************************************
Tue, 00/06/05, 02:53:08
Enter deep sleep mode to wait for sensors heating time...
```

Figure 4&5. Output of Waspmote code

The team that made this project possible consists of the next ultra-juniors:

- Văduva Matias
- Catrina Alexandra
- Gușe Ovidiu
- Mustață Carmen

THANK YOU FOR YOUR TIME !