Environmental comfort survey and science-society communication: Development of Micro Sensors – Anna Ramfel

**Abstract**

The Smart Campus+ project aims to construct a microclimate sensing networks to improve individual citizens’ environmental perception and develop urban climate actions based on accurate datas. Thus a first version of the outdoor device, the NTU4AQ sensing unit has been created and implemented on the NTU campus. However, this first version still reported several issues that need to be considered to build a optimized version of this device. The main work of this research internship was to implement a prototype of the NTU4AQ v2, using one single board : the ESP32 microcontroller. Making this choice, the entire hardware but also the software structure of the device had to be rethought. The first step was to make the NTU4AQ v1 sensors, the communication module and storage module work with the new controller and then add new sensors to be able to measure sound level and CO2 level. The other step was to create a functional object-oriented software to combine all the functionalities with a single microcontroller.