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|  | *Internet of Things Lab for Air quality Monitoring (IoT4AQ)*  *International Workshop – Air Quality & IoT-based Air Sensors*  *14-15 March 2024, Alioune Diop University, Senegal* |

Iot4AQ workshop exercises

## Exercises on the PlanTower PMS5003 dust sensor

**Exercise 1:**

Make the hardware connections according to the table below:

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| **PMS5003 pin number** | **PMS5003 pin significance** | **ESP32 GPIO pin number** |
| Pin 1 | Vcc | 5V |
| Pin 2 | GND | GND |
| Pin 3 | Set (suspend mode) | not used |
| Pin 4 | Rx (serial receive) | GPIO 17 |
| Pin 5 | Tx (serial transmit) | GPIO 16 |
| Pin 6 | Reset | not used |
| Pin 7 | NC (not connected) |  |

Install the ESP32:PMS5003 library into your Arduino SDK

Read the PMS5003 protocol message using the readMsg() method provided by the PMS5003 class. readMsg returns a structure of type pms5003Data.  
Print the values received for pm1.0, pm2.5 and pm10  
Print the message header.  
Print the checksum.

**Exercise 2:**

Read the raw data using the readRaw() and print them with printRaw(). readRaw returns a pointer to the raw data contained in the PMS5003 message. You can use this pointer as a parameter to printRaw()

Print the checksum as provided by the protocol message and the checksum calculated over the protocol entries and compare them.