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How to design and test your own low-cost air quality monitor: Part I

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In the framework of the IoT4AQ project, investigations are being carried out to develop and popularize inexpensive and climate adapted monitors. Local parameters including dust concentration levels, weather data, communications systems, and electrical grids have been analysed. IoT components including LCD screens, LEDs, RTC modules, GPRS modules, microcontrollers (Arduino, Raspberry Pi, ESP32, etc.) and various sensors (dust, gas, temperature, relative humidity, etc.) available on market have been assessed and used. The basic design tested integrates a ESP32/Wi-Fi module and a SDS011 nova PM sensor. This configuration has been tested in the laboratory to map its performance. The PM and the temperature/humidity sensors performed well.

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